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Job Loss During the Pandemic: How the Safety Net Mitigated Adverse Well-being Effects

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Abstract

Among life shocks, job loss stands out for its large and persistent effects on life satisfaction. Still under debate is whether its impacts are causal, whether they arise from its economic consequences or non-pecuniary effects (e.g., stigma, loss of social contacts), and the extent to which they depend on prevailing policy. In this study, we track life satisfaction in the periods surrounding the onset of the Covid-19 pandemic for adults aged 50 years and over and describe the heterogeneity of its impacts. Employment and economic experiences strongly determined life satisfaction patterns following the pandemic's start. Those who lost their job in March 2020 suffered the steepest drop in life satisfaction. Among them, those eligible for government benefits recovered after a few months. But those without access remained at lower levels of subjective well-being two years after the pandemic's onset. We find similar patterns using a measure of mental health for both 18-50 years old and those over 50. The lower levels of subjective well-being among the benefit ineligible remain statistically significant two years after the pandemic-induced job losses despite substantial levels of re-employment. While there are differences in the characteristics of those who lost their jobs and those who had access to unemployment, we show that there were no pre-pandemic trends in life sactisfaction in any of the groups. Our results highlight the importance of the safety net to protect well-being from economic shocks and run counter to the interpretation that the non-pecuniary aspects of unemployment are the sole drivers of its effects on life satisfaction.

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JEL codes: J64; I31; J26; J50; I38;

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I. Introduction

A common finding in the rich literature on the determinants of life satisfaction is that the effects of most shocks are temporary. The concept of *adaptation*, that life satisfaction recovers from shocks and returns to a baseline level, has emerged as a central feature in studies of human happiness. In its most extreme form, some psychologists have theorized that there is a "set point" level to which happiness returns after temporary deviations. While ample evidence documents the ubiquity of adaptation, unemployment has been a notable exception.

Several studies have found that unemployment has large and persistent effects (Lucas, Clark et al., 2004; Luhmann, Hofmann et al. 2012). Researchers still debate whether the impacts of unemployment on well-being are causal (Kassenboehmer and Haisken-DeNew, 2009; Daly & Delaney, 2013); and, if so, why it has such relatively large and persistent effects. Some research has argued that the nonpecuniary consequences of unemployment matter the most (e.g., socialization, self-esteem, and stigma (Winkelmann and Winkelmann, 1998; Helliwell and Huang, 2014). In panel data, they observed negative impacts of unemployment that cannot be explained by the reduction in income that it causes. On the other hand, the economic impacts of job loss can extend beyond the income loss during the period of unemployment. Labor economists have documented long-term impacts of job loss on earnings and health.

In this paper, we use monthly panel data from before and after the onset of the Covid-19 pandemic to study the effects of job loss on subjective well-being. Due to the constraints of data availability, our primary results focus on life satisfaction as the outcome variable for those aged fifty and over. By merging in additional data sources, we are able to extend our analysis to include individuals under 50, as well as incorporate a measure of mental distress. We compare outcomes for people who did or did not experience employment shocks in the early months of the pandemic. Among those who experienced job loss, we compare the subjective well-being trajectories of those with and without access to the safety net.

We found that those who lost their jobs in March 2020, especially those not eligible for safety nets such as Unemployment Insurance, experienced the most significant drop in life satisfaction and were also the slowest to return to pre-pandemic levels. Notably, those who lost their jobs in March 2020 and lacked access to benefits reported an average life satisfaction score that was 0.11 points lower (on a 5-point scale) more than a year following their job loss. In contrast, those with access to benefits managed to fully recover their pre-pandemic levels of life satisfaction within just a few months. A consideration of pre-pandemic trends shows no difference across the different groups.

We observed similar patterns when analyzing mental health distress data for both the 18-49 and 50+ age groups. In alignment with the life satisfaction results, the most substantial effects on mental health were observed among those who experienced job loss and were not eligible for unemployment insurance.

Our methodology involves comparing the trajectories of subjective well-being across groups. Our paper has several advantages over prior studies of the effects of unemployment on subjective well-being. The first is our use of higher-frequency (monthly) data on life satisfaction that spans several months before and years after the pandemic-induced economic shock. This allows us to study both

the shock to subjective well-being and adaptation in shorter periods than earlier studies, which typically use panels with observations every one or two years. It also allows us to show that there were no pre-pandemic trends in any of the studied groups. Second, the sudden, fast, and large drop in employment lessens the likelihood that an observed job separation is due to the employees' performance and thus mitigates concerns about endogeneity. Third, given the expansion of the safety net resulting from the government response to Covid-19, many, but not all, displaced workers in the US had access to generous unemployment benefits, which allows us to study the role of the safety net in mitigating impacts of job loss. The temporary expansion of the safety net after the pandemic was unprecedented in recent US history, with increases in the Unemployment Insurance benefit amounts, increases in eligibility (expanded to include, for instance, many self-employed and gig workers), and increases in the maximum duration of benefits. While the UI program was perhaps the essential part for those who lost their job, the three rounds of "stimulus checks" and temporary increases in Child Tax Credit benefits also helped many (but not all) of them.

This study contributes to several strands of literature. First, it adds to the research on the pandemic impacts on life satisfaction and mental health. Several articles, summarized in the next section, study the effects of the Covid-19 pandemic on subjective well-being and mental health, though few with both pre-pandemic baselines and the high frequency of observations we employ (Holingue, et al. 2020; Riehm et al, 2021). Within this literature, our study contributes by providing evidence showing that the strong and persistent effects were concentrated among those who suffer more economically.

Second, the study contributes to the literature on the subjective well-being effects of job loss and unemployment. Many studies on the impacts of job loss cannot plausibly account for the fact that job loss is potentially endogenous to a worker, in that negative events in a worker's life may cause their job loss. However, during the early months of the Covid-19 pandemic, job loss was widespread, with large shares of workers in some industries becoming unemployed within weeks, reducing the potential for such bias. Furthermore, we contribute new evidence to two specific questions that have attracted interest in the adaptation literature. The first is the reason why unemployment has such severe effects on well-being, with two opposing views: that it comes from the financial strain versus that it derives from non-pecuniary impacts of unemployment such as stigma or reduced socialization (Shen and Kogan 2020); (Leopold, Leopold et al., 2017; Winkelmann and Winkelmann, 1998). Our contribution exploits evidence for two types of job losers: those with and without access to the safety net.

Third, our findings are also relevant to the literature on the role of the safety net on well-being. The Easterlin paradox (that increases in aggregate levels of life satisfaction do not usually follow increases in GDP) is well known. However, Easterlin (2021) has also argued that more generous social support systems do improve aggregate satisfaction levels. Our findings support this hypothesis by showing how access to the safety net greatly affected the well-being response to a negative shock.

II. Background and prior literature

Our findings contribute to several strands of the literature, summarized below.

Subjective well-being and mental health during the Covid-19 pandemic. Several studies analyze correlates of life satisfaction and other measures of subjective well-being during the pandemic, though fewer studies use panel data to study the effects of the pandemic. Cheng, Kim et al. (2022) track life satisfaction in Singapore, finding substantial declines in the first months of the pandemic and large but incomplete recovery after that. A much larger literature has aimed to study the impacts of the pandemic on mental health. While the literature is too vast to summarize here, summaries of the literature include Banko-Ferran, Gihleb et al. (2023). A meta-analysis shows a large increase in mental health symptoms at pandemic onset but a significant decrease since then (Robinson, Sutin et al., 2022; Banks, Fancourt et al., 2021). Common findings are that older people are less affected than younger people, women more than men -particularly women with school-age children- and racial/ethnic minorities more than non-Hispanic Whites, e.g. (Holingue, Kalb et al. 2020, Banks, Fancourt et al. 2021, Barcellos, Jacobson et al. 2021, Riehm, Holingue et al. 2021, Nguyen, Anyane-Yeboa et al. 2022). In this paper, our interest is in the effect of job and income loss on well-being and mental health. Several papers have found associations between unemployment and underemployment during the pandemic and measures of subjective well-being and mental health (Lee, Kapteyn et al. 2021, Hellmann, Møller et al. 2023). Fewer papers have considered the combination of job loss and possible income loss. (de Miquel, Domènech-Abella et al., 2022) survey Spanish workers after the beginning of the lockdown and consider a broad array of mental health measures. They find that job loss itself does not have a significant negative effect on mental health, but income loss does.

Adaptation and the effects of unemployment on subjective well-being. An extensive literature in psychology and economics has aimed to document the extent to which people adapt to life events. Adaptation is a central feature of human happiness. Research has shown that people adapt to all sorts of life events. Empirically, this means that life events result in changes in SWB that are larger in the short term than in the long term. Some have posited that adaptation is complete (the long-term changes equal zero). There is substantial evidence that adaptation is widely prevalent but incomplete for some events.

Lucas, Clark et al. (2004) find that those experiencing unemployment do not recover the pre-event level of satisfaction. They argue that this lower level of satisfaction remains even after re-employment and controlling for income. The explanation they give for this is that the life event changes the happiness "set-point." That is, the life event has a *scarring effect* such that life satisfaction is affected even when life circumstances recover. Daly and Delaney (2013) identify the scarring effect by showing that unemployment duration during adulthood affects well-being at age fifty.

Several other studies have considered the SWB impacts of unemployment and attempt to account for the endogeneity of job loss. A common strategy is to follow the same individuals over time. But many of these longitudinal studies are also affected by endogeneity. Indeed, many of the studies relying on fixed effects find that well-being decreases before the unemployment event, which is evidence of selection bias (Paul and Moser, 2009; Winkelman, 2014).

Other studies have used different approaches. Daly and Delaney (2013), who study the impact of unemployment duration on well-being at age 50, control for mental health problems in childhood and early adulthood. Kassenboehmer and Haisken-DeNew (2009) use plant closings in the year of entry into unemployment to study the effect of outside options "over and above the overall effect of unemployment."

Thus, studying job loss in the early months of the pandemic is useful, as in this period, job loss episodes are more likely to be "shocks" external to the worker than in other periods. Indeed, as we show later, our data does not show decreases in well-being before the job loss event.

Long-term causal effects of job loss on earnings and health. People losing jobs, including from exogenous causes such as plant closures, end up with substantial earning reductions that persist long after separation, even after re-employment (Jacobson, LaLonde et al., 1993; Farber, 2005; Farber, 2017). Others have found effects of job loss on mortality (Sullivan and Von Wachter, 2009) and health behaviors and outcomes (Black, Devereux et al., 2015).

Safety-nets and the macroeconomic policy determinants of life satisfaction. Having a safety-net, either from family[1] or from government progams may reduce the impact of job loss on mental health and life satisfaction.

The U.S. social safety net expanded dramatically during the pandemic (Angrisani, Burke et al., 2022) find that financial satisfaction increased on average, and feelings of financial stress decreased, during the pandemic, particularly for those who were worse off at baseline, driven by the increase in governmental support (stimulus check). The literature on the relationship between social safety nets and SWB across countries suggests a substantial and significant impact of the safety net on SWB (Easterlin, 2013; O'Connor, 2017). That literature is based on a cross-sectional comparison of SWB of countries that differ in their social insurance policies. The pandemic and its associated expansion of the safety net provide an alternative within-country test of the hypothesis.

The "Easterlin paradox" refers to a lack of relationship between average levels of income and average levels of subjective well-being both across countries and within countries over time. Easterlin argues that his paradox arises from adaptation to income. However, he also argues in Easterlin (2021) that income security has more long-lasting effects and that the social safety net is an important determinant of countries' happiness. Several other cross-country studies support this view (Kapteyn, 2020).

[1] Zhao (2023) finds that having a partner reduces the mental health impact of a worker's job loss.

III. Data

Our main analysis uses data from two distinct projects within the Understanding America Study (UAS), a nationally representative longitudinal study of Americans 18 and over. UAS panelists are recruited through address-based sampling using the U.S. Postal Service Delivery Sequence Files. Respondents without internet access are provided with a tablet, internet access, and training on how to use the tablets if necessary, which helps improve national representation (Alattar, Messel et al. 2018). Comparison with other high-quality surveys (CPS, HRS) shows that the UAS represents the U.S. population well (Angrisani, Finley et al., 2019).[2]

The Monthly Event Survey panel consists of the subset of UAS respondents who are 50 or older, who answer a short survey at the beginning of each month. It started in May 2019 with over 3,000 respondents.[3] The sub-panel has grown as new UAS respondents were invited to the Monthly Event Survey panel, with close to four thousand panelists answering surveys in the last months of 2022. We use data up to and including December 2022. The first item in the survey is the life satisfaction question: "Please think about your life-as-a-whole. How satisfied are you with it? Are you completely satisfied, very satisfied, somewhat satisfied, not very satisfied, or not at all satisfied?". We construct two variables from this question: a variable that ranges from 1 ("not at all satisfied") to 5 ("completely satisfied") and an indicator variable that denotes whether one of the top two options was selected ("very" or "completely satisfied"). An important feature of the Monthly Event Survey is that it started well before the pandemic onset, and so we can check for "pre-trends" in life satisfaction across groups.

We merge our data with the Understanding Coronavirus in America Study (UCAS), another UAS sub-panel. The UCAS is a tracking survey to understand the impacts of the pandemic (Kapteyn, Angrisani et al. 2020). On March 10, 2020, panelists were invited to answer the first survey (which remained open until the end of March). Between April 1, 2020, and February 16, 2021, UCAS participants were invited to answer surveys every fourteen days. After February 16, the bi-weekly cycle was replaced by a four-week cycle. After the Summer of 2021, the survey frequency changed to three times a year. The UCAS data allow us to construct variables measuring the employment and safety net status in the early pandemic, as well as some other complementary variables (including the PHQ-4 score, a measure of mental distress, and variables measuring short-term economic concern).

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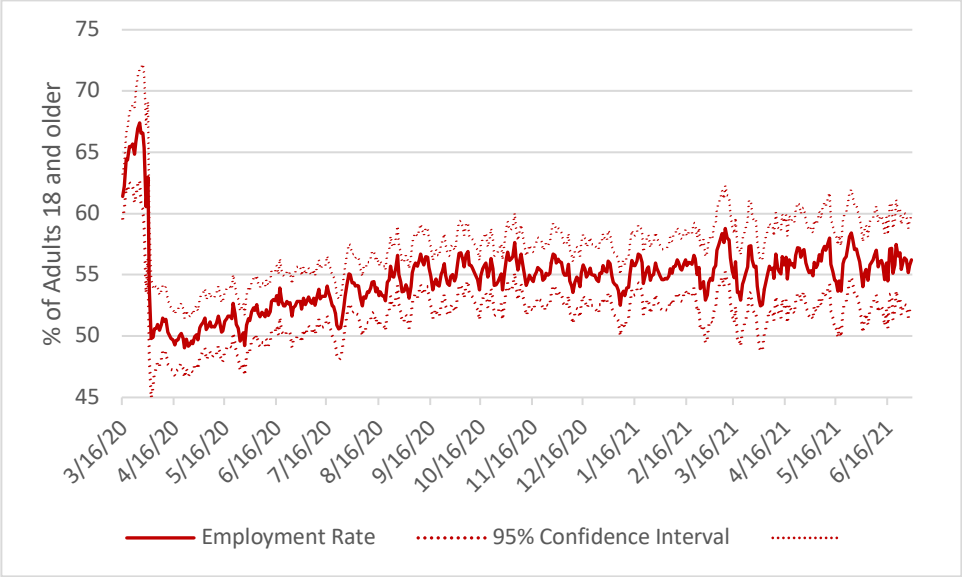
[2] In the context of the pandemic, an external benchmark is provided by CDC data on vaccination rates. Bradley, et al. (2021) compare national COVID-19 vaccination rates with several survey estimates. They find that the Axios/Ipsos Internet panel, which is probability-based, as is the UAS, provided accurate estimates. Since the UAS has asked about vaccination of UAS respondents since early 2021, we can also compare the UAS estimates with the CDC-rates and Axios estimates. We find that UAS estimates are similar to the Axios estimates, and in fact somewhat closer to the CDC benchmark, possibly due to a larger number of observations (~7000 in UAS, ~1000 in Axios), which reduces sampling variation.

[3] UAS Monthly Events Panel Dataset. Produced by the USC Dornsife Center for Economic and Social Research, with funding from the National Institute on Aging and the Social Security Administration. Retrieved [January 15, 2023] from https://uasdata.usc.edu/page/UAS+Monthly+Events+Panel.

The UCAS data allows us to identify job loss at the onset of the pandemic. The first weeks of the pandemic were unprecedented in the history of U.S. labor markets in terms of both the extent and speed of job loss, which was driven by mass layoffs by firms in industries whose activities shut down due to the pandemic. Figure 1 shows the extent of job loss using the UCAS data. Between late March and April of 2020, the employment rate dropped by more than 15 percentage points. Focusing on a narrow period at the beginning of the pandemic is important because we are less likely to misidentify involuntary job loss from voluntary separations and because a separation is much less likely to be caused by issues with the worker's performance.

Figure 1—. Employment rate after the pandemic onset. The trajectory from the UCAS data



The graph shows 14-day weighted moving averages. Data obtained from the Understanding Coronavirus in America Study, Covid-19 pulse website. https://covid19pulse.usc.edu/ . Accessed on April 11, 2023

We use the UCAS as the source for our mental distress variable, which is applicable to both individuals below and over fifty. We merged our data with a measure of self-assessed mental distress from the UCAS study for two main reasons: first, to test whether our findings hold up with an alternative measure of well-being, and second, to see if these results can be extended to those under 50 as well. Self-reported mental distress is measured using the four-item Patient Health Questionnaire (PHQ-4). The PHQ-4 score is derived from four survey items: two measure depressive symptoms and two measure anxiety symptoms. Responses to each item are scored from 0 to 3, and these scores are summed to create an index that ranges from 0 to 12, with higher numbers indicating higher levels of mental distress.

For some robustness analyses, we use data from the UAS-Comprehensive File, which contains data from surveys that are fielded to all panelists at approximately two-year intervals. We use this, among other things, to extend our analysis of life satisfaction to the under fifty.

IV. Methodology

The first objective of this paper is to describe the patterns in life satisfaction from May 2019 through December 2022 for different groups of people. Due to data availability constraints, this analysis is limited to those who are 50 years of age or older. We present the patterns of SWB over time for groups that are defined by their status at the early stages of the pandemic. For instance, we track life satisfaction for people who kept a job in April and May of 2020, regardless of whether they may have separated from their job later. Later in the paper, we present analyses of dynamics to observe, for instance, what happens when people get re-employed. But the primary analysis is based on the static definition of the groups based on their early-pandemic experiences, which allows us to more clearly appreciate the evolution of well-being for the same people throughout the pandemic.

While descriptive, this approach follows the one used in the literature of "life events" (e.g., Lucas et al., 2014), which consists of tracking subjective well-being in periods before and after the onset of an event (e.g., unemployment) using fixed effect regressions.

Our main analysis focuses on the following four groups, defined based on their status in the periods right before and right after the start of the pandemic:

- *Job-keepers.* Respondents who were employed in March 2020 and who maintained employment through at least May 2020.
- *Benefit-eligible job-losers.* Respondents who were employed in March of 2020 but who were not employed at some point in April or May of 2020 and who received a payment from unemployment insurance at some point before June 2020.
- *Benefit-ineligible job-losers.* Respondents who were employed in March of 2020 but who were not employed at some point in April or May of 2020 and who did not receive unemployment insurance at any point before July 2020.
- *Non-workers* (out of the labor force or unemployed in March 2020*).* Those who did not work in March of 2020 (the majority of whom are retirees, homemakers, disabled individuals, and a small number of respondents who were unemployed in March of 2020). The patterns for this group are similar to those of *job-keepers,* so we exclude them from the main analyses below (but we show their results in Appendix A.)

Thus, we distinguish respondents by whether they lost a job between March and May 2020. A key advantage of looking at a narrow window is that layoffs were responsible for most job losses and unemployment in the early weeks of the pandemic. Among the group of job losers in this period, the proportion of those who would have willingly separated to look for better jobs, retire, etc., is small. At most other times, voluntary separations constitute a large share of people leaving

employment.[4] The unexpected nature of the pandemic and the fact that large shares of respondents experienced job loss at its onset means the *job loser* group is less likely to be selected in terms of individual trajectories.

Our approach is descriptive. While the most obvious explanation for differences in pandemic impacts between *job-losers* and *job-keepers* is that losing a job moderated the pandemic impacts, other explanations may be at play. For instance, it is conceivable that the *job loser group* included more people who were more sensitive to the pandemic for other reasons (for example, those more concerned about their health impact may try less hard to keep their job). Later, in Section VI, we conduct analyses that aim to disentangle alternative explanations of the observed patterns.

It is also important to note that the distinction between benefit-eligible and ineligible groups is based on a proxy: whether or not they received a payment from unemployment insurance. It's plausible that some individuals who did not receive benefits were indeed eligible but chose not to apply for various reasons. We have addressed this issue by conducting robustness analyses, the details of which are discussed in Section VI and Appendix B

V. Results

Table 1 shows differences in background characteristics across the three groups. The table shows significant differences between the three groups, underscoring the necessity of using fixed effects in our analysis. Pandemic job losses were concentrated in specific sectors and affected certain types of workers more strongly than others, including service workers and those with lower education credentials. As expected, there are clear differences across groups. *Benefit-eligible job-losers* have a similar age and race/ethnicity profile as job-keepers but include fewer with bachelor's degrees and had lower earnings at baseline. The *Benefit-ineligible job-loser* group was further disadvantaged in terms of education, earnings, and hours worked and comprised a higher proportion of first-time immigrants. While the average age of this group is similar to the *job-keepers* and *benefit-eligible job-losers,* it contains a higher proportion of the youngest (under 30) and the oldest (over 60). In Section VI, we demonstrate that the varying characteristics across these groups cannot account for the distinct patterns we will present .

It is worth noting that the table includes two separate rows related to sample size. The first row displays the count of respondents in our primary subsample, which is used for the central investigation into life satisfaction among those aged 50 and above. The second row, on the other hand, represents the sample size used for auxiliary analyses, which encompasses the study of mental health for respondents of all age groups.

[4] For instance, the later period of the pandemic was characterized by high levels of employment turnover in what was often referred to as "the great resignation". There was also an uptick in retirement (Montes et al, 2022). But these separations did not constitute a measurable fraction of separations of March and April of 2020.

Table 1—. Predetermined characteristics, by groups

	Job-keepers	*Benefit-eligible job-losers*	*Benefit-ineligible job-losers*
Male	0.486	0.432	0.407
Age (continuous)	44.95	45.37	45.65
Age (under 30=yes)	0.100	0.111	0.194
Age (over 60=yes)	0.145	0.144	0.233
White (non-Hispanic)	0.646	0.617	0.548
Black (non-Hispanic)	0.073	0.078	0.104
Hispanic	0.172	0.198	0.240
Bachelor's degree	0.493	0.361	0.300
First generation immigrant	0.114	0.119	0.163
Earnings at baseline	60,449	37,537	22,164
Work hours at baseline	39.65	36.29	30.67
N [1]	1,468	185	183
N [2]	3,462	404	387

[1] Number of panelists used in models that include variables from both the Monthly Event Dataset and the Understanding Coronavirus in America Study, such as the models of Life Satisfaction. [2] Number of panelists for models that use variables from the UCAS only.

The evolution of Life Satisfaction by group

Figure 2 below shows our main results in raw form. Each circle represents the average level of life satisfaction (on a 1 to 5 scale) in each month by job group. The first panel shows the evolution of life satisfaction among *job-keepers.* Their average level of life satisfaction dropped about 0.06 points in the first two months of the pandemic but progressively recovered, reaching a level equal to the pre-pandemic average in September 2020.

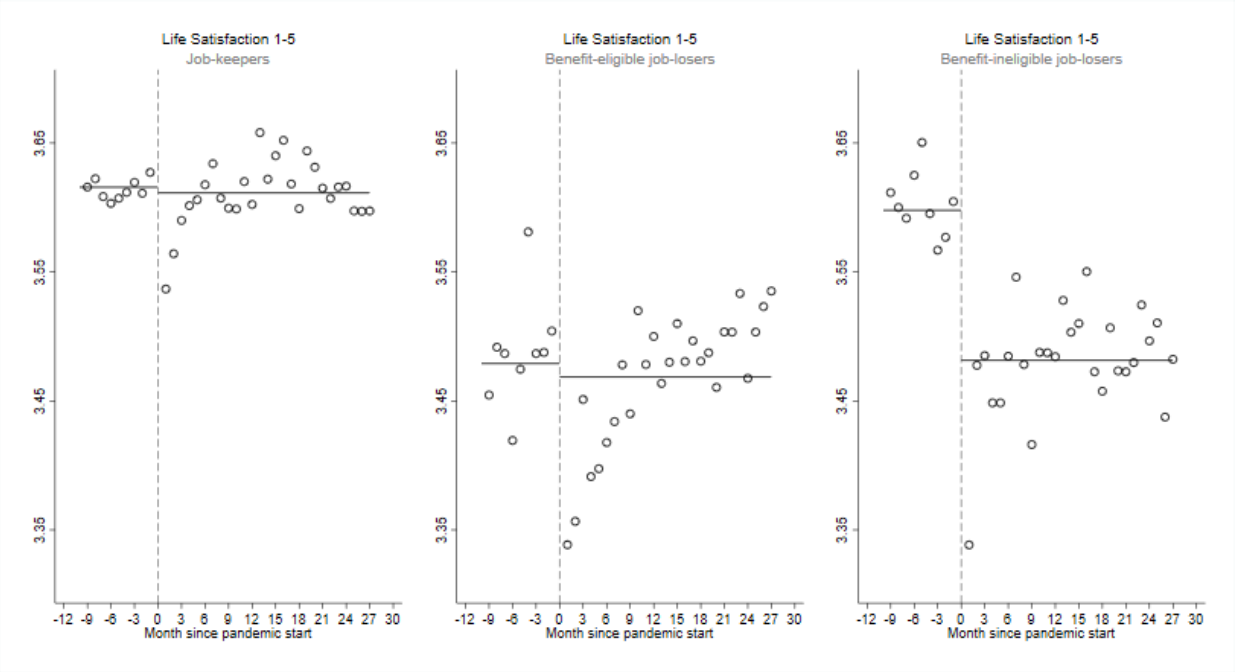
The second and third panels show the results for the *job loser* groups. *Benefit-eligible job-losers* experienced a decline of about 0.2 points in the first month of the pandemic. They recovered to a

level close to their pre-pandemic level in about eight months. On the other hand, *benefit-ineligible job-losers* experienced a fall of about 0.3 in the first pre-pandemic month, their levels increased in the second month, but they didn't recover their pre-pandemic levels at any point during the study period.

There are no differential trends that precede the onset of the pandemic. The level of life satisfaction was not increasing or decreasing for neither of the groups. We test for this formally by estimating regressions against a linear and quadratic trend using only the pre-pandemic months. We fail to reject the null of a fully flat pre-pandemic trend in all cases. Table B.1 in the Appendix shows these results.

While there are no differences in pre-pandemic trends, there are differences in pre-pandemic levels. The *Benefit-eligible job-loser* group had a lower level of life satisfaction in the pre-pandemic months than the other two groups. All analyses in the paper use fixed effects to account for these differences. The differences in levels across groups

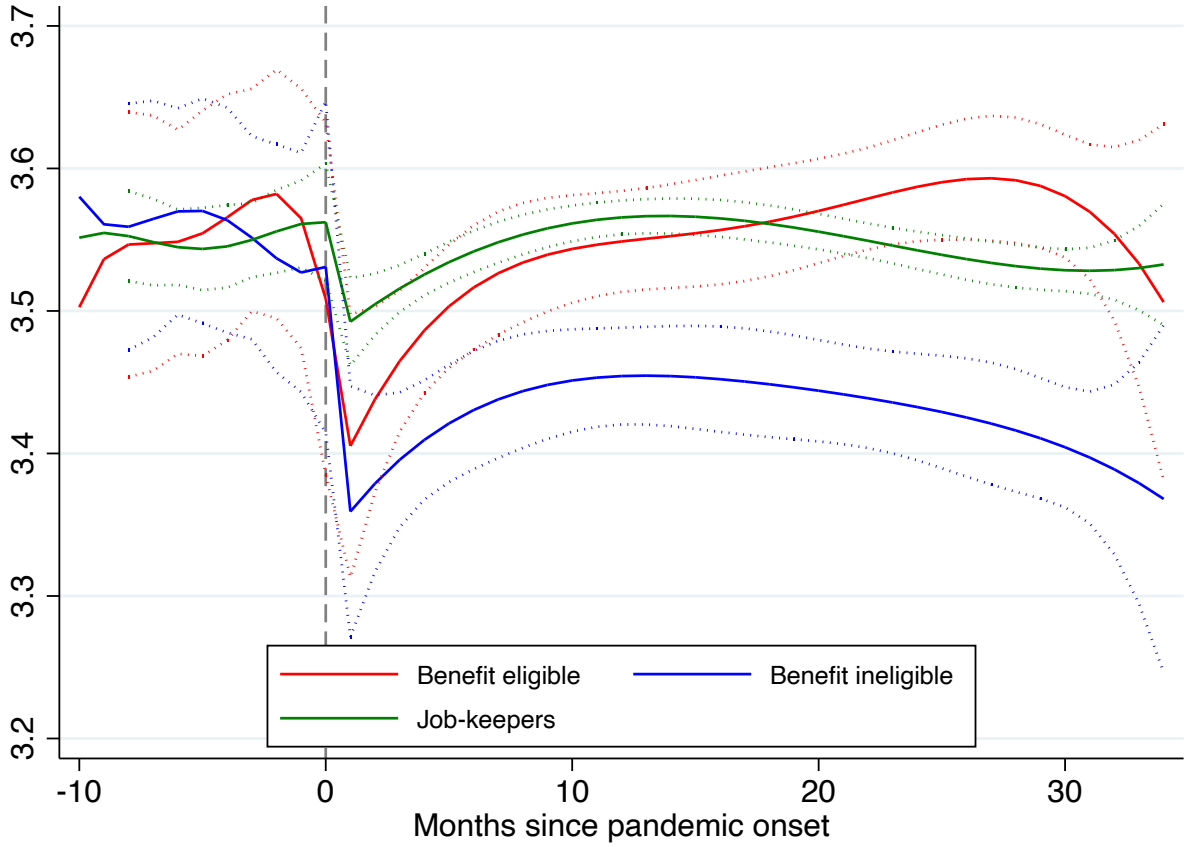
Figure 2. Life Satisfaction by job group.



Circles represent the average life satisfaction by month since the pandemic onset for the respective groups of respondents. The dashed horizontal line marks the pandemic onset (April 1, 2020). Horizontal lines denote the pre and post-pandemic averages.

A further way to visualize the differences in trajectories in the post-pandemic periods is by estimating polynomial approximations of the trajectories. Figure 3 below shows fourth-order polynomial approximations of the residuals of a regression of life satisfaction against individual fixed effects. The differences between the two *job-loser* groups widen as the *benefit-eligible* experience a robust recovery. The difference between the *job-loser* groups becomes statistically significant starting in the fifth month after the pandemic onset.

Figure 3. Polynomial approximation to Life Satisfaction before and after the pandemic



4th order polynomial approximation with a break after the pandemic onset. The approximation is based on the residuals from a regression of life satisfaction on individual fixed effects (rescaled to the full-sample average mean life satisfaction in the pre-pandemic). The confidence intervals for the observations corresponding to the months nine and ten before the pandemic are too wide to show in the graph.

We estimate fixed-effects regression models of life satisfaction against post-pandemic periods indicators interacted with the job groups. We group all pre-pandemic months in a single pre-pandemic period so that the omitted category is the entire pre-pandemic period. The grouping of months in the post pandemic onset period is necessarily arbitrary. The most straightforward grouping is a single post-pandemic period, which has the obvious disadvantage of precluding the study of adaptation. Nevertheless, we use it as a starting point.

Column one of Table 2 shows the estimates of the regression models when using the single post-pandemic period grouping. The regressions include individual-level fixed effects, and standard errors are clustered at the individual level. *Job-keepers* experienced a life satisfaction drop of about 0.03 points (on a scale of 1 to 5). *Benefit-eligible job-losers* have a post-pandemic life satisfaction 0.01 points lower than before the pandemic. However, those who lost their job and were unable to access the safety net suffered a reduction of about 0.11 points, more than three times the reduction

of those who did not lose a job. The 0.11 point reduction represents 15% of the standard deviation of life satisfaction.

With subjective well-being measures, it is often difficult to interpret the magnitude of these effects. For comparison, we provide the following benchmark: Using the Monthly-event surveys, we calculate that SWB decreases by 0.25 points after a Cancer diagnosis.[5] This is about double the reduction in Life Satisfaction of those who lost a job and were ineligible for benefits.

To further facilitate interpretation of the results, we redefine the outcome variable by turning it into an indicator variable that measures whether the respondent is "very or extremely satisfied" (4 or 5 on the 1 to 5 scale). Using this definition, we find that those who lost a job and were not eligible for benefits became six percentage points less likely to be very or extremely satisfied in the post versus in the pre-pandemic period. This represents a ten-percentage points reduction from the 60% who were very or extremely satisfied at baseline. Appendix Table B.2 shows the results of these regressions.

As we saw in Figures 2 and 3, however, the effect of the pandemic seemed to be stronger at the beginning of the period and then weakened. To capture this, we estimate regressions where the post-pandemic onset period is divided into three sub-periods: Post-pandemic period 1: April and May of 2020 when the pandemic had just hit; Post-pandemic period 2: the rest of 2020, to include the second pandemic wave; and the period after January of 2021.

Columns two to four of Table 2 show the results. The results are shown across three columns, one per post-pandemic period. Every group suffered a substantial drop in life satisfaction in the first two months after the arrival of the virus. *Job-keepers* experienced a reduction of 0.06. The decline was twice as deep among those who lost a job and had access to the safety net (0.12) and triple among those who lost a job and did not have immediate access to welfare (0.18).

There was a swift recovery for the *job-keepers* and *benefit-eligible job-loser* groups. For *job-keepers*, life satisfaction increased to a level of only 0.02 below the baseline by the second half of 2020. Likewise, the recovery for the *Benefit-eligible job-loser* group was rapid and eventually complete: in the second subperiod, their LS increased to about 0.03 below the baseline and 0.01 above the baseline in the final period (statistically indistinguishable from zero)

On the other hand, those without access to the safety net did not fully recover. Their level of life satisfaction rose from 0.18 below baseline in the first post-pandemic period to 0.12 below baseline in the second and 0.11 below baseline in the final subperiod.

[5] Calculated as the difference in life satisfaction between the month following the cancer diagnosis and the month with highest level of satisfaction before the diagnosis.

Table 2. Effects of the pandemic on Life Satisfaction by groups. Detailed post-pandemic grouping.

	Single post-pandemic period	Three post-pandemic sub-periods		
	Post-pandemic vs. Pre-pandemic	Post-pandemic period 1 April-May 2020	Post-pandemic period 2 June-Dec 2020	Post-pandemic period 3 Jan 2021-2022
Job-keepers (*Mean LS at baseline=3.62)*	-0.029*** (0.010)	-0.063*** (0.013)	-0.019*** (0.010)	-0.028*** (0.011)
Benefit-eligible job-losers *(Mean LS at baseline=3.48)*	-0.010 (0.036)	-0.117*** (0.042)	-0.035 (0.037)	0.009 (0.039)
Benefit-ineligible Job-losers *(Mean LS at baseline=3.63)*	-0.114*** (0.028)	-0.180*** (0.047)	-0.117*** (0.032)	-0.107*** (0.029)
p-value (*Benefit-eligible = job-keepers*)	0.832	0.211	0.690	0.443
p-value (*Benefit-ineligible= job-keepers*)	0.039	0.327	0.102	0.028
p-value (*Benefit-ineligible= Benefit-eligible*)	0.040	0.328	0.103	0.028
Observations	58,568		58,568	
Number of clusters	1,836		1,836	
Adjusted R-squared	0.6508		0.6511	

Notes: the coefficients denote the difference in LS in the post-pandemic period(s) versus the same group in the pre-pandemic period. Individual fixed effect regressions. Standard errors clustered at the individual level.

Columns 2 to 4 in Table Appendix B.2 show the corresponding results when the dependent variable is an indicator for the respondent to be "very or extremely" satisfied. The results show that by the third post-pandemic period, those in the *job-loser benefit ineligible* group were still six percentage

points (10%) less likely to be "very or extremely" satisfied with their lives than before the onset of the pandemic.

VI. Robustness

Robustness to alternative definitions of job loss and benefit eligibility.

The job groups are defined based on a definition of job loss and benefit eligibility. While these definitions have an element of arbitrariness, the main results are robust to alternative definitions of job loss and benefit eligibility.

We consider our main results to be: 1) A large pandemic impact in the early post-pandemic period for both job loss groups compared to job keepers; 2) A larger post-pandemic impact in the mid and late post-pandemic for the benefit ineligible group compared to the two other groups.

Job loss window: we use an alternative definition of job loss by expanding the timeframe in which a respondent is assumed to have lost a job due to the pandemic. Instead of requiring the respondent to have been without a job at some point in April or May of 2020, we include anyone without a job at any point between April 2020 and December 2021. We denote that group by JA1 (Job Loss Alternative 1)

Benefit eligibility: we use two alternative definitions: BA1 (Benefit Alternative 1) expands the time frame for receiving Unemployment Insurance Benefits to all of 2020 and 2021. BA2 (Benefit Alternative 2) expands the definition of benefit eligibility by including the respondents who received the first Stimulus Check in the *benefit-eligible* group, regardless of whether they received UI payments.

Table 3 shows that the two main results still hold when using the alternative definitions. In all cases, there are larger early post-pandemic drops in life satisfaction for both groups of job-losers. Additionally, in all cases, a significant negative impact on life satisfaction persists in the second post-pandemic period among the *benefit-ineligible job-losers*, but not among the *benefit-eligible job-losers*. For easy reference, the first column shows the same results as Table 2. The second column shows the results when job loss is defined per JA1. The coefficient for the first pre-pandemic period for both job-loser groups are slightly smaller than under the Benchmark (-0.10 versus -0.11 and -0.15 versus -0.18, respectively), but they remain larger (in absolute terms) than the corresponding coefficient for job-keepers, which remain at -0.06. The third and fourth columns show the results when applying the alternative definitions of benefit eligibility. Under both alternatives, the coefficient for the last period is larger in absolute value for the benefit-ineligible group than for the benchmark. While the coefficient for the benefit-eligible group does become negative under the alternative definitions (-0.04 in both cases), it remains smaller in absolute value than that of the benefit-ineligible group.

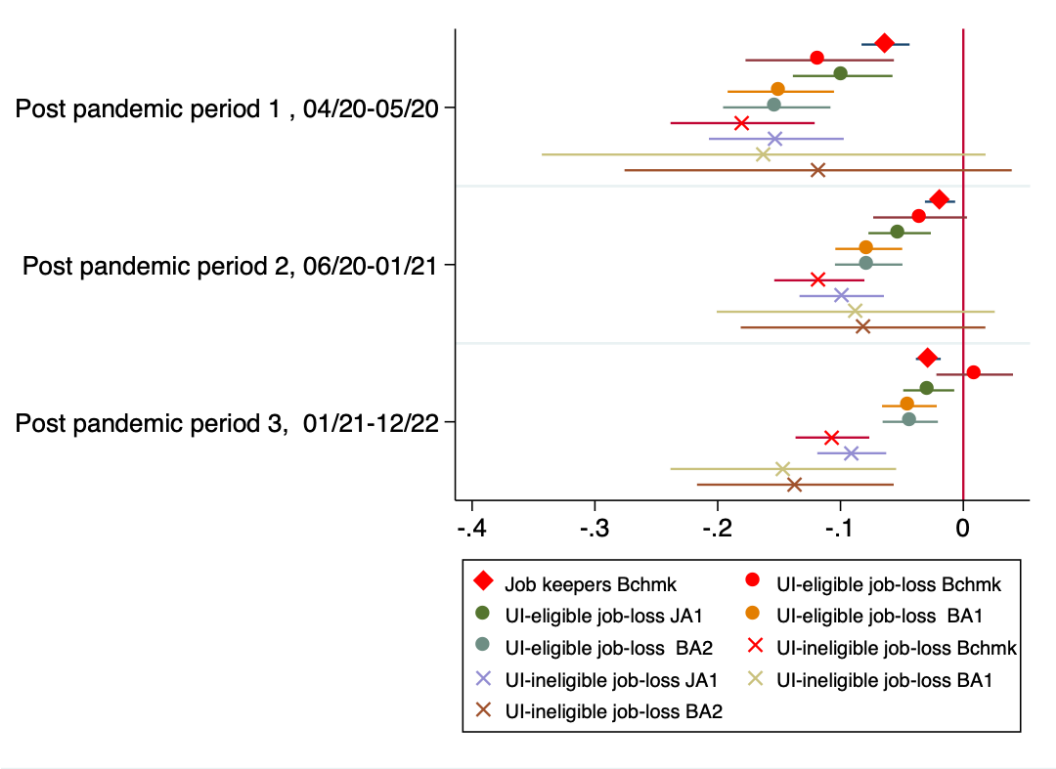
Table 3. Robustness of results to alternative definitions of job loss and benefit eligibility

VARIABLES		*Group*		
		Job-keepers		
Definition	Benchmark	*Job Alternative 1*	*Benefit Alternative 1*	*Benefit Alternative 2*
Post-pandemic period 1, 04/20-05/20	-0.063***	-0.063***	-0.063***	-0.063***
	(0.013)	(0.014)	(0.013)	(0.013)
Post-pandemic period 2, 06/20-01/21	-0.019*	-0.012	-0.019*	-0.019*
	(0.010)	(0.011)	(0.010)	(0.010)
Post-pandemic period 3, 01/21-12/22	-0.028**	-0.024**	-0.028**	-0.028**
		Benefit-eligible Job-losers		
Post-pandemic period 1, 04/20-05/20	-0.117***	-0.098***	-0.149***	-0.152***
	(0.042)	(0.026)	(0.033)	(0.034)
Post-pandemic period 2, 06/20-01/21	-0.035	-0.052**	-0.077***	-0.077***
	(0.037)	(0.024)	(0.026)	(0.026)
Post-pandemic period 3, 01/21-12/22	0.009	-0.028	-0.044*	-0.043*
	(0.039)	(0.026)	(0.025)	(0.026)
		Benefit-ineligible job-losers		
Post-pandemic period 1, 04/20-05/20	-0.180***	-0.152***	-0.163	-0.118
	(0.047)	(0.043)	(0.096)	(0.081)
Post-pandemic period 2, 06/20-01/21	-0.117***	-0.099***	-0.088	-0.082
	(0.032)	(0.030)	(0.091)	(0.077)
Post-pandemic period 3, 01/21-12/22	-0.107***	-0.091***	-0.147	-0.137*
	(0.029)	(0.028)	(0.089)	(0.074)

Figure *4* below shows these results in a graph. The results marked with a circle represent the coefficients for the benefit eligible, and those with "x" those for the ineligible. For the later periods,

the coefficients for the ineligible group are significantly more negative than those for the benefit eligible regardless of the specification.

Figure 4. Robustness of results to alternative definitions of job loss and benefit eligibility.



The results marked with circles represent coefficients for the *benefit-eligible job-loser* group; Results marked with "X" represent coefficients for the *benefit-ineligible job-loser* group. The series with the "Bchmk" addition are the original results shown in Table 2. Series with JA1 addition show results with the Alternative definition of job loss (A1). Series with BA1 and BA2 show results with the Alternative definition of benefit eligibility (B1 and B2). The benchmark result for the *job-keepers* is marked with a diamond.

Appendix B includes results with further variations in the definitions of job loss and benefit eligibility. Results are unchanged when we restrict the ineligible group to those who report they applied for unemployment benefits and were rejected and those who did not apply because they knew they were not eligible. Likewise, results are qualitatively similar when using two alternative definitions of job loss deriving from the Monthly Event Survey datasets: one based on respondents declaring "becoming unemployed" in April and May on 2020, and the other based on reporting zero hours worked on those months (while reporting positive hours in February and March of 2020). Finally, we also show robustness to including *job loss* and unemployment insurance receipt by a spouse or partner of the respondent. We include in the *job loss groups* those who were married or partnered and whose spouse suffered job loss in April/May 2020, and redefine as "*benefit eligible"* to those whose spouse or partner received payments from unemployment insurance. In all these cases, the results are qualitatively similar as those presented above.

Heterogeneity and alternative explanations

Our interpretation of the result is that the employment and access to the safety net determined the differences in pandemic impacts across groups. But we acknowledge that the finding could instead be driven by other characteristics that both moderate the pandemic impacts and predict inclusion into the group. For instance, it could be that the pandemic effect on well-being was moderated by education or race and ethnicity, and as shown earlier, these characteristics vary across the *job-keepers* and the *job-loser* groups.

Figure 5 below shows the trajectories for groups defined by the background characteristics that are more prevalent in the *benefit-ineligible job loser* group. It shows the pattern for Black respondents, Hispanics, those over 60, those who worked but had low earnings (pre-pandemic), those who worked more than zero but fewer than 22 hours per week (pre-pandemic), and immigrants.[6] For comparison, the figure also shows the *benefits-ineligible job-loser group*'s effects as the benchmark (the series marked with a red cross).

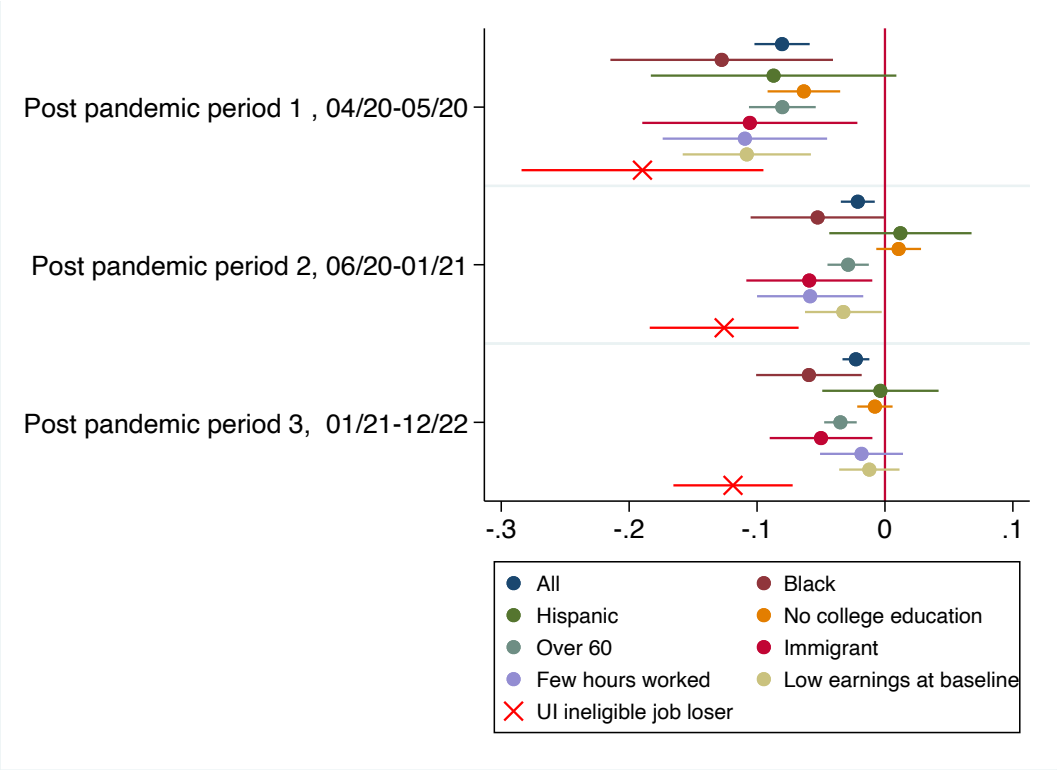
The magnitude and duration of the pandemic effects differed by respondent characteristics. The top panel of the figure shows that Black respondents, immigrants, and those who had worked fewer hours and earned lower earnings before the pandemic experienced a somewhat stronger impact in the first post-pandemic period than the average. In the third post-pandemic period, Black and first-generation immigrant respondents were still experiencing relatively large effects.

However, none of the groups defined by these characteristics result in patterns as pronounced as for the *Benefit-ineligible job-loser* group. Hence, these characteristics cannot explain the pattern experienced by those who lost their job and could not access the safety net.[7]

[6] These groups include all respondent of the given demographic characteristic, regardless of job-loss and benefit-eligibility status.

[7] The opposite is more likely. For instance, immigrants were less likely to access the safety net, and this may have resulted in a larger and longer lasting impact for them.

Figure 5. Alternative Explanation: Heterogeneity of the Pandemic Impacts



Circles mark the coefficients of fixed effect regressions of life satisfaction on the post-pandemic onset dummies calculated separately for groups defined by demographic and pre-pandemic employment characteristics. "Xs" mark the coefficients for the *benefit-ineligible job-loser* group for comparison.

A more direct approach to address the issue of potential confounding characteristics is to add to the model the interaction of control variables with the post-pandemic period dummies. In this way, we can assess the extent to which group characteristics could explain the patterns observed for the *job loss groups.*

Adding multiple such interactions simultaneously reduces the statistical power drastically since there are relatively few individuals in the *job loser* groups. Hence, we present models where we add the interacted control variables one by one in addition to the full model.

Table 4 below shows the results. The first column shows the baseline results from Table 2 to facilitate comparisons. The second column adds gender (interacted with the post-pandemic periods) the third includes age; the fourth includes race and ethnicity dummies; the fifth includes immigration status; the sixth includes education attainment; and the seventh adds baseline (pre-pandemic) work hours and earnings. These inclusions do not qualitatively affect the main patterns: the effects for the *job-keepers* in the first post-pandemic period range from -0.05 to -0.09; for the *benefit-eligible job-loser* group, the effects range from -0.07 to -0.15, and for the *benefit-ineligible* from -0.13 to -0.34. In the third post-pandemic period, the coefficients for the *job-keeper and benefit-ineligible* remain positive or small and remain negative and large for the *benefit-ineligible (between -0.13 and -0.19*).

The last two columns show the results when including the interacted control variables all at once (column 8 includes all the demographic controls, and column 9 includes the demographic and the baseline employment variables). The standard errors become very large, making it difficult to interpret the coefficients. While not very informative, the coefficients for the *benefit-ineligible* group remain negative and large.

Table 4. Robustness of results to the inclusion of demographic and other baseline .

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Controls interacted with post-pandemic period dummies:	None	Gender[1]	Age[2]	Race/ ethnicity[3]	Education[4]	Immigrant[5]	Baseline Work[6]	Demo[7]	Demo Plus[8]
					Job-keepers				
Post-pandemic period 1, 04/20-05/20	-0.063***	-0.049**	-0.087***	-0.053	-0.051**	-0.061***	-0.029	-0.116	-0.092
	(0.013)	(0.019)	(0.017)	(0.041)	(0.020)	(0.013)	(0.036)	(0.175)	(0.187)
Post-pandemic period 2, 06/20-01/21	-0.019*	0.004	-0.016	-0.014	0.004	-0.018	0.012	-0.025	0.000
	(0.010)	(0.016)	(0.014)	(0.035)	(0.018)	(0.011)	(0.031)	(0.137)	(0.155)
Post-pandemic period 3, 01/21-12/22	-0.028**	0.002	-0.031*	-0.031	-0.033*	-0.029**	0.022	0.100	0.172
	(0.011)	(0.016)	(0.016)	(0.035)	(0.019)	(0.012)	(0.032)	(0.124)	(0.143)
Observations	46,289	46,289	46,259	46,157	46,289	46,289	45,896	46,127	45,734
R-squared	0.667	0.667	0.667	0.668	0.667	0.667	0.668	0.669	0.670
					Benefit-eligible Job-losers				
Post-pandemic period 1, 04/20-05/20	-0.117***	-0.154***	-0.153***	0.074	-0.075	-0.113***	-0.137	0.610	0.691
	(0.042)	(0.057)	(0.053)	(0.142)	(0.063)	(0.042)	(0.114)	(0.580)	(0.653)
Post-pandemic period 2, 06/20-01/21	-0.035	-0.040	-0.032	0.062	0.040	-0.018	0.015	0.616	0.725
	(0.037)	(0.048)	(0.047)	(0.124)	(0.057)	(0.037)	(0.118)	(0.417)	(0.491)
Post-pandemic period 3, 01/21-12/22	0.009	-0.009	-0.004	-0.005	0.081	0.019	0.085	0.346	0.609
	(0.039)	(0.046)	(0.048)	(0.105)	(0.067)	(0.041)	(0.116)	(0.365)	(0.410)
Observations	6,103	6,103	6,103	6,003	6,103	6,103	6,068	6,003	5,968
R-squared	0.647	0.647	0.647	0.648	0.648	0.648	0.647	0.651	0.652
					Benefit-ineligible job-losers				
Post-pandemic period 1, 04/20-05/20	-0.180***	-0.245***	-0.202***	-0.345	-0.205***	-0.129***	-0.202***	-0.189	-0.276
	(0.047)	(0.066)	(0.074)	(0.226)	(0.070)	(0.048)	(0.069)	(0.531)	(0.553)
Post-pandemic period 2, 06/20-01/21	-0.117***	-0.174***	-0.144***	-0.236**	-0.106**	-0.086***	-0.171***	-0.112	-0.186
	(0.032)	(0.045)	(0.047)	(0.113)	(0.045)	(0.033)	(0.049)	(0.304)	(0.322)
Post-pandemic period 3, 01/21-12/22	-0.107***	-0.142***	-0.127***	-0.185*	-0.137***	-0.088***	-0.162***	-0.317	-0.474
	(0.029)	(0.042)	(0.039)	(0.109)	(0.039)	(0.031)	(0.049)	(0.357)	(0.377)
Observations	6,176	6,176	6,176	6,176	6,176	6,176	6,126	6,176	6,126
R-squared	0.629	0.630	0.629	0.630	0.629	0.631	0.630	0.635	0.636

Individual fixed effect regressions were estimated separately for the *job-keepers, benefit-eligible job-loser,* and *benefit-ineligible job-loser* groups. The table shows the coefficients for the post-pandemic period dummy variables. . Models include the control variables indicated in the last row interacted with the three post-pandemic dummies. The coefficients for the (interacted) controls are not shown. [1] Indicator for female; [2] Indicator for age groups (10-year intervals); [3] Indicators for Hispanics, non-Hispanic Blacks

and other race (non Hispanic). 4: Dummy variables for some college education and completed bacholder degrees; 5 Indicator for first-generation immigrants; 6 Hours worked in week prior to survey, and earnings in the month preceding the survey, as measured in the last pre-pandemic survey (before March of 2020). [6] Gender, age, race/ethnicity, education, and immigration status; [7] [6] Gender, age, race/ethnicity, education, and immigration status hours worked, and earnings (pre-pandemic). Standard errors clustered at the individual level.

After this analysis, our preferred explanation for our results is that it is indeed the economic shocks that caused the different trajectories in life satisfaction across the groups. However, we acknowledge that we cannot rule out that other (untested or unobserved) characteristics could have driven the patterns.

Extensions of the analysis to the population under 50, using alternative measures of mental well-being.

In this section, we investigate whether the results presented above extend to the population under 50 years of age by using alternative measures of mental well-being as outcome variables.

Satisfaction with Life from the Comprehensive File

All UAS panelists answer a set of "core" surveys in the UAS approximately every two years. One of these surveys asks respondents to provide their satisfaction with life overall on a 0 to 10 scale. Panelists are invited to answer this survey when they join the panel and every two years after that. Because panelists join the UAS at different times, the dates for each subsequent survey also differ across respondents. Responses to these questions are included in the UAS Comprehensive File, which we merge with our data.[8]

For most of our respondents, we have observations from both the pre-pandemic and at least one post-pandemic period. While we have many fewer observations per respondent and hence much lower statistical power when using this data than when using the Monthly Event Survey, we can nonetheless estimate models like those presented above but for the under 50 group.

Table 5 below shows the results for the *job-loser groups* under 50. We find that respondents in the *benefit-ineligible job-loser* groups who were under 50 years of age at the pandemic onset were still significantly less satisfied in the second and third periods post pandemic onset. In the most recent period, the *benefit-ineligible* job losers have life satisfaction values that are 0.4 points (on a 0-10 scale) lower than in the pre-pandemic period. In contrast, the comparable coefficient for the *benefit-eligible group* was 0.13 points (p-value for the difference = 0.11). While the coefficients are not strictly comparable since the outcome variables have different scales, they are qualitatively consistent with our findings for the older cohort discussed above.

[8] UAS Comprehensive File. Produced by the USC Dornsife Center for Economic and Social Research, with funding from the National Institute on Aging and the Social Security Administration. Retrieved [April 7, 2023] from https://uasdata.usc.edu/page/UAS+Comprehensive+File.

Table 5. Effects on Satisfaction with Life Overall among 18-49-year-olds, using data from the Comprehensive File.

	Post-pandemic period 1 April-May 2020	Post-pandemic period 2 June-Dec 2020	Post-pandemic period 3 Jan 2021-Apr 2022
Benefit-eligible job-losers	-0.630***	0.318	-0.128
	(0.152)	(0.422)	(0.124)
Benefit-ineligible Job-losers	-0.187	-0.495	-0.405***
	(0.173)	(0.427)	(0.135)
p-value (*Benefit-ineligible= Benefit-eligible*)			0.132
Observations		1,280	
Adjusted R-squared		0.61	

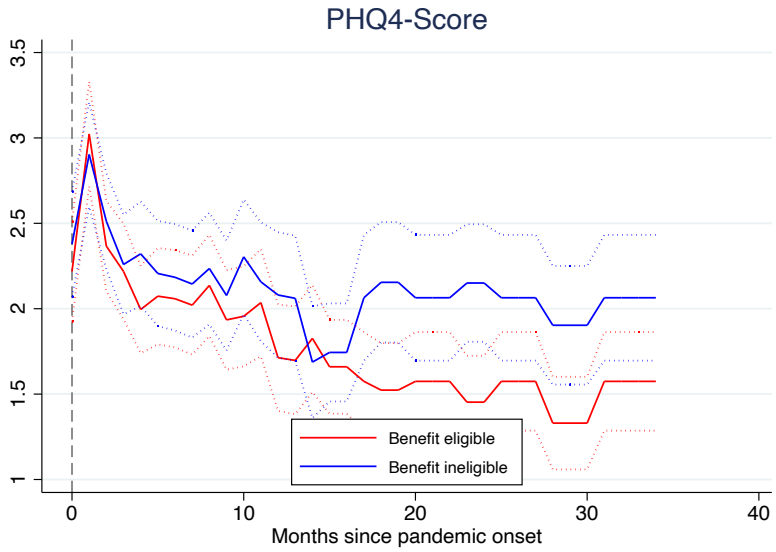
Mental Distress from the UCAS

We now turn to the analysis of the UCAS measure of self-assessed mental distress. While life satisfaction and survey measures of mental distress are correlated, they each measure distinct aspects of subjective well-being (Headey et al, 1993). Therefore, it is of interest to evaluate whether the patterns we observed for life satisfaction also appear in mental distress. As this data is available for panelists across all adult age ranges, we aim to assess whether the results are consistent for individuals both under and over fifty years of age

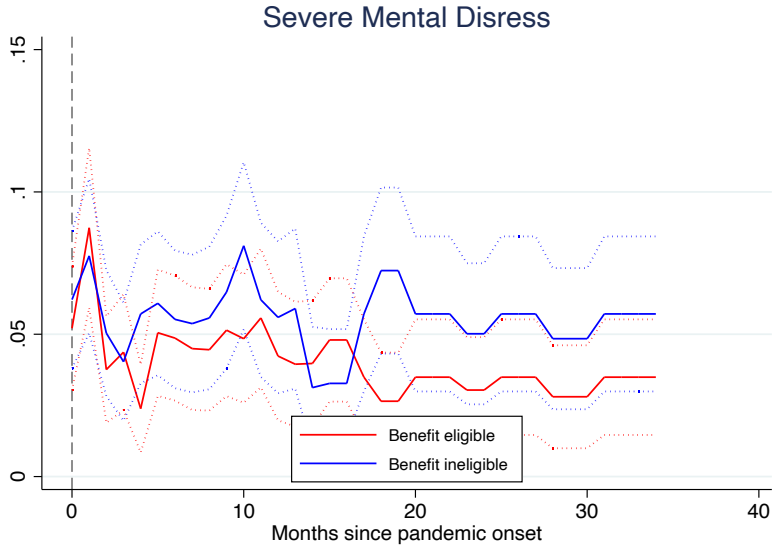
Figure 6 below shows the patterns since the UCAS was fielded in March 2020. Panel A presents the trajectories of average PHQ-4 scores, and Panel B presents the trajectories using an indicator for severe mental distress (PHQ-4 score higher than nine). In both panels, the *benefit eligible job-losers* show improved mental health over time compared to the *benefit ineligible job-losers.*

Figure 6. Mental distress in the UCAS data, by benefit-eligibility status

Panel A. PHQ-4 Scores



Panel B. Indicator for Severe Mental Distress



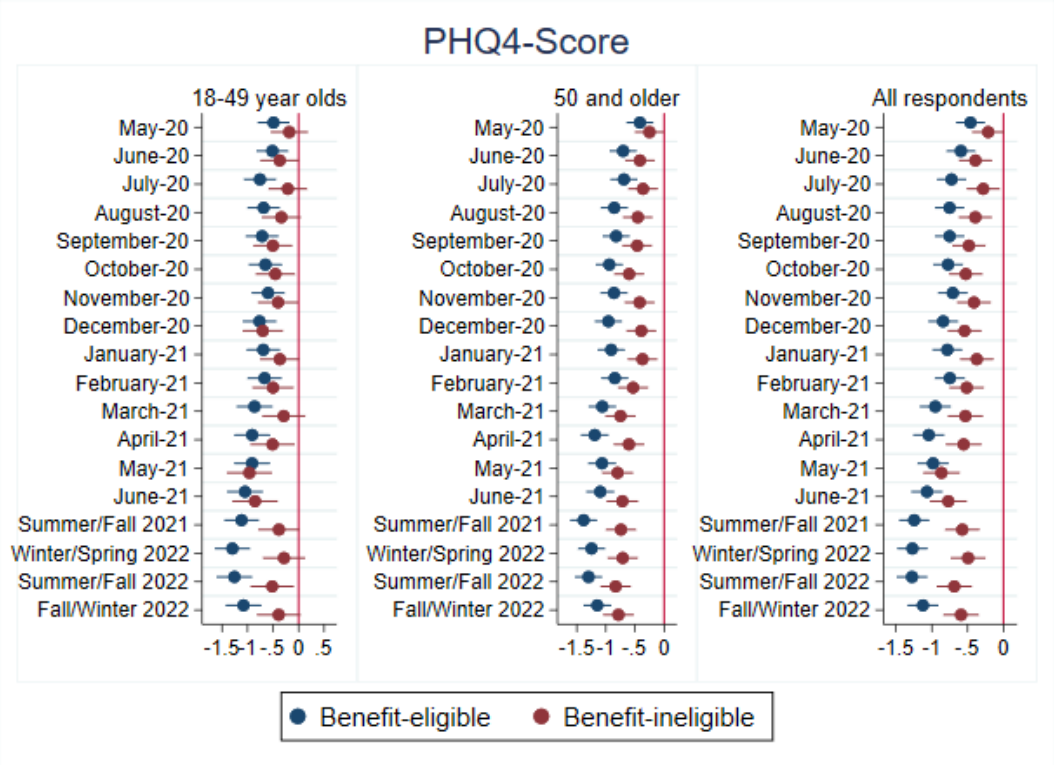
The UCAS panel started in mid-March 2020, so it lacks a proper baseline for mental distress. Respondents answered the first wave in mid to late March (with the exact date varying across respondents). By this time, the pandemic had already affected mental health and possibly affected groups differently.

Therefore, we focus on the extent of recovery since April 2020, when mental distress was at its highest. We focus this analysis on the degree of recovery across the two *job-loser* groups to test

whether the faster and more complete recovery among the *benefit-eligible* group that we observed in the case of life satisfaction is also present with the measure of mental distress and among the group respondents under 50.

Figure 7 below shows the extent of recovery among the two *job loser* groups for the entire sample and distinguished by age (under 50 and above). Since April 2020, the level of mental distress dropped more (and faster) for the respondents who had accessed the safety net. By May, the PHQ-4 score had fallen by about 0.6 points in the *benefit-eligible* group and 0.3 among the *benefit-ineligible* group, though the difference is not statistically significant. By September 2021, however, the differences in recovery were larger and statistically significant. While the drop in PHQ-4 score is 0.13 points for the *benefit- eligible group*, it is only 0.06 points for the ineligible (p-value of the difference<0.01). The differences remain throughout 2022. Appendix C includes comparable graphs but uses indicators for severe mental distress (PHQ-4 above 6 and 9, respectively).

Figure 7. Recovery in Mental Distress in job-losers since April 2020, by access to benefits.



The figure shows the coefficients and standard errors from fixed effects regressions of PHQ-4 scores on individual monthly dummies. The excluded category is April 2020, the month with peak levels of mental distress. Standard errors clustered at the respondent level. Circles represent the change in the outcome variable (PHQ-4 scores) since April 2020. The blue series shows results for *benefit-eligible job-losers; the* red circles show results for *benefit-ineligible job-losers.*

The lack of a pre-period series precludes us from testing the parallel trends assumption as we did when using the *Monthly Event* data, so we cannot ensure that the pre-trends in mental distress up to April were similar across the two groups. However, the results show no indication that benefit eligibility was any less important for mental health. Furthermore, there is no indication that the effect applied only to those 50 or older. On the contrary, the difference between the two *job-loser*

groups in the recovery from mental distress is larger among the under-50 sample. Among the 18-49-year-olds, the *benefit-eligible* recovered by about 0.85 PHQ-4 points more than the *benefit-ineligible,* while among the 50 and older, the difference in recovery was about 0.67 points. The difference in differences is not statistically distinguishable from zero (p=0.49).

A possible criticism of the analysis of Figure 7 above is that the results cannot distinguish between a more rapid recovery of the benefit-eligible versus a stronger initial effect for them. That is, it could be that the *benefit-eligible* suffered a stronger impact in April, and thus the fact that they improved faster since then is an artifact of having had higher levels then.

In order to assess this possibility, we merge our data with the Comprehensive File, which includes alternative measures of mental distress from periods before the pandemic. The mental distress in the Comprehensive File is the CESD score, and hence not strictly comparable to our measure from UCAS (PHQ-4). Wave 19 of the UCAS surveys included both measures, so we can calibrate the two measures. Appendix C shows results when including this measure for the pre-pandemic period. The standard errors increase because of the loss of observations (from respondents who do not have a pre-pandemic measure of mental distress) and the noise introduced by the conversion of CESD to PHQ-4. However, the patterns in point estimates mimic those we have shown so far: Both *job loser* groups suffer an increase in mental distress in the first month of the pandemic, but the *benefit-eligible* recover faster and more completely. Figures are shown in Appendix C, which also includes results of regression models of mental distress on broad post-pandemic period indicators using exclusively the data from the Comprehensive File, which show largely consistent patterns.

The conclusion of this analysis is two-fold: 1) the post-pandemic patterns in subjective well-being using the mental distress variables are similar to the life-satisfaction ones, and 2) the effects are also present for those under 50 years of age.

VII. Mechanisms

A separate question relates to the mechanisms explaining these patterns. In particular, it is important to understand why, despite the quick recovery of the labor market, the negative effects among the *benefit-ineligible* group persist for so long, contrasting with the recovery for the *benefit-eligible group.*

Figure 8 shows employment rates, average hours worked, average earnings, and the proportion receiving benefits among both *job-loser* groups, using data from the Monthly Event Survey.[9] To facilitate comparisons of the trajectories, employment rates, hours, and average earnings are normalized to equal 100 in the pre-pandemic onset period for each group. Appendix D includes a version of these graphs without the normalization.

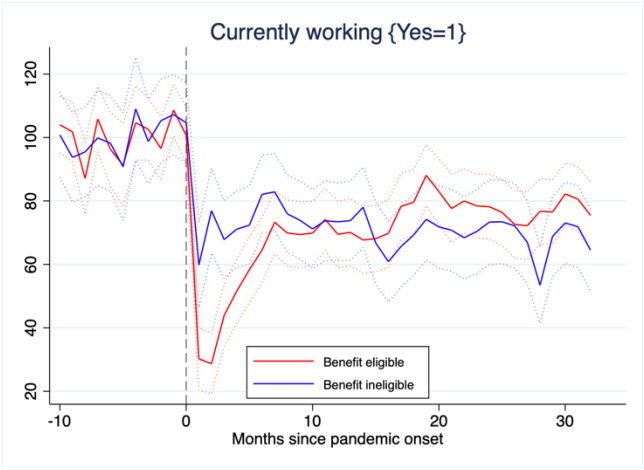
[9] The Monthly Event Survey asks about employment and hours worked in a reference week in the prior month. The reference week is he last complete week in the month prior to the survey).

Panel A shows the sudden drop in employment rates and subsequent partial recovery among the *job-loser* groups. By definition, respondents in the *job-loser* group were not employed at some point between April and May. But because not all lost their job in the same week, the average employment rate does not reach 0% at any moment. Among the *benefit-eligible,* the employment rate figure shows a 70-point drop between March and April and then a recovery later in the year. The initial drop is significantly smaller among the *benefit ineligible.* We find similar patterns in hours worked, with sharper initial declines among the *benefit eligible*. These patterns possibly reflect that many in the benefit ineligible could not afford not to work and hence had to exert more effort to get re-employed. Standard labor economic search models would predict higher search effort and lower reservation wages among the *benefit-ineligible.* These models would also predict that the lack of safety net access would result in worse job matches upon re-employment, perhaps explaining longer-term impacts on well-being. This pattern is consistent with the trajectory in earnings, which also shows a steeper initial reduction among the *benefit-eligible,* but a more robust recovery, with earnings above those of the ineligible in later periods. However, we note that the differences across groups are small relative to the standard errors, and the confidence intervals overlap.

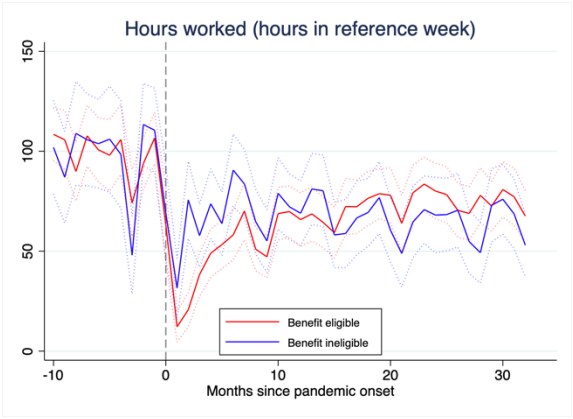
Panel D shows the proportion receiving UI benefits per month across these two groups. This figure starts in April 2020 because the data on these variables come from the UCAS survey. The proportion receiving UI among the *benefit-eligible does not reach 100%* in any given month because some started receiving benefits at different points. The proportion among the *benefit-ineligible* rises above zero after June 2020 because the definition of the group used in this graph is based on receipt in the first three post-pandemic months (though we showed robustness to an alternative definition in a prior section). The differences in benefit receipt shrink substantially after the pandemic programs are phased out, contrasting with the persistent differences in well-being documented above.

Figure 8. Trajectories in employment and benefit receipt (Job-loser groups)

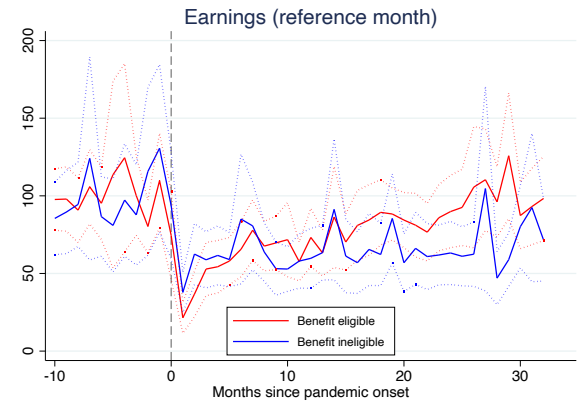
Panel A. Worked at last one hour (reference week) Normalized to pre-pandemic average



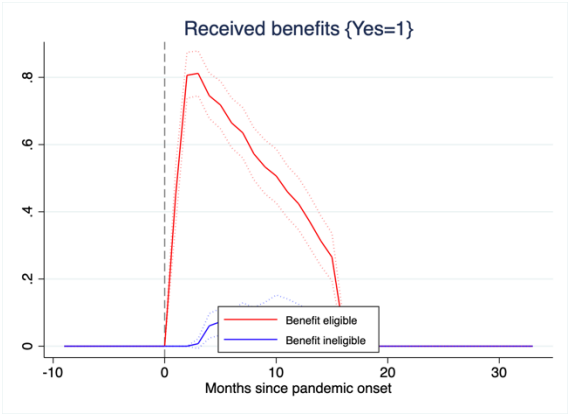
Panel B. Hours worked in reference week) Normalized to pre-pandemic average



Panel C. Average earnings among job-losers. Normalized to pre-pandemic average



Panel D. Proportion receiving UI among job-losers.



Note: Data from Monthly Event Surveys. 95% Confidence intervals are shown in dotted lines. The gray dashed vertical lines represent April 2020. In panels A to C, the variables are divided by the pre-pandemic average in each *job-loser* group (*benefit-eligible* and *benefit-ineligible.*

We estimated regressions of life satisfaction on the three post-pandemic period indicators while progressively adding controls for contemporaneous status in terms of employment, hours worked, earnings, and benefit receipt. These additions do not affect the coefficient for "post-pandemic period 3" among the *benefit-ineligible,* which does not change much and remains statistically significant. Table D1 in Appendix D shows the results.

A question that naturally arises is why a significant impact remains after the conclusion of the pandemic safety net. The absence of a large difference in the impact on employment rates and hours makes it unlikely that *socialization* or other similar non-pecuniary harms would be the primary mechanism behind these patterns.

One set of hypotheses hinges on the long-term financial consequences of the unemployment period, which we have hinted at above. One aspect relates to wealth accumulation, where the *benefit-eligible* may have been able to weather the economic storm and perhaps even save. In contrast, the *benefit-ineligible* may have had to exhaust savings or go into debt. The safety net may reduce the need to go into debt, which could shelter from downward economic spirals after a job loss.

A second group of hypotheses relates to the long-term impacts of job loss on job quality. While most people become re-employed, the new employment conditions are often worse than before displacement. A long literature on job displacement has found persistent effects on hours worked, earnings, and lifetime income (Jacobson, LaLonde et al. 1993, Farber, 2005; Farber, 2017) and even on health and mortality (Black et al., 2015; Sullivan and Von Wachter, 2019). Job displacement may also affect the non-pecuniary aspects of jobs. Sociologists have found that displacement is associated with job instability and occupational "skidding," defined as "declines in job status, pay or benefit reductions, or work satisfaction upon re-employment" (Knapp and Harms 2002). Search models in labor economics would predict that the availability of unemployment benefits affects job match quality. The *benefit-eligible* would have more resources and time to spend on the job search process, allowing them to find a better match regarding skill requirements, job location, wage rates, etc. In contrast, the *benefit-ineligible* would have had to settle for lower-quality job matches due to the urgency to find employment given limited resources. This would generate more persistent negative effects of job loss. This idea is consistent with the fact that the long-term effect of job loss on earnings is lower in Europe, where the safety net is more robust than in the United States (Black et al., 2015, Huttunen, Møen et al. 2011). Indeed, as shown in Panel A of Figure 8, the proportion working in the months immediately after the job loss was higher among the *benefit-ineligible*, suggesting it is possible that they were more likely to accept lower quality jobs.

A third hypothesis would posit psychological "scarring" arising from the unemployment experience. Perhaps the heightened level of stress among the *benefit-ineligible* translates into persistent feelings of uncertainty. Psychological scarring could, in this way, reduce the "set point" of life satisfaction (Lucas, Clark et al. 2004). Relatedly, economic distress may be associated with negative changes in family dynamics (Fonseca, Cunha et al. 2016).

We have only imperfect data to try to tease out these hypotheses. To assess whether there is an effect on financial outcomes, we turn to an analysis of post-pandemic effects using data from the Comprehensive File, which has measures of wealth and financial assets at the household level. We do not find the negative financial impacts that would be required to support the first set of hypotheses. Table 6 shows the results for one of these variables, total financial wealth. Appendix D shows results for additional variables:, total value of debt, and income from unemployment. Overall, wealth increased for all groups, and there is no statistically significant difference across the two *job-loser* groups. While the coefficients are imprecisely estimated, and there could be heterogeneity masked in these results, these results do not provide support for the first group of

hypotheses. The overall positive effects (for both groups) on financial wealth are perhaps not surprising and consistent with the findings of other studies of household finances during the pandemic (Angrisani, Burke et al. 2022). While the *benefit-ineligible* did not receive income from UI, they had shorter unemployment duration as shown in Figure 8 above, and other members of their households may have benefited from government programs.

One limitation of these variables is that they are at the household level, and individual-level financial status may be important for subjective well-being.

Table 6. Effects on Household Financial Wealth, using data from the Comprehensive File.

	Post-pandemic period 1 April-May 2020	Post-pandemic period 2 June-Dec 2020	Post-pandemic period 3 Jan 2021-Apr 2022
Benefit-eligible job-losers	3,524	7,971	18,702***
(Standard error)	(13,531)	(8,814)	(4,750)
Benefit-ineligible Job-losers	14,106	4,792	10,232*
(Standard error)	(14,031)	(9,177)	(5,238)
p-value (*Benefit-ineligible= Benefit-eligible*)	0.203	0.552	0.663
Observations		1,491	
Adjusted R-squared		0.660	

*Outcome variable is total value of financial wealth held in checking, savings, or money-market accounts.

As pointed out above, the overall patterns in re-employment and earnings are consistent with the standard search model that would predict better job matches upon re-employment among the *benefit-eligible*. We do not have much evidence to support or reject these groups of hypotheses. We have one measure of "satisfaction with job and daily activities" from the Comprehensive File. Table 7 below shows an analysis using that variable as the outcome variable. It suggests a large detrimental effect of the pandemic. However, the coefficients and standard errors are large for both *job-loser* groups, and the difference between the two groups is not statistically significant, so it is difficult to assess how large a role this could have played in explaining the difference in patterns across the two groups.

Table 7. Effects on Satisfaction with Job and Daily Activities, using data from the Comprehensive File.

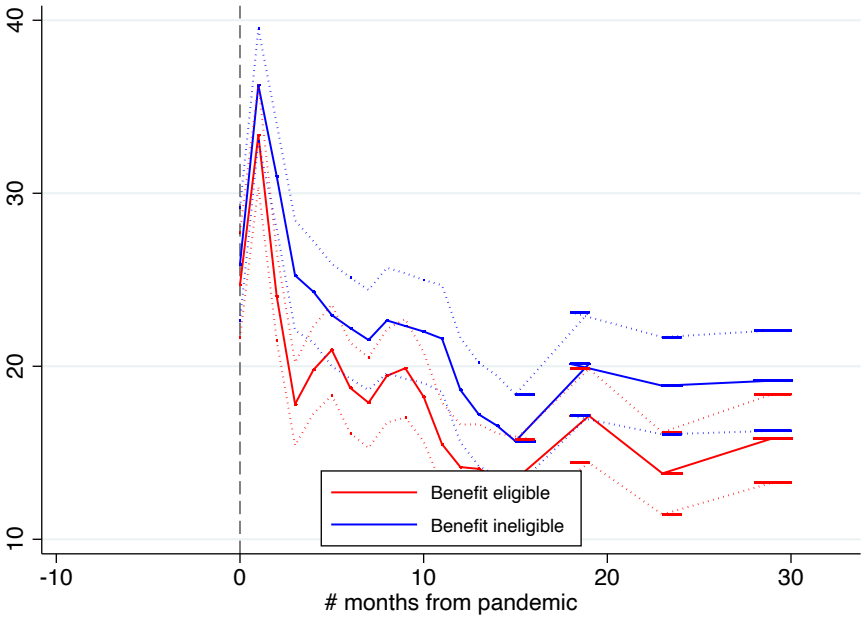
	Post-pandemic period 1 April-May 2020	Post-pandemic period 2 June-Dec 2020	Post-pandemic period 3 Jan 2021-Apr 2022
Benefit-eligible job-losers	-0.827***	0.016	-0.320**
	(0.152)	(0.432)	(0.129)
Benefit-ineligible Job-losers	-0.374**	-0.635	-0.274**
	(0.160)	(0.430)	(0.134)
p-value (*Benefit-ineligible= Benefit-eligible*)	0.040	0.286	0.807
Observations		2,396	
Adjusted R-squared		0.574	

While there were no significant differences in effects on household wealth, there are impacts on subjective assessments of it. The UCAS also included two variables on subjective assessments of financial resilience. The first is a variable that measures short-term economic concern: where the respondents are asked to provide their "perceived chance that you would run out of money in the next three months." In (late) March 2020, both job loser groups provided a similar response to the question, with an average percent chance of around 25%. Panel A of Figure 9 shows the trajectories in this variable. In April, the average in the *benefit-eligible* group rose to 33%, and 36% in the *benefit-ineligible* group. The difference widened by May as the *benefit eligible* recovered more than the *benefit ineligible.* The gap remains throughout the period studied.

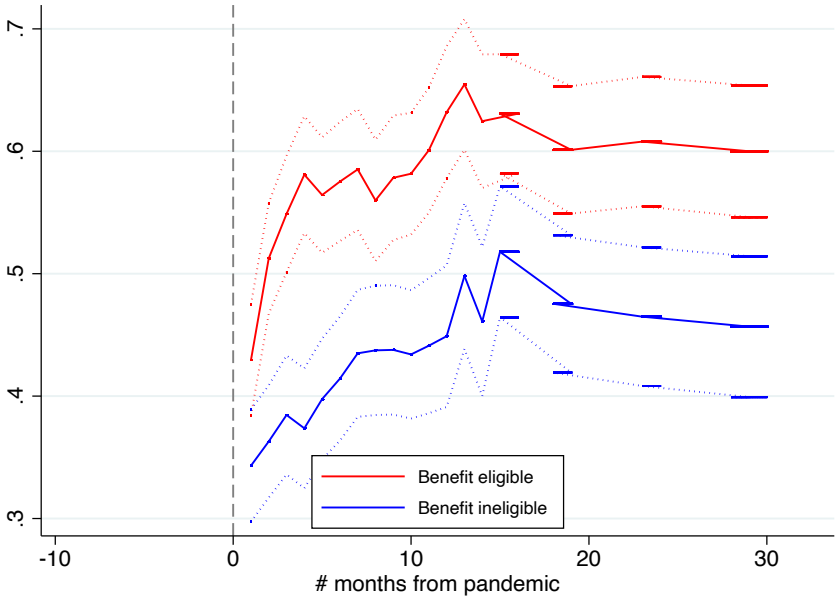
The second panel shows the results for an indicator variable of whether the respondents say they are confident they could pay for an unexpected $2,000 expense. This confidence recovered faster among the benefit-eligible group, with a significant difference in the recovery in May and the summer and early Fall months of 2020. By May and June, when the UI and other public support programs started flowing in, those in the *benefit-eligible group* had recovered significantly and were significantly more confident in their ability to pay for an unexpected expense than the *benefit-ineligible* group.

Figure 9. Improvement in Short Run Economic Anxiety since April 2020, by Benefit Eligibility status

Panel A. Percent chance of running out of money in the next three months.



Panel B. Confidence in being able to pay an unexpected $2,000 expense.



The Comprehensive File includes data from a survey on financial services fielded every two years, which includes questions about respondents' confidence in their ability to pay for unexpected expenses of different amounts. Table 8 below presents the results for the case of a $400 expense. There is a persistent reduction in confidence among the *benefit-ineligible job-losers,* which is not present among the *benefit-eligible.* Appendix D presents results for questions using different amounts. The patterns are similar, but the differences are not statistically significant in all cases. Appendix D also includes results when the dependent variable is "satisfaction with income," and while imprecise, it shows a relative deterioration for the *benefit-ineligible* in the latest post-pandemic onset period.

Table 8. Effects on confidence in the ability to pay for a $500 Expense, using data from the Comprehensive File.

	Post-pandemic period 1 April-May 2020	Post-pandemic period 2 June-Dec 2020	Post-pandemic period 3 Jan 2021-Apr 2022
Benefit-eligible job-losers	0.083*	0.203***	0.037
	(0.043)	(0.044)	(0.028)
Benefit-ineligible Job-losers	-0.010	0.021	-0.083***
	(0.053)	(0.043)	(0.028)
p-value (*Benefit-ineligible= Benefit-eligible*)	0.177	0.003	0.002
Observations		2,546	
Adjusted R-squared		0.664	

These variables represent a subjective appreciation of their financial risks or fragility. We cannot tell whether it is the case that the *benefit-ineligible* are indeed more likely to run out of money or simply that they feel like it. We did not find evidence of differences in accumulated wealth or debts across the two groups, but it could be that the jobs they took on were less stable.[10] On the other hand, the results could be entirely psychological.

We cannot rule out a psychological scarring of unemployment when unprotected, nor that there were longer-term economic consequences of unemployment for the *benefit-ineligible* group.

[10] Jarosch, G. (2023) argues that the long-term impacts of job-loss on earnings arise from the job-losers getting re-employed in more unstable jobs.

VIII. Discussion

The two main empirical findings of this paper are straightforward: 1) Subjective well-being experienced a drop at the onset of the pandemic for everyone; however, this decrease was substantially more pronounced for those who lost their jobs. 2) Among those who lost their jobs, only the individuals who were able to access the safety net managed to recover quickly. However, the implications of these finding for different strands in the literature are more complex.

Our results are circumscribed to a place and time, and we should not assume they would equally apply to job loss in other circumstances. On the contrary, our results demonstrate that the impacts of job loss are heterogeneous. Other studies in the literature have documented differences in unemployment impacts across groups, such as immigrants versus natives (Leopold, Leopold et al., 2017);[11] and men and women (Van der Meer, 2014; Heyne and Voßemer, 2023).[12] Therefore, we should expect the effects of unemployment to be different in different circumstances, depending on who is affected, the institutional setting, government response, etc.

This heterogeneity is likely to be at least partly a result of the multi-faceted nature of the well-being impacts of job loss. Our study has implications for the discussion of the reasons why unemployment has strong well-being impacts. We argue that the much larger effect among the *benefit-ineligible* is inconsistent with non-economic factors being the sole driver of the job loss impacts. However, we do not claim that non-economic effects can never be important. The nature of job loss may affect the extent to which different effects matter. Stigma, loss of status, and personality threats may be more important aspects in times when job loss is rare (Brand, 2015) (Wanberg, 2012). Conversely, the economic concerns related to unemployment are heightened during high unemployment because finding a new job is perceived to be more difficult (Brand, 2015; Kassenboehmer and Haisken-DeNew, 2009). It is quite possible that the much larger degree of job loss under the Covid-19 crisis would lead to a muting of stigma while raising financial concerns. Stigma and other non-economic factors may be a stronger cause of distress for job loss in other contexts.

Finally, we note that the statement that economic concerns are a prime driver of the effects may seem to be in contradiction to the relatively quick recoveries in employment and lack of negative impacts on household wealth. However, acute stress about financial aspects after job loss may have led to persistent feelings of economic insecurity, whether or not those feelings are warranted.

[11] Though the study finds that the difference across these groups is likely to be explained by differences in characteristics of the unemployment experiences across the groups, such as whether the job separation was voluntary or unvoluntary.

[12] Heyne and Voßemer (2023) argue that gendered social norms about employment can explain larger unemployment impacts on wellbeing among men than women.

IX. Conclusion

The pandemic caused a larger dip in the subjective well-being of the population that suffered job loss than for those who kept their job, but the effects were prolonged for those who did not have immediate access to the safety net. While our main measure of life satisfaction is only available monthly for those 50 or older, using an alternative SWB measure and a measure of mental distress yields qualitatively similar results for both those 50 and older and those under 50.

The findings highlight the primacy of economic and employment-related concerns for subjective well-being. The economic consequences of the pandemic were responsible for a large fraction of the pandemic-induced drop in subjective well-being. At its peak, the average drop of 0.18 points in life satisfaction for those who lost a job and could not access the safety net is comparable to about 75% of the drop after a cancer diagnosis. While some adaptation took place, more than half of this drop remained two years after the event. Thus, the large job loss effects were largely moderated by access to the safety net.

The subjective well-being impacts of job loss are strongest for those for whom the economic impacts are most severe. Earlier literature had argued that it was the non-pecuniary aspects of unemployment that were most important. Thus, it is perhaps surprising that we find a much stronger effects for the group of respondents for whom job loss represented larger financial consequences (those who were not able to tap into the safety net). Those who were sheltered by the safety net recovered their well-being more rapidly. It is notable, however, that the subjective well-being impacts of job loss among the ineligible group remain even though most people re-gained employment a few months after losing it. Persistent feelings of economic uncertainty and/or job quality after re-employment may explain the persistence of the effects.

While we observe rapid recovery in subjective well-being among most of the population, consistent with the "hedonic treadmill" explanation of adaptation, both the degree of the reduction in subjective well-being and the speed of adaptation, were affected by real-world conditions, particularly employment and access to the safety net. We cannot rule out the persistence of a drop in subjective well-being more than two years after the pandemic onset among the subgroups of respondents who experienced an employment shock and were not eligible for the safety net programs.

X. References

Alattar, L., M. Messel and D. Rogofsky (2018). "An introduction to the Understanding America Study internet panel." Soc. Sec. Bull. **78**: 13.

Angrisani, M., J. Burke and A. Kapteyn (2022). "The Early Impacts of Coronavirus Pandemic on Americans' Economic Security." Wharton Pension Research Council Working Paper(2022-05).

Angrisani, M., J. Burke and A. Kapteyn (2022). "The Ongoing Impacts of COVID-19 on Americans' Economic Security." Ann Arbor, MI. University of Michigan Retirement and Disability Research Center (MRDRC) Working Paper.

Angrisani, M., B. Finley and A. Kapteyn (2019). Can Internet Match High-quality Traditional Surveys? Comparing the Health and Retirement Study and its Online Version. The Econometrics of Complex Survey Data: Theory and Applications, Emerald Publishing Limited**:** 3-33.

Banko-Ferran, D., R. Gihleb and O. Giuntella (2023). The Impact of COVID-19 on Mental Health, Springer International Publishing**:** 1-18.

Banks, J., D. Fancourt and X. Xu (2021). "Mental health and the COVID-19 pandemic." World happiness report **2021**: 107-130.

Barcellos, S., M. Jacobson and A. A. Stone (2021). "Varied and unexpected changes in the well-being of seniors in the United States amid the COVID-19 pandemic." Plos one **16**(6): e0252962.

Black, S. E., P. J. Devereux and K. G. Salvanes (2015). "Losing heart? The effect of job displacement on health." ILR Review **68**(4): 833-861.

Brand, J. E. (2015). "The far-reaching impact of job loss and unemployment." Annual review of sociology **41**: 359-375.

Cheng, T. C., S. Kim and K. Koh (2022). "Life satisfaction changes and adaptation in the covid-19 pandemic: Evidence from singapore." Singapore Economic Review.

Daly, M. and L. Delaney (2013). "The scarring effect of unemployment throughout adulthood on psychological distress at age 50: Estimates controlling for early adulthood distress and childhood psychological factors." Social Science & Medicine **80**: 19-23.

de Miquel, C., J. Domènech-Abella, M. Felez-Nobrega, P. Cristóbal-Narváez, P. Mortier, G. Vilagut, J. Alonso, B. Olaya and J. M. Haro (2022). "The mental health of employees with job loss and income loss during the COVID-19 pandemic: the mediating role of perceived financial stress." International Journal of Environmental Research and Public Health **19**(6): 3158.

Easterlin, R. A. (2013). "Happiness, growth, and public policy." Economic Inquiry **51**(1): 1-15.

Easterlin, R. A. (2021). An Economist's Lessons on Happiness: Farewell Dismal Science!, Springer.

Farber, H. S. (2005). "What do we know about job loss in the United States? Evidence from the Displaced Workers Survey, 1984–2004." Economic Perspectives **29**(2): 13-28.

Farber, H. S. (2017). "Employment, hours, and earnings consequences of job loss: US evidence from the displaced workers survey." Journal of Labor Economics **35**(S1): S235-S272.

Fonseca, G., D. Cunha, C. Crespo and A. P. Relvas (2016). "Families in the context of macroeconomic crises: A systematic review." Journal of Family Psychology **30**(6): 687.

Helliwell, J. F. and H. Huang (2014). "New measures of the costs of unemployment: Evidence from the subjective well-being of 3.3 million Americans." Economic Inquiry **52**(4): 1485-1502.

Hellmann, S. S., S. P. Møller, A. K. Ersbøll, Z. I. Santini, M. B. D. Nielsen, M. K. Grønbæk, O. Ekholm and L. C. Thygesen (2023). "Labor force participation during COVID-19 and risk of depression: a Danish register study." European Journal of Public Health **33**(1): 80-86.

Heyne, S. and J. Voßemer (2023). "Gender, unemployment, and subjective well-being: Why do women suffer less from unemployment than men?" European Sociological Review **39**(2): 301-316.

Holingue, C., L. G. Kalb, K. E. Riehm, D. Bennett, A. Kapteyn, C. B. Veldhuis, R. M. Johnson, M. D. Fallin, F. Kreuter and E. A. Stuart (2020). "Mental Distress in the United States at the Beginning of the COVID-19 Pandemic." American journal of public health **110**(11): 1628-1634.

Huttunen, K., J. Møen and K. G. Salvanes (2011). "How destructive is creative destruction? Effects of job loss on job mobility, withdrawal and income." Journal of the European Economic Association **9**(5): 840-870.

Jacobson, L. S., R. J. LaLonde and D. G. Sullivan (1993). "Earnings losses of displaced workers." The American economic review: 685-709.

Jarosch, G. (2023). Searching for job security and the consequences of job loss, Econometrica (forthcoming).

Kapteyn, A. (2020). "Income growth is unlikely to help, but we can learn from international comparisons." Behavioural Public Policy **4**(2): 188-197.

Kapteyn, A., M. Angrisani, D. Bennett, W. B. de Bruin, J. Darling, T. Gutsche, Y. Liu, E. Meijer, F. Perez-Arce and S. Schaner (2020). Tracking the effect of the COVID-19 pandemic on the lives of American households. Survey Research Methods.

Kassenboehmer, S. C. and J. P. Haisken-DeNew (2009). "You're fired! The causal negative effect of entry unemployment on life satisfaction." The Economic Journal **119**(536): 448-462.

Knapp, T. and J. Harms (2002). "When the screen goes blank: A television plant closing and its impacts on workers." The Sociological Quarterly **43**(4): 607-626.

Lee, J. O., A. Kapteyn, A. Clomax and H. Jin (2021). "Estimating influences of unemployment and underemployment on mental health during the COVID-19 pandemic: who suffers the most?" Public Health **201**: 48-54.

Leopold, L., T. Leopold and C. M. Lechner (2017). "Do immigrants suffer more from job loss? Unemployment and subjective well-being in Germany." Demography **54**(1): 231-257.

Lucas, R. E., A. E. Clark, Y. Georgellis and E. Diener (2004). "Unemployment alters the set point for life satisfaction." Psychological science **15**(1): 8-13.

Luhmann, M., W. Hofmann, M. Eid and R. E. Lucas (2012). "Subjective well-being and adaptation to life events: a meta-analysis." Journal of personality and social psychology **102**(3): 592.

Montes, J., Smith, C., & Dajon, J. (2022). "The Great Retirement Boom": The Pandemic-Era Surge in Retirements and Implications for Future Labor Force Participation.

Nguyen, L. H., A. Anyane-Yeboa, K. Klaser, J. Merino, D. A. Drew, W. Ma, R. S. Mehta, D. Y. Kim, E. T. Warner and A. D. Joshi (2022). "The mental health burden of racial and ethnic minorities during the COVID-19 pandemic." Plos one **17**(8): e0271661.

O'Connor, K. J. (2017). "Happiness and welfare state policy around the world." Review of Behavioral Economics **4**(4): 397-420.

Paul, K. I. and K. Moser (2009). "Unemployment impairs mental health: Meta-analyses." Journal of Vocational behavior **74**(3): 264-282.

Riehm, K. E., C. Holingue, E. J. Smail, A. Kapteyn, D. Bennett, J. Thrul, F. Kreuter, E. E. McGinty, L. G. Kalb and C. B. Veldhuis (2021). "Trajectories of Mental Distress Among US Adults During the COVID-19 Pandemic." Annals of Behavioral Medicine **55**(2): 93-102.

Robinson, E., A. R. Sutin, M. Daly and A. Jones (2022). "A systematic review and meta-analysis of longitudinal cohort studies comparing mental health before versus during the COVID-19 pandemic in 2020." Journal of Affective Disorders **296**: 567-576.

Shen, J. and I. Kogan (2020). "Job loss or income loss: How the detrimental effect of unemployment on men's life satisfaction differs by immigration status." Frontiers in Sociology **5**: 10.

Sullivan, D. and T. Von Wachter (2009). "Job displacement and mortality: An analysis using administrative data." The Quarterly Journal of Economics **124**(3): 1265-1306.

Van der Meer, P. H. (2014). "Gender, unemployment and subjective well-being: Why being unemployed is worse for men than for women." Social Indicators Research **115**(1): 23-44.

Wanberg, C. R. (2012). "The individual experience of unemployment." Annual review of psychology **63**: 369-396.

Winkelmann, L. and R. Winkelmann (1998). "Why are the unemployed so unhappy? Evidence from panel data." Economica **65**(257): 1-15.

Zhao, Y. (2023). Job displacement and the mental health of households: Burden sharing counteracts spillover. Labour Economics, 81, 102340.

XI. Appendices

Appendix A. Results including "non-workers"

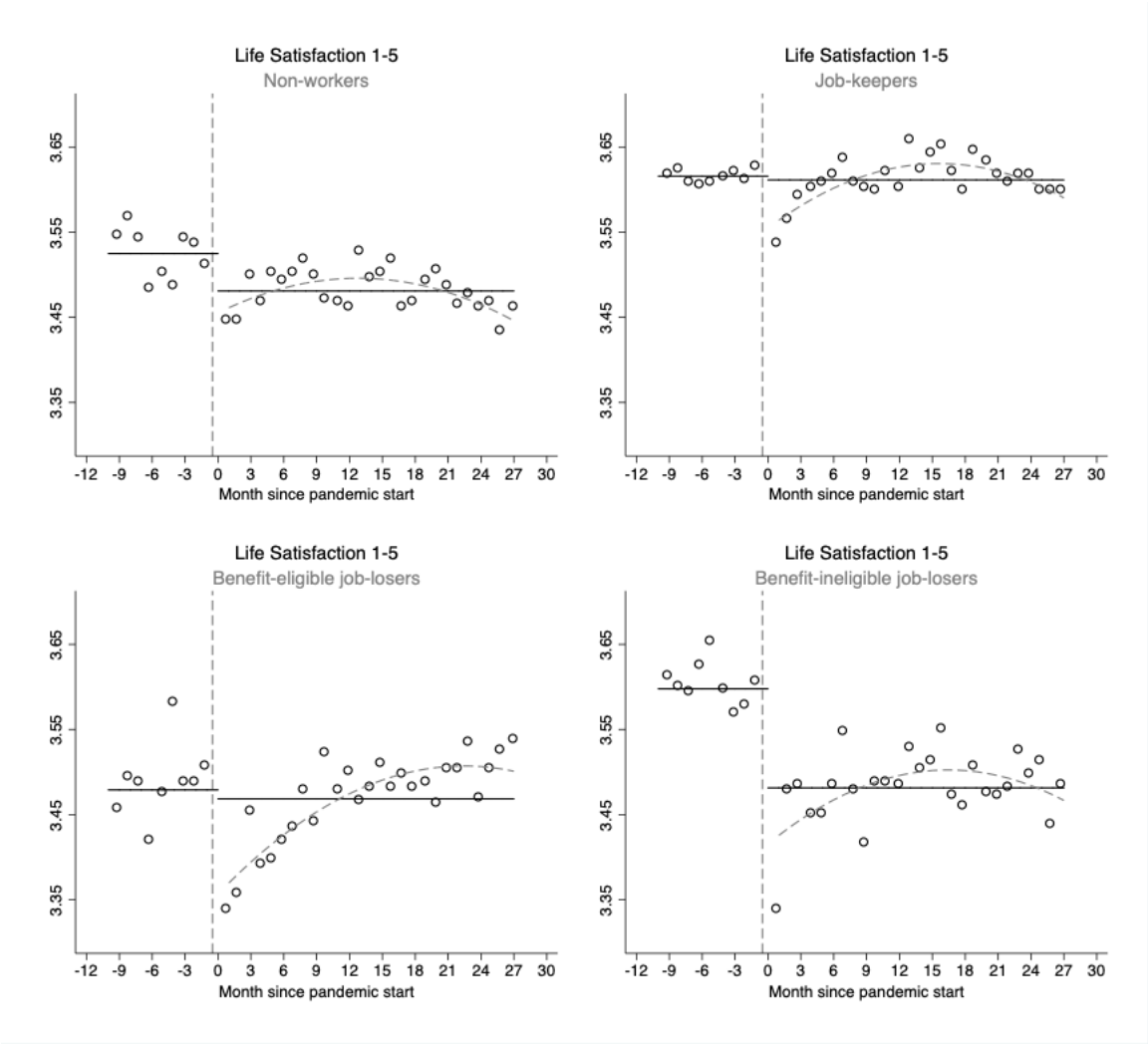
Table A1—. Predetermined characteristics, by groups (including those not working in the month prior to the pandemic)

	Non-workers	*Job-keepers*	*Benefit-eligible job-losers*	*Benefit-ineligible job-losers*
Male	0.445	0.486	0.432	0.407
Age (continuous)	57.36	44.95	45.37	45.65
Age (under 30=yes)	0.083	0.100	0.111	0.194
Age (over 60=yes)	0.558	0.145	0.144	0.233
White (non-Hispanic)	0.702	0.646	0.617	0.548
Black (non-Hispanic)	0.076	0.073	0.078	0.104
Hispanic	0.134	0.172	0.198	0.240
Bachelor's degree	0.322	0.493	0.361	0.300
First generation immigrant	0.092	0.114	0.119	0.163
Earnings at baseline	5,315	60,449	37,537	22,164
Work hours at baseline		39.65	36.29	30.67
N (in Monthly Event Survey)[1]	1,849	1,468	185	183
N [2]	2,568	3,462	404	387

[1] Number of panelists used in models that include variables from both the Monthly Event Dataset and the Understanding Coronavirus in America Study; such as the models of Life Satisfaction. [2] Number of panelists for models that use variables from the UCAS only.

Figure Appendix A.1. Pre- and Post-Pandemic levels of life satisfaction by "job group"

Panel A. Life Satisfaction by Job-group (including "non-workers").



The top panels show the evolution of life satisfaction for respondents who did not experience a change in their employment situation (*job-keepers* and *non-workers*). *Non-workers* experienced a drop in Life Satisfaction of 0.09 points on the 1 to 5 scale in the first two months of the pandemic, then partially recovered to 0.04 points below their pre-pandemic levels in the second half of 2020, but did not reach the pre-pandemic level. *Job-keepers'* life satisfaction dropped about 0.06 in the first two months of the pandemic but progressively recovered, reaching a level equal to the pre-pandemic average in September 2020.

Appendix B. Additional results on pandemic impacts on Subjective Well-being

Table B1. Testing for "Pre-trends"

Dependent variable: Life Satisfaction {1-5}						
Group:	(1) Job-keepers	(2) Benefit-eligible job-losers	(3) Benefit-ineligible job-losers	(4) Job-keepers	(5) Benefit-eligible job-losers	(6) Benefit-ineligible job-losers
Number of months from the start of the pandemic	0.001	0.001	-0.004	0.007	-0.017	-0.013
	(0.003)	(0.007)	(0.007)	(0.009)	(0.028)	(0.026)
Square of months since the pandemic				0.001	-0.002	-0.001
				(0.001)	(0.003)	(0.003)
Observations	9,009	1,121	1,196	9,009	1,121	1,196
R-squared	0.000	0.000	0.000	0.000	0.000	0.000
Specification	linear	linear	linear	quadratic	quadratic	quadratic
pval	0.658	0.929	0.537	0.449	0.541	0.615
pval2				0.510	0.508	0.727

All regressions include individual-level fixed effects. Standard errors clustered at the individual level *** p<0.01, ** p<0.05, * p<0.1

Table B2. Effects of the pandemic on Being Very or Extremely Satisfied by groups. Linear Regression Detailed post-pandemic grouping.

	Single post-pandemic period	**Three post-pandemic sub-periods**		
	Post-pandemic vs. Pre-pandemic	Post-pandemic period 1 April-May 2020	Post-pandemic period 2 June-Dec 2020	Post-pandemic period 3 Jan 21-Dec 22
Job-keepers	-0.020***	-0.045***	-0.020***	-0.017**
Mean at baseline=0.60	(0.007)	(0.009)	(0.008)	(0.008)
Benefit-eligible job-losers	-0.003	-0.072***	-0.032	0.013
Mean at baseline=0.49	(0.022)	(0.026)	(0.023)	(0.024)
Benefit- ineligible Job-losers	-0.060***	-0.088***	-0.061***	-0.056***
Mean at baseline=0.61	(0.020)	(0.030)	(0.022)	(0.022)
p-value (*Benefit-eligible = job-keepers*)	0.482	0.323	0.615	0.241
p-value (*Benefit-ineligible= job-keepers*)	0.062	0.701	0.351	0.035
p-value (*Benefit-ineligible= Benefit-eligible*)	0.062	0.701	0.351	0.036
Observations	58,568		58,568	
Number of clusters	1,836		1,836	
Adjusted R-squared	0.6213		0.6216	

Notes: the coefficients denote the difference in LS in the post-pandemic period(s) versus the same group in the pre-pandemic period. Individual fixed effect regressions. Standard errors clustered at the individual level.

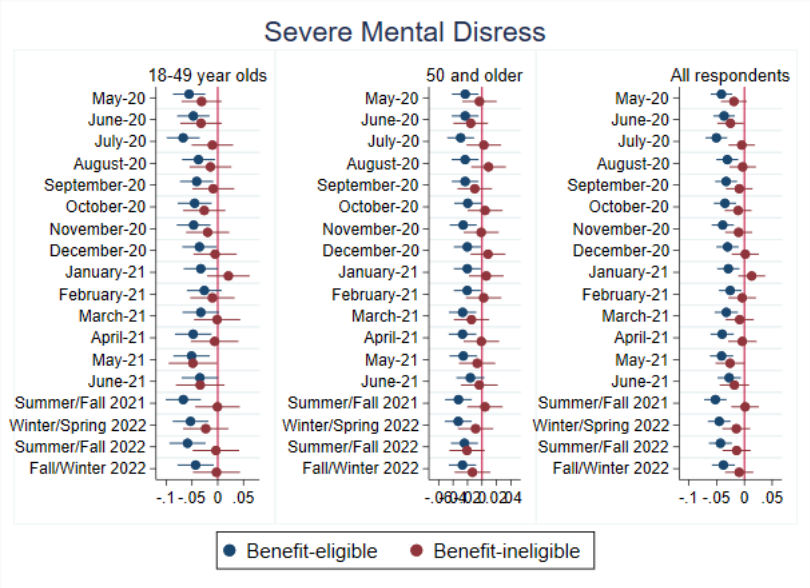
Table B3. Effects of the pandemic on Life Satisfaction. Additional alternative definitions of job loss and unemployment insurance.

VARIABLES			*Group*			
			Job-keepers			
Definition	Benchmark	*Job Alternative 2*	*Job Alternative 3*	*Benefit Alternative 3*	*Spousal Job Loss and Benefit A1*	*Spousal Job Loss and Benefit A2*
Post-pandemic period 1, 04/20-05/20	-0.063***	-0.061***	-0.065***	-0.063***	-0.062***	-0.062***
	(0.013)	(0.013)	(0.014)	(0.013)	(0.013)	(0.013)
Post-pandemic period 2, 06/20-01/21	-0.019*	-0.021*	-0.027**	-0.019*	-0.019*	-0.019*
	(0.010)	(0.011)	(0.011)	(0.010)	(0.010)	(0.010)
Post-pandemic period 3, 01/21-12/22	-0.028**	-0.028**	-0.033***	-0.028**	-0.029**	-0.029**
			Benefit-eligible Job-losers			
Post-pandemic period 1, 04/20-05/20	-0.117***	-0.131***	-0.089***	-0.134***	-0.115***	-0.117***
	(0.042)	(0.041)	(0.028)	(0.037)	(0.041)	(0.042)
Post-pandemic period 2, 06/20-01/21	-0.035	-0.038	-0.003	-0.061*	-0.037	-0.035
	(0.037)	(0.034)	(0.025)	(0.031)	(0.036)	(0.037)
Post-pandemic period 3, 01/21-12/22	0.009	-0.002	0.002	-0.031	0.005	0.009
	(0.039)	(0.036)	(0.026)	(0.033)	(0.038)	(0.039)
			Benefit-ineligible job-losers			
Post-pandemic period 1, 04/20-05/20	-0.180***	-0.172***	-0.167***	-0.176***	-0.149***	-0.147***
	(0.047)	(0.044)	(0.045)	(0.059)	(0.044)	(0.043)
Post-pandemic period 2, 06/20-01/21	-0.117***	-0.099***	-0.102***	-0.107***	-0.096***	-0.096***
	(0.032)	(0.031)	(0.032)	(0.039)	(0.030)	(0.029)
Post-pandemic period 3, 01/21-12/22	-0.107***	-0.089***	-0.091***	-0.084**	-0.095***	-0.096***
	(0.029)	(0.028)	(0.029)	(0.035)	(0.027)	(0.027)

Appendix C. Additional results on Impacts on Mental Health.

This appendix includes some additional figures and tables on the trajectories of mental health for the different job groups.

Figure C1. Recovery of Severe Mental Distress among job-losers since April 2020 by access to benefits.



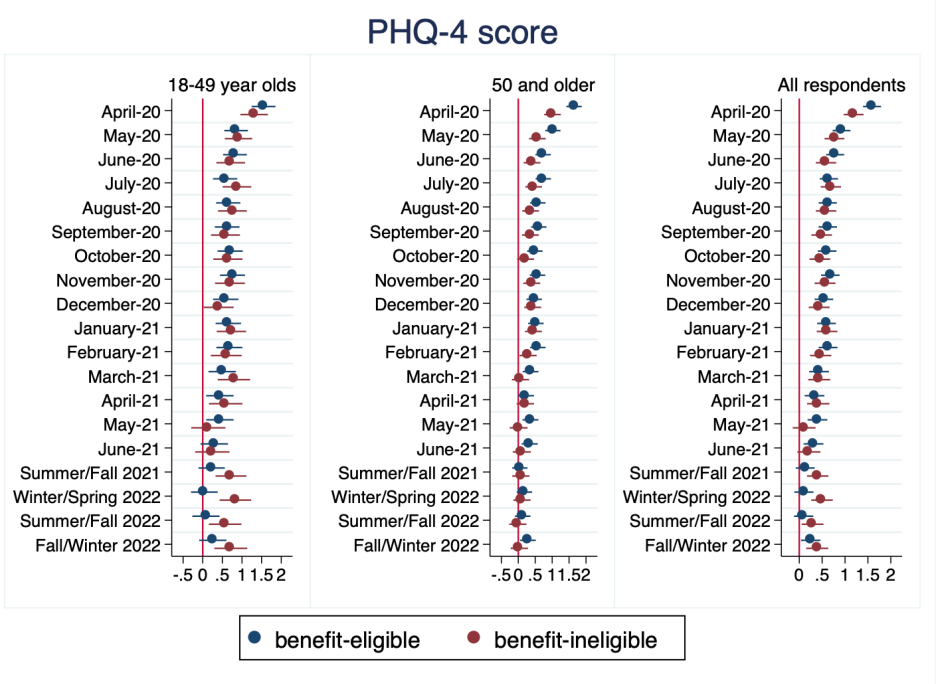
The Comprehensive File includes the CESD score, which is a measure of mental distress. It is fielded to all UAS panelists approximately every two years.

It is not strictly comparable to the UCAS measure (PHQ-4). Wave 19 of the UCAS surveys included both measures, so we estimated the relationship between the two (via a linear regression of PHQ-4 against the CESD score). We use this to transform the CESD measure into a PHQ-4 score for the latest available date before March 2020.

Figure C.2 shows the results when using this variable as a baseline level of mental distress. The standard errors increase because of the loss of observations (from respondents who do not have a pre-pandemic measure of mental distress) and the noise introduced by the conversion of CESD to PHQ-4. However, the patterns in point estimates mimic those we have shown so far: Both *job loser* groups suffer an increase in mental distress in the first month of the pandemic, but the *benefit-eligible* recover faster and more completely.

In this case, the coefficients measure the difference in the level of mental distress in the indicated period versus the (estimated) level of mental distress before the pandemic.

Figure C2 Initial Impact and Subsequent Recovery. Effects of the pandemic on PHQ-4 scores among job-losers since the pre-pandemic period, by access to benefits.



An alternative approach is to rely entirely on data from the Comprehensive File, which provides CESD scores for all panelists in two-year intervals and calculates fixed effects regressions similar to the ones on life satisfaction though it includes far fewer observations per respondent.

Table C3. shows the results for severe mental distress. While the results are very imprecise, the coefficients show both *job-loser* groups having higher levels of mental distress in the last period. Their difference is not statistically significant.

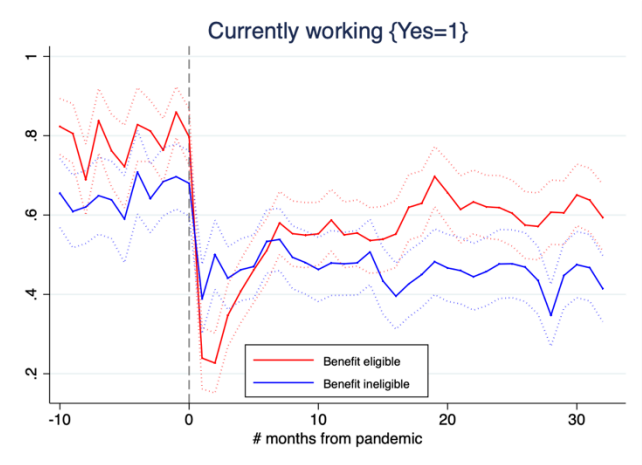
Table C3. Effects on Severe Mental Distress among all adults, using data from the Comprehensive File.

	Post-pandemic period 1 April-May 2020	Post-pandemic period 2 June-Dec 2020	Post-pandemic period 3 Jan 2021-Apr 2022
Benefit-eligible job-losers	0.017	0.043	0.039*
	(0.020)	(0.031)	(0.020)
Benefit-ineligible Job-losers	-0.008	-0.005	0.059***
	(0.021)	(0.030)	(0.022)
p-value (*Benefit- ineligible = Benefit-eligible*)			0.499
Observations		2,333	
Adjusted R-squared		0.55	

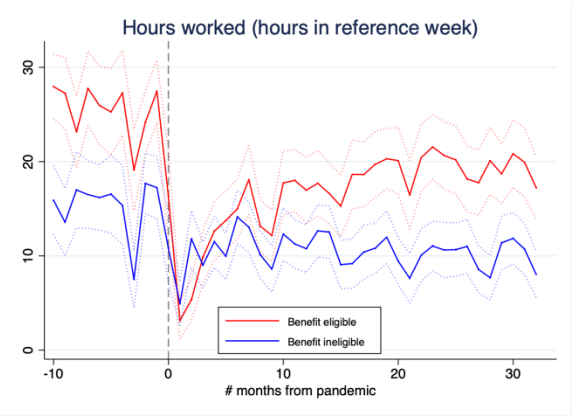
Appendix D. Additional Figures and Tables on Dynamics and Mechanisms

Figure D1. Not-normalized version of Figure 8: Trajectories in employment and benefit receipt (Job-loser groups)

Panel 1. Worked at last one hour (reference week)

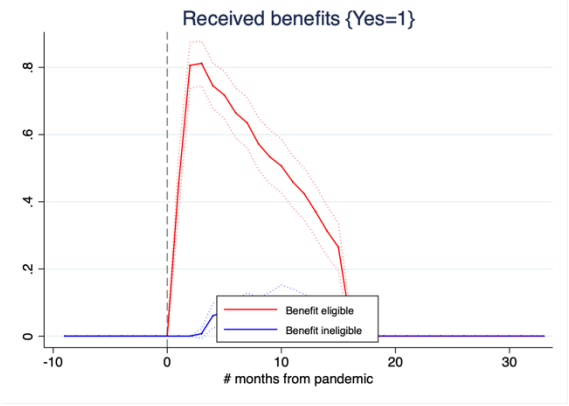


Panel 2. Hours worked in reference week)



Panel 3. Average earnings among job-losers.

Panel 4. Proportion receiving UI among job-losers.



Note: Data from Monthly Event Surveys. 95% Confidence intervals are shown in dotted lines. The gray dashed vertical lines represent April 2020.

Table D1. Pandemic trajectories in Life Satisfaction, including whether working, hours worked, and UI receipt as covariates.

	Dependent variable: Life Satisfaction (1 to 5)			
Worked {Yes=1}		0.030**	0.009	0.008
		(0.014)	(0.022)	(0.022)
Number of hours			0.001*	0.001*
			(0.001)	(0.001)
Received payment from UI (Yes=1)				-0.008
				(0.022)
Benefit-eligible job-losers X				
Post-pandemic period 1, 04/20-05/20	-0.118***	-0.083**	-0.056	-0.051
	(0.031)	(0.034)	(0.036)	(0.038)
Post-pandemic period 2, 06/20-01/21	-0.034*	-0.015	0.004	0.009
	(0.020)	(0.021)	(0.023)	(0.026)
Post-pandemic period 3, 01/21-04/22	0.014	0.027	0.041**	0.043**
	(0.017)	(0.019)	(0.020)	(0.020)
Benefit-ineligible job-losers X				
Post-pandemic period 1, 04/20-05/20	-0.062	-0.093**	-0.116**	-0.121**
	(0.043)	(0.046)	(0.048)	(0.050)
Post-pandemic period 2, 06/20-01/21	-0.079***	-0.086***	-0.094***	-0.099***
	(0.027)	(0.029)	(0.031)	(0.033)
Post-pandemic period 3, 01/21-04/22	-0.105***	-0.113***	-0.126***	-0.127***
	(0.024)	(0.026)	(0.028)	(0.028)
Constant	3.532***	3.517***	3.502***	3.503***
	(0.010)	(0.014)	(0.015)	(0.015)
Observations	9,290	8,086	7,446	7,446
R-squared	0.633	0.640	0.642	0.642

Individual fixed effect regressions Standard errors clustered at the individual level. *** p<0.01, ** p<0.05, * p<0.1

Table D2. Pandemic effects on household-level finances, subjective financial outcomes, and satisfaction with life domains.

Panel A. Financial outcomes

VARIABLES	(1) Wealth in bank accounts*	(2) Value of debt (excluding mortgage)	(3) Income from unemployment [t]
Post-pandemic period 1, 04/20-05/20 X			
Benefit eligible	3,524	-4,025	1,136**
	(13,531)	(9,919)	(567)
Benefit Ineligible	14,106	2,396	631
	(14,031)	(10,285)	(587)
p-val (*Benefit eligible = Benefit ineligible)*	0.203	0.787	0.148
Post-pandemic period 2, 06/20-01/21 X			
Benefit eligible	7,971	14,893**	440
	(8,814)	(6,461)	(369)
Benefit Ineligible	4,792	-6,367	400
	(9,177)	(6,728)	(384)
p-val (*Benefit eligible = Benefit ineligible)*	0.522	0.163	0.0250
Post-pandemic period 3, 01/21-04/22			
Benefit eligible	18,702***	-2,308	5,311***
	(4,750)	(3,482)	(199)
Benefit Ineligible	10,232*	-144	908***
	(5,238)	(3,840)	(219)
p-val (*Benefit eligible = Benefit ineligible)*	0.663	0.693	<0.001
N	1491	1491	1491
R-squared	0.66	0.58	0.53

**Wealth in checking, saving, and money market accounts, [t]Income from unemployment benefits in the prior 12 months*

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Panel B. Subjective financial outcomes. Confident in the ability to pay for an unexpected expense.

VARIABLES	(1) $500	(2) $1,000	(3) $5,000	(4) $10,000
	Post-pandemic period 1, 04/20-05/20 X			
Benefit eligible	0.083*	0.120***	0.028	0.024
	(0.043)	(0.044)	(0.037)	(0.031)
Benefit Ineligible	-0.010	0.122**	0.048	0.004
	(0.053)	(0.056)	(0.046)	(0.040)
p-val (*Benefit eligible = Benefit ineligible)*	0.177	0.981	0.734	0.691
	Post-pandemic period 2, 06/20-01/21 X			
Benefit eligible	0.021	0.083*	0.099***	0.027
	(0.043)	(0.045)	(0.038)	(0.032)
Benefit Ineligible	0.037	0.207***	0.165***	0.104***
	0.021	0.083*	0.099***	0.027
p-val (*Benefit eligible = Benefit ineligible)*	0.003	0.979	0.836	0.527
	Post-pandemic period 3, 01/21-04/22			
Benefit eligible	0.037	0.207***	0.165***	0.104***
	(0.028)	(0.028)	(0.024)	(0.021)
Benefit Ineligible	-0.083***	0.160***	0.101***	0.052**
	(0.028)	(0.029)	(0.024)	(0.021)
p-val (*Benefit eligible = Benefit ineligible)*	0.002	0.243	0.063	0.075
N	2,546	2,542	2,540	2,542
R-squared	0.626	0.715	0.716	0.705

Panel C. Satisfaction by life domains

VARIABLES	(1) Satisfaction with life overall	(2) Satisfaction with income	(3) Satisfaction with job / daily activities	(4) Satisfaction with health	(5) Satisfaction with family life	(6) Satisfaction with number of friends
			Post-pandemic period 1, 04/20-05/20 X			
Benefit eligible	-0.398***	-0.748***	-0.827***	-0.092	-0.202*	0.092
	(0.103)	(0.135)	(0.134)	(0.108)	(0.117)	(0.133)
Benefit Ineligible	-0.032	-0.210	-0.374***	0.179	0.284**	0.354**
	(0.108)	(0.141)	(0.140)	(0.113)	(0.123)	(0.140)
p-val (*Benefit eligible = Benefit ineligible)*	0.0140	0.00600	0.0190	0.0830	0.00400	0.174
			Post-pandemic period 2, 06/20-01/21 X			
Benefit eligible	0.227	0.396	0.016	-0.088	-0.264	-0.249
	(0.293)	(0.383)	(0.380)	(0.307)	(0.332)	(0.378)
Benefit Ineligible	-0.455	-0.991***	-0.635*	-0.566*	0.078	0.082
	(0.291)	(0.381)	(0.378)	(0.305)	(0.330)	(0.376)
p-val (*Benefit eligible = Benefit ineligible)*	0.0990	0.0100	0.225	0.268	0.466	0.535
			Post-pandemic period 3, 01/21-04/22			
Benefit eligible	-0.097	0.164	-0.320***	-0.512***	-0.420***	-0.253**
	(0.087)	(0.114)	(0.113)	(0.091)	(0.099)	(0.112)
Benefit Ineligible	-0.290***	0.000	-0.274**	-0.299***	-0.269***	-0.141
	(0.091)	(0.119)	(0.118)	(0.095)	(0.103)	(0.117)
p-val (*Benefit eligible = Benefit ineligible)*	0.125	0.320	0.781	0.105	0.288	0.489
N	2,787	2,787	2,787	2,787	2,787	2,787
R-squared	0.722	0.736	0.663	0.763	0.705	0.716