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## The reputational costs of business pricing decisions

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In a competitive marketplace, reputation is a valuable firm asset. With online business ratings just a click away, consumers hold considerable sway over the fate of a firm's future profitability and ability to maintain and expand its customer base. One crucial factor linking reputation to business success is price, with firms enjoying higher consumer ratings having incentives to charge higher prices and make a statement about the quality of their products. On the flip side, however, a firm's decision to increase prices may carry reputational costs, potentially causing price-sensitive consumers to make downward adjustments to their business feedback and ratings. In a recent paper titled "[The impact of prices on firm reputation](#)" (National Bureau of Economic Research, Working Paper 27405, June 2020), economists Michael Luca and Oren Reshef examine this possibility, focusing on the reputational effects of pricing decisions in the U.S. restaurant industry.

The authors base their analysis on transaction- and establishment-level data from the Yelp Transactions Platform, which allows customers to place orders at local restaurants and then leave a review and a star rating (a proxy for reputation) on the Yelp website. Looking first at star-rating distributions by restaurant price level, Luca and Reshef observe similar ratings across variously priced establishments (3.4 stars for the cheapest category and 3.6 stars for the priciest), suggesting that a restaurant's reputation is influenced by both quality and price. To isolate the causal effect of price levels, the authors conduct a within-case longitudinal analysis, controlling for fixed effects and adopting two specifications: one tracking changes in customer ratings in the few days before and the few days after an item's price change, and another doing the same but focusing on a shorter time window immediately before and after the price-change decision.

The results from these analyses point to prices having a sizable and statistically significant reputational effect. The authors report that, for the average restaurant, a price increase of 1 percent is followed by a ratings drop of 2.5–5 percent, a large effect given that price increases average between 3 and 9 percent. Further, more granular analyses presented in the article show that the negative reputational effect of

higher prices is stronger among first-time customers. In Luca and Reshef's interpretation, this result implies both that consumer responses are nonretaliatory but price driven, presumably because new customers have no prior knowledge of the establishment they are rating, and that price levels condition consumer expectations about product quality, with lower initial ratings indicating perceived incongruity between price and quality.

While the authors are unable to pinpoint a single mechanism through which higher prices hurt reputation, they suggest that a mixture of causal chains is likely at play, whereby customers rate a business on the basis of differences between, on the one hand, quality and price (net utility) and, on the other, value and prior expectations (deviations from expectations). Overall, Luca and Reshef conclude that their results "point to a tradeoff: price increases not just reduce present demand, but can potentially harm future demand by decreasing firm reputation."

# Male prime-age nonworkers: evidence from the NLSY97

*The labor force participation rate of prime-age men (ages 25 to 54) has been mostly falling since the late 1960s, with steeper declines during recessionary periods. This article uses longitudinal data to examine whether men’s prior trajectories of schooling, work, family, neighborhood, health, incarceration, and living situations are associated with nonwork status. It also investigates whether nonwork status is a transitory state and whether nonworkers are supported by family members. The data in this article are from the National Longitudinal Survey of Youth 1997 (NLSY97), which provides detailed histories of respondents’ lives across multiple domains. When the 2015–16 NLSY97 interview was conducted, about 8.5 percent of men, who, at the time, ranged in age from 30 to 36 years, had not worked in the prior year. More than two-thirds (70.0 percent) of these men had never married, nearly a third (30.6 percent) lived in a household with a parent, and 16.3 percent were incarcerated at the time of the interview. The vast majority of these men also did not work much in earlier years. Nonworkers not only are more disadvantaged in many aspects of their current lives—such as education, health, incarceration, and finances—but they also were disadvantaged earlier in their lives in terms of family and neighborhood background.*



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The labor force participation rate of men in their prime working age (25 to 54 years) has been mostly falling since the late 1960s, with steeper declines occurring during recessionary periods. In 1969, the labor force participation rate of prime-age men was 96.1 percent, whereas in 2015, the rate was 88.3 percent.<sup>1</sup> Prime-age men who were out of the labor force in a given month increasingly reported that they had not worked at all in the previous year. According to a report by the Council of Economic Advisors, data from the Current Population Survey (CPS) show that, in 2015, 83 percent of prime-age men who were not in the labor force during the reference week had not worked at all in the previous year, compared with 73 percent in 1988.<sup>2</sup> When men do not work in their prime years, it has has implications for future job and earnings potential, as well as for the well-being of the nonworker and his family.

Several recent studies document and try to explain the decline in labor force participation of prime-age men over time. In a 2017 study, for example, Alan B. Krueger finds that health conditions, disability, and the rise of opioid prescriptions may be important contributing factors.<sup>3</sup> In another 2017 study, John Coglianesi suggests that much of the decline in prime-age men's labor force participation is due to the increase of "in-and-outs"—that is, men who temporarily leave the labor force between jobs.<sup>4</sup> He credits the rise in this phenomenon to the increase in young men living with parents and to a wealth effect from married or cohabiting men's partner's growth in earnings. Mark Aguiar et al. posit that more recent declines in the labor supply of young men are due to the advancement of video game technology.<sup>5</sup> In a series of studies, David H. Autor et al. argue that the pain of more recent trade shocks is often locally concentrated, causing a decline in manufacturing employment in those local areas, which particularly affects those with lower levels of education.<sup>6</sup> Katharine G. Abraham and Melissa S. Kearney provide an extensive review of the literature on the decline in employment over time and evaluate which factors they believe are most important for the decline from 1996 to 2016.<sup>7</sup> They posit that factors associated with labor demand, primarily related to trade and automation, are the most responsible for the decline over this period. Labor supply factors related to disability caseloads and compensation (Social Security Disability Insurance and the U.S. Department of Veterans Affairs disability compensation program), the real value of the minimum wage, and the rise in incarceration and the growth in the number of people with prison records also had an impact. Ariel J. Binder and John Bound point out that declining labor force participation rates are more pronounced among prime-age men who are less educated.<sup>8</sup> They argue that feedback between labor demand, marriage markets, and the increase in men living with parents or other relatives plays a role in declining labor force participation rates of prime-aged men with less than a college education. Jay Stewart provides descriptive statistics of male nonworkers and their sources of financial support.<sup>9</sup> He uses the National Longitudinal Survey of Youth 1979 (NLSY79) to look at work behavior from 1987 to 1997 and finds that a small fraction of men account for the majority of person-years spent not working. Using data from the CPS, Stewart finds that a substantial proportion of nonworkers live with family members and receive financial support from those members.

This article takes a deeper look at the characteristics of male prime-age nonworkers and the paths that led them to that status.<sup>10</sup> Specifically, it uses longitudinal data to examine the extent to which these men's prior trajectories of schooling, work, family, neighborhood, health, incarceration, and living situations are associated with their nonwork status. It also investigates whether nonwork status is a transitory state and whether nonworkers are supported by parents, spouses, partners, or others. Data in this article are from the National Longitudinal Survey of Youth 1997 (NLSY97), which contains detailed histories about respondents' lives across multiple domains. Compared with much of the previous literature on these issues, this article focuses more closely on the characteristics and histories of nonworkers themselves, by using data that provide a more nuanced picture involving support systems, incarceration, substance use, early family and neighborhood characteristics, health, disability, and youth expectations regarding future employment.

## Data

The data used in this article are from the NLSY97, which is a cohort of people who were born in the years 1980 to 1984 and were living in the United States when they were first interviewed in 1997. In the 2015–16 interview (Round 17), the latest round of the survey from which data were available when I began working on this article, respondents were ages 30 to 36. The Round 17 interviews were conducted from October 2015 to August 2016. This data set is well suited for the study of nonworkers because it contains a complete work history of the

respondents since their teens. It also contains cognitive test scores,<sup>11</sup> incarceration history, levels of schooling, residence census tract information,<sup>12</sup> income sources, and information about health and living situations, among other topics.

I limit my sample to men who participated in the 2015–16 interview and delete a small number for whom key labor force status information was missing, which brought the sample size to 3,499. I define nonworkers as the 365 men in the sample who did not work in the 52 weeks immediately preceding their interview, which resulted in 8.5 percent of the (weighted) sample.<sup>13</sup> I classify the other 3,134 men in the sample—those who worked at least some weeks prior to the 2015–16 interview—as workers (or 91.5 percent of the weighted sample).

## Worker and nonworker characteristics

Table 1 provides descriptive statistics about the work behavior of the men in the NLSY97 in the years leading up to the 2015–16 interview; the right-most column shows *p*-values for whether the means differ for workers and nonworkers.<sup>14</sup> The general picture that emerges from this table is that the vast majority of men who did not work in the year prior to the 2015–16 interview also did not work in earlier years. For example, 79.3 percent did not work in the second year before the interview, 64.7 percent did not work in the third year before the interview, and 61.2 percent did not work in the fourth year before the interview. More than half (56.4 percent) did not work in the 4 years before the 2015–16 interview. In contrast, those who worked at least some weeks in the year prior to the 2015–16 interview (most worked at least 75 percent of weeks) also mostly worked at least 75 percent of weeks in each of the prior years—89.0 percent in the second year before the interview, 85.8 percent in the third year before the interview, and 84.5 percent in the fourth year before the interview. The bottom portion of table 1 shows the number of years of low levels of work (less than 25 percent of weeks) or no work in the 4 years prior to the 2015–16 interview. The table shows that 60.2 percent of nonworkers minimally worked in all 4 years prior to the 2015–16 interview, and another 13.3 percent minimally worked in 3 of the 4 years prior to the interview. By contrast, relatively few of the men who worked in the year prior to the 2015–16 interview fall into these minimal-work categories.

**Table 1. Recent employment history of men ages 30 to 36 in the National Longitudinal Survey of Youth 1997, by work status in year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	<i>p</i> -value
Percent of weeks employed			
Year before interview			
0 percent	0.0	100.0	0.000
Greater than 0 percent to less than 25 percent	2.3	0.0	0.000
25 percent to less than 75 percent	7.6	0.0	0.000
75 percent or more	90.1	0.0	0.000
Second year before interview			
0 percent	3.1	79.3	0.000
Greater than 0 percent to less than 25 percent	2.2	7.0	0.002
25 percent to less than 75 percent	5.7	9.5	0.031
75 percent or more	89.0	4.2	0.000

See footnotes at end of table.

**Table 1. Recent employment history of men ages 30 to 36 in the National Longitudinal Survey of Youth 1997, by work status in year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
Third year before interview			
0 percent	4.5	64.7	0.000
Greater than 0 percent to less than 25 percent	2.3	7.5	0.001
25 percent to less than 75 percent	7.4	10.3	0.135
75 percent or more	85.8	17.6	0.000
Fourth year before interview			
0 percent	6.4	61.2	0.000
Greater than 0 percent to less than 25 percent	2.2	3.8	0.165
25 percent to less than 75 percent	6.9	7.6	0.652
75 percent or more	84.5	27.4	0.000
No work in second and third years	2.0	64.3	0.000
No work in second, third, and fourth years	1.3	56.4	0.000
In 4 years prior to the 2015–16 interview, number of years with little work (less than 25 percent of weeks) or no work			
0 years	86.2	0.0	0.000
1 year	7.9	9.6	0.342
2 years	3.5	17.0	0.000
3 years	1.7	13.3	0.000
4 years	0.7	60.2	0.000
Sample size	3,134	365	—

Note: Descriptive statistics are weighted with 2015 National Longitudinal Survey of Youth 1997 (NLSY97) survey weights. Dash indicates not applicable.  
Source: U.S. Bureau of Labor Statistics, NLSY97.

Table 2 displays various characteristics of men in the NLSY97 by their work status in the year prior to the date of their 2015–16 interview. Workers and nonworkers differ in many ways. Among the men who did not work in the prior year, for example, nearly a third (32.7 percent) reported that they had experienced at least some weeks of unemployment during that year, meaning that they had actively searched for work and were unable to find it or were on layoff; this compares with 11.3 percent of the men who did at least some work in the prior year. Of the men who did not work in the prior year, 40.9 percent stated that health had limited their ability to work, compared with 4.3 percent of those who had worked at least part of the prior year. Those who did not work in the prior year were more likely than those who worked to have been interviewed in prison (16.3 percent versus 0.4 percent).

**Table 2. Current characteristics of men in the National Longitudinal Survey of Youth 1997, by work status in year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
Any weeks unemployed in prior year	11.3	32.7	0.000
Collected unemployment insurance in prior year	3.8	3.0	0.474
Work limited for health reasons	4.3	40.9	0.000
Proxy interview due to disability	0.1	2.2	0.001

See footnotes at end of table.

**Table 2. Current characteristics of men in the National Longitudinal Survey of Youth 1997, by work status in year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
Interviewed in prison	0.4	16.3	0.000
Incarcerated in prior year	1.3	20.6	0.000
Ever incarcerated	12.3	36.2	0.000
Enrolled in school at interview date	5.7	7.3	0.331
Veteran	11.2	8.6	0.174
Race or ethnicity			
Non-Black, non-Hispanic	71.6	52.4	0.000
Black, non-Hispanic	13.6	33.5	0.000
Hispanic	13.4	13.1	0.858
Other	1.4	1.0	0.614
Education level			
Less than high school	6.7	18.6	0.000
General Education Development (GED)	10.5	20.8	0.000
High school diploma	23.1	29.4	0.027
Some college	24.8	22.2	0.321
Bachelor's degree or higher	35.0	9.0	0.000
Armed Forces Qualification Test (AFQT) percentile score			
Less than 25 percent	23.8	53.4	0.000
25 percent to less than 50 percent	24.1	20.5	0.222
50 percent to less than 75 percent	23.5	18.8	0.103
75 percent or higher	28.6	7.3	0.000
AFQT score missing	17.5	23.3	0.029
Marital status			
Never married	43.6	70.0	0.000
Married	47.8	18.1	0.009
Separated	1.0	2.7	0.090
Divorced or widowed	7.6	9.2	0.396
Cohabiting (sample not married)	35.7	15.9	0.000
Live in household with parent	13.6	30.6	0.000
Child under age 18 in household	54.0	23.2	0.000
Child under age 6 in household	37.7	12.9	0.000
Respondent ages 30 to 32	40.2	38.3	0.538
Respondent ages 33 to 36	59.8	61.7	0.538
Time use in a typical week			
Watch television 21 or more hours per week	9.6	23.7	0.000
Use computer 10 or more hours per week	58.6	30.1	0.000
Have health insurance	78.2	53.3	0.000
Self-rated health			
Excellent or very good	61.9	43.5	0.000
Good	28.4	32.4	0.177
Fair	9.1	18.5	0.000
Poor	0.6	5.6	0.000
Census region and division of residence			

See footnotes at end of table.

**Table 2. Current characteristics of men in the National Longitudinal Survey of Youth 1997, by work status in year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
Northeast	17.3	15.6	0.472
New England	4.9	3.3	0.219
Middle Atlantic	12.4	12.3	0.958
Midwest	24.7	19.7	0.049
East North Central	16.0	13.3	0.208
West North Central	8.8	6.4	0.165
South	35.3	44.3	0.003
South Atlantic	17.0	21.1	0.100
East South Central	6.3	8.8	0.143
West South Central	12.0	14.5	0.231
West	22.7	20.3	0.363
Mountain	8.6	6.1	0.125
Pacific	14.1	14.2	0.967
Residence in a core-based statistical area			
No	4.2	8.1	0.021
Yes, but not central city	55.9	49.2	0.034
Yes, central city	39.7	42.2	0.426
Yes, central city status unknown	0.2	0.5	0.563
Local area unemployment rate of residence			
Less than 4 percent	15.2	8.7	0.000
4 percent to less than 6 percent	67.9	72.6	0.092
6 percent or higher	16.9	18.7	0.435

Note: Descriptive statistics are weighted with 2015 National Longitudinal Survey of Youth 1997 (NLSY97) survey weights. The Census Bureau defines a core-based statistical area (CBSA) as a statistical geographic entity consisting of the county or counties associated with at least one core (urbanized area or urban cluster) with a population of at least 10,000, plus adjacent counties that have a high degree of social and economic integration with the core as measured through commuting ties with the counties containing the core. For more information, see the CBSA page on the U.S. Census Bureau website at <https://www.census.gov/topics/housing/housing-patterns/about/core-based-statistical-areas.html>.

Source: U.S. Bureau of Labor Statistics, NLSY97.

Black men were more likely to have not worked in the prior year than to have worked (33.5 percent versus 13.6 percent), whereas men who were not Black and not Hispanic were more likely to have worked (71.6 percent versus 52.4 percent). Hispanic men were about equally likely to have worked as to have not worked (13.4 percent versus 13.1 percent). Men who did not work in the prior year were more likely than those who worked to have less than a high school diploma (18.6 percent versus 6.7 percent), to have a General Educational Development (GED) credential (20.8 percent versus 10.5 percent), and to have an Armed Forces Qualification Test (AFQT) percentile score of less than 25 (53.4 percent versus 23.8 percent). Men who did not work in the prior year were much more likely than those who worked to have never married (70.0 percent versus 43.6 percent). Nonworking men were less likely than working men to be cohabiting (15.9 percent versus 35.7 percent), and they were much more likely to be living in a household with a parent (30.6 percent versus 13.6 percent). Regarding time use in a typical week, men who did not work in the prior year were more likely than those who worked to watch at least 21 hours of television per week (23.7 percent versus 9.6 percent), and nonworking men were less likely than working men to spend 10 or more hours on the computer (30.1 percent versus 58.6 percent).

Men who did not work in the year prior to the 2015–16 interview were more likely than those who worked to reside in the South Census region (44.3 percent versus 35.3 percent), and nonworking men were less likely than working men to reside in the Midwest (19.7 percent versus 24.7 percent). The data do not show any statistically significant differences by Census division, including in the East North Central division, which includes the states of Michigan and Ohio, both of which saw large declines in manufacturing jobs over the past 15 to 20 years. Nonworkers and workers were similarly likely to reside in a core-based statistical area (CBSA) within a central city (42.2 percent versus 39.7 percent), and nonworkers were almost twice as likely as workers to reside in an area that is not designated as a CBSA (8.1 percent versus 4.2 percent). Nonworkers were less likely to reside in a local area with an unemployment rate of less than 4.0 percent (8.7 percent versus 15.2 percent), but nonworkers and workers were similarly likely to reside in a local area with an unemployment rate of 6.0 percent or more (18.7 percent versus 16.9 percent).

The nonworkers in the sample can be broken down into different ordered subgroups. Of the 365 nonworkers in the sample, 81 had current or recent incarceration (in the past year), 127 of those remaining reported that health issues limited their ability to work or that they had a proxy interview because they were disabled; another 16 were enrolled in school at the interview date, 28 had a child of their own who was under age 6 living in their household, and 15 had a child who was under age 18 living in their household (these are potentially stay-at-home fathers). Subtracting those with recent incarceration, health limitations, school enrollment, and young children as potential reasons for nonwork leaves only a little over a quarter (98 men) of the sample of nonworkers remaining. Of these, 56 percent reported being unemployed at some point during the year prior to the 2015–16 interview (averaging 32 weeks of unemployment, conditional on any unemployment), and about 28 percent had worked at least some weeks in the second year prior to the 2015–16 interview.

Table 3 includes descriptive statistics related to earnings, finances, and program participation in order to show how nonworkers are financially supported. At the 2015–16 interview date, 38.5 percent of men who did not work in the prior year assessed their financial situation as “comfortable,” compared with 67.3 percent of men who worked at some point in the prior year. A combined 43.6 percent of nonworkers assessed their financial situation as either “tough to make ends meet” or that they were “in over [their] head,” compared with 11.0 percent of those who had worked in the prior year. Very small percentages of workers and nonworkers indicated that they had financial issues such as late rent or mortgage payments or a cash advance on credit cards in the past 12 months, although about a tenth in both groups responded to feeling pressure to pay bills by stores, creditors, or bill collectors (these figures are not shown in the table). Table 3 also displays the incidence of program participation since the date of the last interview (respondents are interviewed every 2 years) for the respondent and his spouse or partner. Of note is that higher percentages of men who did not work in the prior year than those who did work reported that they had received some form of food assistance (27.0 percent versus 8.8 percent) and Supplemental Security Income (17.2 percent versus 1.1 percent).

**Table 3. Earnings, finances, and program participation of men in the National Longitudinal Survey of Youth 1997, by work status in the year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
Self-assessed financial situation at interview date			

See footnotes at end of table.

**Table 3. Earnings, finances, and program participation of men in the National Longitudinal Survey of Youth 1997, by work status in the year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
Comfortable	67.3	38.5	0.000
Occasional difficulties	21.7	18.0	0.135
Tough	9.2	30.5	0.000
In over their head	1.8	13.1	0.000
Program participation since date of last interview			
Respondent and/or spouse or partner			
Lived in public housing	0.6	3.7	0.000
Rental voucher	0.5	2.2	0.037
Transportation assistance	0.5	4.3	0.000
Help paying energy bills	1.4	3.4	0.078
Food assistance from the Women, Infants, and Children (WIC) or Supplemental Nutrition Assistance or Food Stamps programs	8.8	27.0	0.000
Cash assistance from Supplemental Security Income	1.1	17.2	0.000
Cash assistance from Aid to Families with Dependent Children or Temporary Assistance for Needy Families	0.6	2.4	0.031
Other noncash assistance	0.3	2.4	0.007
Calendar year 2014			
Collected unemployment insurance in 2014	3.7	4.6	0.546
Collected worker's compensation in 2014	0.9	1.3	0.540
Wage and salary income in 2014			
Received income from job	93.7	18.9	0.000
Income less than \$10,000	5.3	41.7	0.000
Income \$10,000 to less than \$20,000	10.2	21.5	0.053
Income \$20,000 to less than \$40,000	28.2	24.2	0.532
Income \$40,000 to less than \$70,000	32.1	9.9	0.000
Income \$70,000 or more	24.2	2.7	0.000
Received income in 2014 from business, farm, or practice	4.4	1.4	0.000
Had spouse or partner in 2014	65.0	33.7	0.000
Wage and salary income in 2014 of spouse or partner			
Spouse or partner received income from a job or jobs	73.0	59.8	0.021
Income of less than \$10,000	8.0	12.0	0.379
Income of \$10,000 to less than \$20,000	16.5	16.1	0.947
Income of \$20,000 to less than \$40,000	36.1	37.1	0.902
Income of \$40,000 to less than \$70,000	26.7	13.4	0.014
Income of more than \$70,000	12.6	21.4	0.185
Hours worked per week in 2014 by spouse or partner			
1 to 20 hours	8.7	5.2	0.332
21 to 39 hours	21.1	21.0	0.989
40 or more hours	70.3	73.8	0.588
Income from other sources			
Other income of less than \$10,000	49.7	48.1	0.840
Other income of \$10,000 to less than \$20,000	27.7	36.5	0.251
Other income of \$20,000 to less than \$40,000	14.5	5.0	0.013
Other income of \$40,000 to less than \$70,000	3.4	7.9	0.263

See footnotes at end of table.

**Table 3. Earnings, finances, and program participation of men in the National Longitudinal Survey of Youth 1997, by work status in the year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
Other income of more than \$70,000	4.7	2.4	0.372
Income of other relatives in household in 2014	16.1	28.2	0.000
Relatives' income of less than \$10,000	5.4	10.0	0.201
Relatives' income of \$10,000 to less than \$20,000	7.2	20.0	0.009
Relatives' income of \$20,000 to less than \$40,000	20.0	30.6	0.084
Relatives' income of \$40,000 to less than \$70,000	19.7	15.1	0.369
Relatives' income of \$70,000 or more	47.6	24.3	0.000
Total family income in 2014			
Family income of less than \$10,000	4.8	43.2	0.000
Family income of \$10,000 to less than \$20,000	5.0	14.4	0.000
Family income of \$20,000 to less than \$40,000	15.0	11.2	0.074
Family income of \$40,000 to less than \$70,000	24.8	15.1	0.000
Family income of \$70,000 or more	50.4	16.1	0.000
Family income missing	9.2	16.4	0.001

Note: Descriptive statistics are weighted with 2015 National Longitudinal Survey of Youth 1997 (NLSY97) survey weights.

Source: U.S. Bureau of Labor Statistics, NLSY97.

Much of the income section of the NLSY97 in the 2015–16 interview asks about income sources in the 2014 calendar year. Among the men who worked in the prior year, 93.7 percent reported that they had received income from a job in calendar year 2014, compared with only 18.9 percent of men who did not work in the year prior to the 2015–16 interview. Of those who received income from a job in 2014, only 5.3 percent of men who worked in the year prior to the 2015–16 interview reported an annual income of less than \$10,000, compared with 41.7 percent of men who did not work in the prior year. Nearly two-thirds (65.0 percent) of men who worked in the prior year had a spouse or partner in 2014, compared with about one-third (33.7 percent) of men who did not work in the prior year. Of those with a spouse or partner in 2014, 73.0 percent of men who worked in the prior calendar year and 59.8 percent of men who did not work in the prior year had a spouse or partner who received income from a job. Of men with a spouse or partner who received income from a job in 2014 and worked in the year prior to the 2015–16 interview, 39.3 percent had a spouse or partner who earned at least \$40,000 from their job, compared with 34.8 percent of nonworkers. For both groups, more than 70 percent of the spouses or partners worked 40 or more hours per week. (See table 3.)

Among the men who did not work in the year prior to the 2015–16 interview, 28.2 percent had other relatives in the household in 2014, compared with 16.1 percent of those who worked in the prior year. For the men with relatives in their household, the relatives' combined income was at least \$40,000 for 39.4 percent of nonworkers, compared with 67.3 percent for workers. The NLSY97 does not ask a separate question about income amount from Social Security Disability Insurance; instead, that income is grouped with other income sources: "During 2014 did [you/you or your spouse/you or your partner] receive income from any other sources, such as Social Security payments, pension or retirement income including survivor's benefits, alimony, veterans or GI benefits, payments from life insurance policies or any other regular or periodic source of income?" Among nonworkers, 25.6 percent reported that they had received other income in 2014, compared with only 4.1 percent of workers. A substantial

majority of recipients in both groups—84.6 percent of nonworkers and 77.4 percent of workers—received less than \$20,000 in other income in 2014. (See table 3.)

The last measure shown in table 3 is total family income for 2014, which includes the respondents’ own earnings, their spouses’ or partners’ earnings, their relatives’ earnings, rental income, income from dividends, and other income. Nonworkers had substantially lower family income in 2014 than workers: 43.2 percent of nonworkers had a family income of less than \$10,000, compared with only 4.8 percent of workers. A much smaller percentage of nonworkers than workers had family income of \$40,000 or more (31.2 percent versus 75.2 percent). Support for a substantial portion of nonworkers appears to have come from a spouse or partner, other relatives in the household, as well as income from “other” sources such as Supplemental Security Income.

## Background characteristics of workers and nonworkers in early life and at age 25

Tables 1–3 show that nonworkers are more disadvantaged in terms of many aspects of their current lives, such as education, health, incarceration, and finances. Table 4 displays early background characteristics and shows that workers and nonworkers differed early in their lives, in terms of family and neighborhood resources, delinquency, experiences from ages 12 to 18, and expectations about their futures. On the whole, nonworkers appear to come from less advantaged backgrounds than workers. Nonworkers were more likely to have a mother with less than a high school diploma, compared with their working peers (31.0 percent versus 16.9 percent). Nonworkers were also less likely to live with both of their biological parents at the time of the 1997 (Round 1) interview, and they were more likely to have a mother who was age 18 or younger when they were born. Compared with workers, nonworkers were much more likely to report that they had been shot at or had seen someone shot at with a gun when they were between the ages of 12 and 18 (26.9 percent versus 12.5 percent). Nonworkers were also much more likely to have been arrested at some point when they were age 18 or younger (41.2 percent versus 26.9 percent), and they were more likely to have used marijuana by age 19 (63.1 percent versus 54.3 percent). Nonworkers were less likely to have graduated from high school by age 20, compared with their working peers (50.4 percent versus 78.1 percent).

**Table 4. Early background characteristics of men in the National Longitudinal Survey of Youth 1997, by work status in the year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
Biological mother’s education level			
Less than high school	16.9	31.0	0.000
High school diploma	37.2	33.2	0.200
Some college	24.2	20.5	0.160
Bachelor’s degree or higher	21.7	15.3	0.015
Mother’s education level missing	7.0	10.0	0.096
Family structure at Round 1 interview (1997)			
Two biological or adoptive parents	55.9	41.2	0.000
Two parents, one biological	13.4	22.9	0.001
Biological or adoptive mother only	22.5	26.5	0.112

See footnotes at end of table.

**Table 4. Early background characteristics of men in the National Longitudinal Survey of Youth 1997, by work status in the year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
Biological or adoptive father only	3.9	2.8	0.280
Other	3.3	6.6	0.014
Mother age 18 or younger at birth	5.7	14.3	0.000
Mother's age at birth missing	6.2	10.4	0.017
Youth experiences, ages 12 to 18			
Victim of repeated bullying	11.6	13.0	0.531
Home broken into	10.3	9.9	0.801
Shot at or saw someone shot at with a gun	12.5	26.9	0.000
Youth received high school diploma by age 20	78.1	50.4	0.000
Youth arrested while age 18 or younger	26.9	41.2	0.000
Youth used marijuana by age 19	54.3	63.1	0.004
Youth used hard drugs by age 19	17.9	20.9	0.256
Youth expectations about school and work for 5 years from 2000 interview date			
Percent chance in school			
Less than 75 percent	70.2	76.0	0.037
75 percent or more	29.8	24.0	0.037
If in school, percent chance of working 20 or more hours per week			
Less than 75 percent	31.1	39.1	0.013
75 percent or more	68.9	60.9	0.013
If not in school, percent chance of working 20 or more hours per week			
Less than 75 percent	5.2	15.6	0.000
75 percent or more	94.8	84.4	0.000
Missing 2000 interview	6.6	7.4	0.603
Youth neighborhood characteristics			
Poverty rate			
Less than 10 percent	55.0	36.1	0.000
10 percent to less than 20 percent	28.8	31.8	0.306
20 percent to less than 40 percent	13.5	24.6	0.000
40 percent or more	2.7	7.5	0.000
Percent Black			
Less than 10 percent	73.5	52.6	0.000
10 percent to less than 75 percent	22.0	34.2	0.000
75 percent or more	4.5	13.2	0.000
Percent Hispanic			
Less than 10 percent	72.4	66.6	0.043

See footnotes at end of table.

**Table 4. Early background characteristics of men in the National Longitudinal Survey of Youth 1997, by work status in the year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
10 percent to less than 50 percent	21.5	26.1	0.095
50 percent or more	6.0	7.3	0.335
Percent ages 25 or older with bachelor's degree or higher			
Less than 10 percent	20.5	35.9	0.000
10 percent to less than 25 percent	45.9	44.1	0.576
25 percent or more	33.6	20.0	0.000
Percent of men employed			
Less than 50 percent	5.8	13.4	0.000
50 percent to less than 75 percent	71.5	71.7	0.952
75 percent or more	22.7	14.9	0.001
Income rank measure for men who grew up in low-income families			
Less than 30 percent	4.7	10.8	0.000
30 percent to less than 40 percent	36.7	51.6	0.000
40 percent to less than 45 percent	30.3	23.3	0.013
45 percent or more	28.2	14.3	0.000

Note: Descriptive statistics are weighted with 2015 National Longitudinal Survey of Youth 1997 (NLSY97) survey weights. For more information on intergenerational mobility and the income rank measure for men who grew up in low-income families, see Raj Chetty, John Friedman, Nathaniel Hendren, Maggie R. Jones, and Sonya Porter, “The Opportunity Atlas: mapping the childhood roots of social mobility” (U.S. Census Bureau and Opportunity Insights, 2020), [https://opportunityinsights.org/wp-content/uploads/2018/10/atlas\\_summary.pdf](https://opportunityinsights.org/wp-content/uploads/2018/10/atlas_summary.pdf).

Source: U.S. Bureau of Labor Statistics, NLSY97.

The bottom portion of table 4 displays youth neighborhood characteristics obtained by linking the youth’s 2000 census tract code obtained from the 1997 interview to information from the Census 2000 Summary Files or to a tract-level neighborhood quality measure available from the Census Bureau.<sup>15</sup> Numerous studies have found that a child’s neighborhood affects his or her subsequent outcome as an adult.<sup>16</sup> Nonworkers tend to have grown up in less advantaged neighborhoods than those of their working peers. For example, 24.6 percent of nonworkers grew up in a neighborhood with a poverty rate of between 20 and 40 percent, compared with 13.5 percent of nonworkers. In addition, 7.5 percent of nonworkers grew up in a neighborhood with a poverty rate of 40 percent or more (often referred to as concentrated poverty), compared with 2.7 percent of workers. Compared with workers, nonworkers grew up in neighborhoods with a higher percentage of minorities and a lower percentage of people with a bachelor’s degree or more. Male employment was also lower in nonworkers’ childhood neighborhoods, compared with workers’ childhood neighborhoods. For example, 13.4 percent of nonworkers grew up in a neighborhood with very low male employment (less than 50 percent), compared with 5.8 percent of workers.

The last measure of neighborhood quality at the census-tract level shown in table 4 is based on research by Raj Chetty and Nathaniel Hendren for a sample of children born from 1980 to 1986 (which is similar to the NLSY97 sample birth dates).<sup>17</sup> For the Census Bureau’s Opportunity Atlas, the authors provided (among other variables) a measure of mean household income rank for children (male children here) whose parents were at the 25th percentile of the national income distribution (derived from tax data). Incomes for (grown-up) children were measured as mean earnings in 2014–15 when they were between the ages of 31 and 37. Household income is defined as the sum of the respondent’s own and his spouse’s income. The data show, by neighborhood, the extent of intergenerational income mobility attained by male children from low-income households. Compared with

workers, nonworkers were more likely to grow up in neighborhoods with lower intergenerational mobility for men in low-income families. Nonworkers were more than twice as likely to grow up in a neighborhood with a mobility income rank of less than 30 percent (10.8 percent versus 4.7 percent) and about half as likely to grow up in a neighborhood with a higher mobility income rank of 45 percent or more (14.3 percent versus 28.2 percent). (Note that Chetty and Hendren do not directly look at the relationship between child neighborhood and subsequent work status as I have done in this article.)

Table 5 shows characteristics for men at an intermediate stage in the NLSY97 sample, when they were age 25 (in 2005–09), by whether they worked in the year prior to the 2015–16 interview. Men who did not work in the year before the 2015–16 interview were much more likely than those who worked to have not worked in the year they turned 25: 30.8 percent of nonworkers did not work in the year they turned 25, compared with 4.9 percent of workers. Among those who did not work in the year before the 2015–16 interview, 41.7 percent of nonworkers worked at least 75 percent of weeks in the year they turned 25, compared with 79.8 percent of those who worked. Nonworkers were more likely than workers to have been incarcerated at some point in the year they turned 25 (10.5 percent versus 2.3 percent). Nonworkers were much less likely than workers to have been married at age 25 (9.7 percent versus 24.0 percent), and nonworkers were much more likely than workers to have lived in a household with a parent when they were 25 (40.2 percent versus 27.9 percent). Nonworkers were more than twice as likely as workers to rate their health as fair or poor (14.1 percent versus 6.7 percent). At each life stage shown in tables 4 and 5, nonworkers were more likely than workers to have been less advantaged with respect to the neighborhoods they grew up in, family background, educational attainment, health status, early employment experience, and incarceration.

**Table 5. Age-25 characteristics of men in the National Longitudinal Survey of Youth 1997, by work status in the year prior to the 2015–16 interview**

Characteristic	Worked in prior year (in percent)	Did not work in prior year (in percent)	p-value
Percent of weeks employed in the year respondents turned age 25			
0 percent	4.9	30.8	0.000
Greater than 0 percent to less than 25 percent	2.8	7.7	0.002
25 percent to less than 75 percent	12.5	19.8	0.004
75 percent or more	79.8	41.7	0.000
Incarcerated in year they turned age 25	2.3	10.5	0.000
Married	24.0	9.7	0.000
Cohabiting	17.7	16.2	0.534
Living with parent	27.9	40.2	0.000
Self-rated health			
Excellent or very good	68.9	49.2	0.000
Good	24.4	36.7	0.000
Fair	6.4	11.3	0.112
Poor	0.3	2.8	0.003
Used marijuana since date of last interview	23.5	24.5	0.734
Used hard drugs since date of last interview	5.3	10.1	0.026

Note: Descriptive statistics are weighted with 2015 National Longitudinal Survey of Youth 1997 (NLSY97) survey weights.

Source: U.S. Bureau of Labor Statistics, NLSY97.

## Probability of being a nonworker

This section examines whether early youth and teen characteristics and age-25 characteristics can predict nonworker status. More specifically, I use a linear probability model to estimate the effects of earlier youth and age-25 characteristics on the probability of not working in the year prior to the 2015–16 interview. Table 6 displays estimates from linear probability models of the relationship between youth characteristics and the subsequent likelihood of being a nonworker.<sup>18</sup> Three specifications are shown in Table 6, and each builds on the previous one by adding additional controls. Specification 1 includes basic demographic and family background controls, specification 2 adds youth and teen characteristics as controls, and specification 3 adds controls for age-25 characteristics.

The results shown in specification 1 suggest that family background characteristics are statistically significant predictors of the likelihood of being a nonworker in the year prior to the 2015–16 interview. Having a mother who gave birth as a teen increases the likelihood of being a nonworker, for example, and having a mother who attained higher levels of education decreases the likelihood of being a nonworker in the year before the 2015–16 interview. Being Black increases the likelihood of being a nonworker by 8.7 percentage points. Growing up in a neighborhood with concentrated poverty (40 percent or more) increases the likelihood of being a nonworker by 9.8 percentage points, while growing up in a neighborhood that has a poverty rate ranging from 20 percent to less than 40 percent increases the likelihood of being a nonworker by 3.5 percentage points.

**Table 6. Probability of men not working in the year prior to the 2015–16 interview, ordinary least squares linear probability model**

Characteristic	Specification 1		Specification 2		Specification 3	
	Coefficient	Robust standard errors	Coefficient	Robust standard errors	Coefficient	Robust standard errors
Black	0.087*	0.016	0.064*	0.016	0.034*	0.015
Hispanic	-0.010	0.014	-0.019	0.014	-0.021	0.014
Family background characteristics						
Family with two biological parents in 1997	-0.025*	0.010	0.000	0.011	0.002	0.010
Mother age 18 or younger at birth	0.052*	0.025	0.040	0.025	0.036	0.023
Mother's education: high school	-0.037*	0.017	-0.013	0.017	-0.004	0.016
Mother's education: some college	-0.041*	0.018	-0.007	0.018	0.000	0.018
Mother's education: bachelor's degree or higher	-0.049*	0.018	0.000	0.019	0.001	0.018
Neighborhood (census tract) poverty rate						
10 percent to less than 20 percent	0.018	0.012	0.01	0.012	0.007	0.011
20 percent to less than 40 percent	0.035*	0.017	0.022	0.017	0.014	0.016
40 percent or more	0.098*	0.032	0.077*	0.032	0.069*	0.030
Youth, early and teen characteristics						
Armed Forces Qualification Test percentile score						
Less than 25 percent	—	—	0.069*	0.016	0.067*	0.015
25 percent to less than 50 percent	—	—	0.018	0.013	0.027*	0.012
50 percent to less than 75 percent	—	—	0.029*	0.012	0.034*	0.012

See footnotes at end of table.

**Table 6. Probability of men not working in the year prior to the 2015–16 interview, ordinary least squares linear probability model**

Characteristic	Specification 1		Specification 2		Specification 3	
	Coefficient	Robust standard errors	Coefficient	Robust standard errors	Coefficient	Robust standard errors
Youth ages 12 to 18 shot at or seen someone shot at with a gun	—	—	0.040*	0.017	0.030	0.017
Youth received high school diploma by age 20	—	—	-0.081*	0.015	-0.055*	0.015
Youth arrested while age 18 or younger	—	—	0.015	0.013	-0.003	0.013
Youth used marijuana by age 19	—	—	0.016	0.011	0.012	0.011
Youth used hard drugs by age 19	—	—	0.001	0.015	-0.006	0.015
Youth expectations 5 years from 2000 interview						
If not in school, percent chance of working 20 or more hours per week is less than 75 percent	—	—	0.059*	0.027	0.030	0.026
Age-25 characteristics						
Percent of weeks employed in the year respondents turned age 25						
0 percent	—	—	—	—	0.285*	0.031
Greater than 0 percent to less than 25 percent	—	—	—	—	0.106*	0.035
25 percent to less than 75 percent	—	—	—	—	0.053*	0.017
Incarcerated in year respondent turned age 25	—	—	—	—	0.024	0.040
Married at age 25	—	—	—	—	-0.027*	0.011
Cohabiting at age 25	—	—	—	—	-0.013	0.014
Living with parent at age 25	—	—	—	—	0.022	0.012
Self-rated health at age 25						
Good	—	—	—	—	0.015	0.012
Fair	—	—	—	—	0.022	0.022
Poor	—	—	—	—	0.286*	0.108

\* Coefficients are statistically significant at the .05 level.

Note: Each specification builds on the previous one by adding additional controls. Specification 1 includes basic demographic and family background controls, specification 2 adds controls for youth and teen characteristics, and specification 3 adds controls for age-25 characteristics. The model also includes indicators for year of birth, other race, and variables with missing observations. Dash indicates not applicable. Sample size: 3,499.

Source: U.S. Bureau of Labor Statistics, National Longitudinal Survey of Youth 1997.

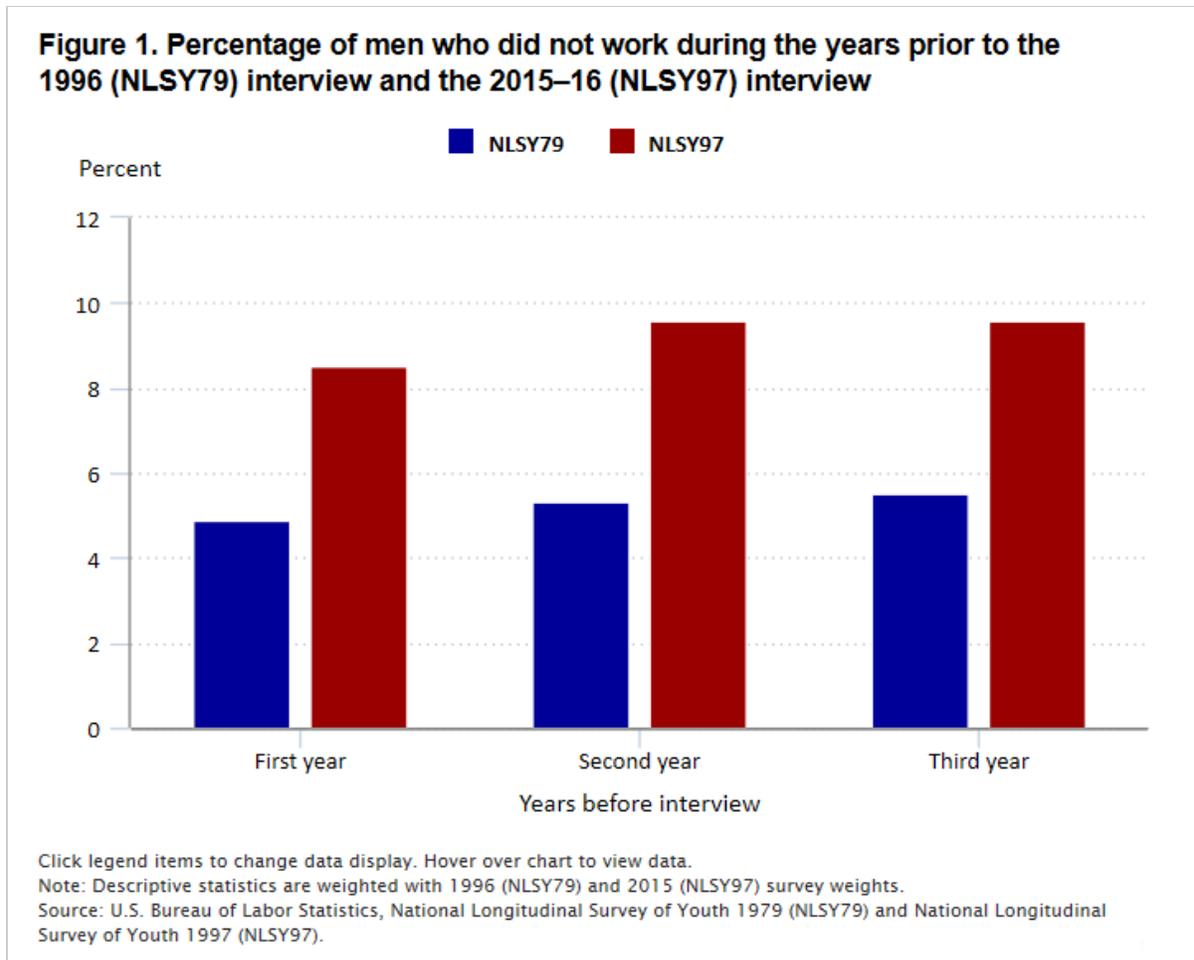
Because the neighborhood measures shown in table 4 are highly correlated, I only include the poverty measure in the regressions shown in table 6. However, alternative neighborhood measures from table 4 (percentage Black, percentage with a bachelor’s degree or more, percentage of men employed, and degree of intergenerational mobility) also have statistically significant effects on the likelihood of being a nonworker in the expected direction when they are each put into the regression in place of the neighborhood poverty measure.

Specification 2 in table 6 adds youth teenage characteristics; note that several of the background variables from specification 1 are no longer statistically significant (family structure and mother’s education) or decrease in magnitude. Having an AFQT percentile score of less than 25 increases the likelihood that respondents did not

work in the year prior to the 2015–16 interview by 6.9 percentage points, and obtaining a high school diploma by age 20 decreases the likelihood by 8.1 percentage points. Early arrests and drug use are not statistically significant predictors, but having had lower expectations about the likelihood of working 5 years after the 2000 interview increases the likelihood of being a nonworker in the year before the 2015–16 interview. Specification 3 adds age-25 characteristics. With that addition, the size of several of the family background characteristics coefficients diminishes, while many of the early youth and teen characteristics, such as obtaining a high school diploma by age 20 and the AFQT percentile score categories, remain statistically significant. The strongest predictor of future nonwork is the percentage of weeks worked in the year the respondents turned 25, with not working or working less than 25 percent of weeks having very large effects: 28.5 and 10.6 percentage points, respectively. Incarceration and drug use at age 25 are not statistically significant, but rating their own health at age 25 as poor has a large statistically significant effect (28.6 percentage points).

## Comparison with the NLSY79 cohort

The rate of nonwork among prime-age men has risen over time, and this section examines the extent to which nonworking men's characteristics have changed. It uses data from the National Longitudinal Survey of Youth 1979 (NLSY79) to compare characteristics of nonworkers from the older cohort with those from the NLSY97 cohort when they were the same age. The NLSY79 is a nationally representative sample of 12,686 men and women born from 1957 to 1964 and living in the United States at the time of the initial survey, in 1979. Respondents were interviewed annually from 1979 to 1994 and biennially since then. At the time of the 2015–16 interview, NLSY97 respondents were ages 30 to 36. To make the cohorts as comparable as possible, I only use NLSY79 cohort data for those born from 1960 to 1964. When the 1996 interview was conducted, these NLSY79 respondents were ages 31 to 36. Figure 1 provides information about the percentage of men not working in the years leading up to the 1996 (NLSY79) and 2015–16 (NLSY97) interviews. The figure shows that 4.9 percent of the NLSY79 sample did not work in the year prior to the 1996 interview, compared with 8.5 percent of the NLSY97 sample who did not work in the year prior to the 2015–16 interview.<sup>19</sup> In the second year before the interview, 5.3 percent of men in the NLSY79 and 9.6 percent of men in the NLSY97, respectively, did not work, with similar percentages for the third year before the interview. These percentages reflect the increase in nonwork for men in the later NLSY97 cohort.



Although nonwork among prime-age men appears to be less of an issue in the NLSY79 cohort, it is interesting that nonworkers from both cohorts tend to have similar characteristics in terms of health limitations, education, AFQT scores, and living situation, among other characteristics. Table 7 displays descriptive statistics for those who worked in the year prior to the 1996 (NLSY79) and 2015–16 (NLSY97) interviews and those who did not. In the NLSY79 cohort, 50.6 percent of men who did not work in the year prior to the 1996 interview stated that health issues limited their ability to work, compared with 4.6 percent of workers. Similarly, 40.9 percent of nonworkers in the NLSY97 cohort report that health issues limited their ability to work, compared with 4.3 percent of workers. Men in both surveys who did not work in the year prior to their interview were more likely than those who worked at some point in the prior year to have been interviewed in prison (24.0 percent of nonworkers in the NLSY79 and 16.3 percent in the NLSY97). Black men in both surveys were overrepresented among those who did not work in the prior year and underrepresented among those who worked in the prior year: 40.7 percent in the NLSY79 did not work, compared with 12.7 who worked; and 33.5 percent in the NLSY97 did not work, compared with 13.6 who worked. Conversely, Non-Black, non-Hispanic men in both surveys were overrepresented among those who worked in the prior year and underrepresented among those who did not work in the prior year.

**Table 7. Descriptive statistics of men, ages 30 to 36, in the National Longitudinal Survey of Youth 1979 (NLSY79) and National Longitudinal Survey of Youth 1997 (NLSY97) samples, by work status in the year prior to the 1996 (NLSY79) and 2015–16 (NLSY97) interviews**

Characteristic	NLSY79 (in percent)		NLSY97 (in percent)	
	Worked in prior year	Did not work in prior year	Worked in prior year	Did not work in prior year
Work limited for health reasons	4.6	50.6	4.3	40.9
Interviewed in prison	0.7	24.0	0.4	16.3
Enrolled in school at interview date	3.2	6.6	5.7	7.3
Race or ethnicity				
Non-Black, non-Hispanic	80.9	48.5	71.6	52.4
Black, non-Hispanic	12.7	40.7	13.6	33.5
Hispanic	6.4	10.7	13.4	13.1
Other	—	—	1.4	1.0
Education level				
Less than high school	10.5	26.7	6.7	18.6
General Education Development (GED)	8.2	27.2	10.5	20.8
High school diploma	35.6	24.1	23.1	29.4
Some college	19.9	15.7	24.8	22.2
Bachelor's degree or higher	25.8	6.4	35.0	9.0
Armed Forces Qualification Test (AFQT) percentile score				
Less than 25 percent	26.0	63.7	23.8	53.4
25 percent to less than 50 percent	22.2	16.4	24.1	20.5
50 percent to less than 75 percent	25.4	15.6	23.5	18.8
75 percent or higher	26.4	4.3	28.6	7.3
AFQT score missing	4.1	7.1	17.5	23.3
Marital status				
Never married	24.5	51.6	43.6	70.0
Married	60.5	22.6	47.8	18.1
Separated	2.8	6.4	1.0	2.7
Divorced or widowed	12.2	19.4	7.6	9.2
Cohabiting (sample not married)	21.4	12.5	35.7	15.9
Live in household with parent	9.8	30.2	13.6	30.6
Child under age 6 in household	36.8	20.0	37.7	12.9
Sample size	2,647	207	3,134	365

Note: Descriptive statistics are weighted with 1996 (NLSY79) and 2015 (NLSY97) survey weights. Dash indicates not applicable.

Source: U.S. Bureau of Labor Statistics, NLSY79 and NLSY97.

Nonworkers in both surveys were much more likely than workers to have never married (51.6 percent versus 24.5 percent in the NLSY79, and 70.0 percent versus 43.6 percent in the NLSY97). Nonworkers were also much more likely than workers to live in a household with a parent (30.2 percent versus 9.8 percent in the NLSY79, and 30.6 percent versus 13.6 percent in the NLSY97). Nonworkers are much less likely than workers to have a bachelor's degree in both surveys and much more likely than workers to have less than a high school education or GED. In both cohorts, workers are fairly evenly distributed across the four quarters of AFQT percentile scores. In comparison, nonworkers are much less likely to have AFQT scores in the 75th percentile or higher (4.3 percent versus 26.4 percent in the NLSY79, and 7.3 percent versus 28.6 percent in the NLSY97). Nonworkers were also

much more likely to have AFQT scores that were below the 25th percentile (63.7 percent versus 26.0 percent in the NLSY79, and 53.4 percent versus 23.8 percent in the NLSY97).

## Discussion and comparison with prior literature

The 8.5 percent of men in the later NLSY97 cohort who did not work in the year prior to the 2015–16 interview also did not work much in earlier years, with more than half working zero weeks in each of the 4 years prior to the 2015–16 interview. That is, unlike those of the Coglianesse study, my findings show a persistence of nonwork for these men, rather than a situation in which they move in and out of the labor force.<sup>20</sup> An examination of the 52 weeks following the 2015–16 interview indicates that the nonworking status of prime-age men remains mostly unchanged, with almost 82 percent not working in the following year, compared with about 3 percent of workers (numbers not shown in tables).<sup>21</sup> Nonwork status among men is less prevalent in the earlier (NLSY79) cohort (4.9 percent) than in the later (NLSY97) cohort (8.5 percent), when I use the same definition and ages for both cohorts. This finding is not surprising, given the increase over the last several decades in the percentage of prime-age men who are not working, as documented in several recent studies.<sup>22</sup>

The NLSY97 data suggest two likely reasons for the prevalence of nonwork among prime-age men. The first is related to health issues, as found in the Krueger study, and the second relates to current or recent incarceration.<sup>23</sup> As shown in table 2, nonworkers are much more likely to report that they have health issues that limit their ability to work (40.9 percent) and 20.6 percent were incarcerated in the year prior to the 2015–16 interview.<sup>24</sup> Nonworkers are less advantaged on other fronts as well. As other researchers have found, nonworking men tend to have lower levels of education than their working peers.<sup>25</sup> Nonworkers also have lower levels of cognitive skills, as measured by AFQT score, with 53.4 percent in the lowest 25th percentile, compared with 23.8 percent of workers. (See table 2.) Race is also a notable factor, as Black men were nearly 20 percentage points more likely to have not worked in the year prior to the 2015–16 interview than to have worked (33.5 percent versus 13.6 percent). Nonworkers were only slightly more likely to reside in local areas with high levels of unemployment (6.0 percent or higher). (See table 2.)

Data from the NLSY97 show that family members play a substantial role in financially supporting nonworking men, a finding reported by other researchers using alternative data sets.<sup>26</sup> Nonworking men are much more likely than working men to live in a household with a parent, but they are less likely to be married or cohabiting. Among those who are married or cohabiting, nonworkers and/or their spouse or partner are more likely to receive transfers such as Supplemental Security Income and food assistance. At the time of the 2015–16 interview, nonworkers were less likely than workers to report that their financial situation was comfortable (38.5 percent versus 67.3 percent), and they were more likely to report that their financial situation was tough or that they were in over their head (43.6 percent versus 11.0 percent). (See tables 2 and 3.)

As far as I know, no earlier studies have specifically looked into the early backgrounds of nonworking men (family and neighborhood resources, delinquency, teen experiences and expectations) as I have done in this article. However, research from the Moving to Opportunity experiment has examined how moving to a less disadvantaged neighborhood affects youths' subsequent outcomes.<sup>27</sup> Previous research has also found that early characteristics and resources substantially affect subsequent educational and employment outcomes.<sup>28</sup> Similarly, Adam Looney and Nicholas Turner found that early family and neighborhood environments are strong predictors of future incarceration.<sup>29</sup> The NLSY97 data also show that nonworkers tend to be less advantaged than workers, in terms of

their early background characteristics. For example, nonworkers are less likely to grow up in a two-parent family, more likely to have a mother with a lower level of education, and more likely to have a mother who had a teen birth. Nonworkers also are more likely to have been arrested at age 18 or younger, less likely to have received a high school diploma by age 20, and to have lower expectations regarding the likelihood of their working 20 or more hours per week in the future. Nonworkers are much more likely than workers to grow up in an impoverished neighborhood. Moreover, nonworkers' neighborhoods are more likely to be disadvantaged in other ways, including with respect to intergenerational income mobility. Linear probability models suggest that certain early characteristics affect the likelihood of becoming a nonworker. Factors such as early cognitive test scores, whether the respondent attained a high school diploma by age 20, and growing up in a disadvantaged neighborhood, for example, are important predictors of the likelihood of not working in the year prior to the 2015–16 interview. The models suggest that other characteristics, such as early drug use and whether they had been arrested at age 18 or younger, are not.

## Conclusion

NLSY97 data show that 8.5 percent of men in the NLSY97 did not work in the year prior to the 2015–16 interview and a majority had also not worked much in earlier years. Two main (supply-side) reasons for nonwork are underscored by the NLSY97 data. First, 40.9 percent of nonworkers respond that health issues limit their ability to work. Research conducted by Priyanka Anand and Purvi Sevak suggests that inaccessible workplaces or lack of transportation provide barriers to employment for many disabled people and that workplace accommodations to address these barriers could increase the likelihood of employment for those with limitations.<sup>30</sup> The second reason for nonwork relates to incarceration, as 20.6 percent of nonworkers report that they had been incarcerated in the year prior to the 2015–16 interview and 36.2 percent say they have been incarcerated at some point in their lives. Having a criminal record can be a barrier to employment.<sup>31</sup> The NLSY97 data also show that nonworkers tend to be more disadvantaged in the early part of their lives, particularly with respect to family and neighborhood environment.

### SUGGESTED CITATION

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### NOTES

<sup>1</sup> Data are annual averages for 1969 and 2015. See U.S. Bureau of Labor Statistics (BLS), Current Population Survey (CPS), labor force participation rate for men, ages 25 to 54, data series LNS11300061; these data can be accessed with the BLS "Series Report" data retrieval tool, at <https://data.bls.gov/cgi-bin/srgate>.

<sup>2</sup> Council of Economic Advisors (CEA), *The Long-Term Decline in Prime-Age Male Labor Force Participation* (Executive Office of the President of the United States, June 2016), p. 7, [https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160620\\_cea\\_primeage\\_male\\_lfp.pdf](https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160620_cea_primeage_male_lfp.pdf). The CEA authors used CPS microdata to make these calculations. This particular measure—current labor force status by previous year's work experience—is not available in the CPS databases or in BLS publications.

<sup>3</sup> Alan B. Krueger, "Where have all the workers gone? An inquiry into the decline of the U.S. labor force participation rate," *Brookings Papers on Economic Activity* (Washington, DC: The Brookings Institution, September 2017), pp. 1–59, <https://www.brookings.edu/bpea-articles/where-have-all-the-workers-gone-an-inquiry-into-the-decline-of-the-u-s-labor-force-participation-rate/>.

[4](#) John Coglianesse, “The rise of in-and-outs: declining labor force participation of prime age men,” Harvard University working paper, 2017; the latest version of the paper (2018) can be accessed on the author’s website at <https://www.johncoglianesse.com/publication/in-and-outs/>.

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[6](#) David H. Autor, David Dorn, and Gordon H. Hanson, “The China Syndrome: local labor market effects of import competition in the United States,” *American Economic Review*, vol. 103, no. 6, October 2013, pp. 2,121–2,168, <https://www.aeaweb.org/articles?id=10.1257/aer.103.6.2121>; David H. Autor, David Dorn, and Gordon H. Hanson, “The China shock: learning from labor market adjustment to large changes in trade,” *Annual Review of Economics*, vol. 8, October 2016, pp. 205–240, <https://doi.org/10.1146/annurev-economics-080315-015041>.

[7](#) Katharine G. Abraham and Melissa S. Kearney, “Explaining the decline in the U.S. employment-to-population ratio: a review of the evidence,” Working Paper 24333 (Cambridge, MA: National Bureau of Economic Research, February 2018), <https://www.nber.org/papers/w24333.pdf>. An updated version of the article was recently published in the *Journal of Economic Literature*, vol. 58, no. 3, September 2020, <https://doi.org/10.1257/jel.20191480>.

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[9](#) Jay Stewart, “Male nonworkers: Who are they and who supports them?” *Demography*, vol. 43, no. 3, August 2006, pp. 537–552, <https://link.springer.com/article/10.1353/dem.2006.0028>.

[10](#) For an earlier analysis of this topic by the present author, see Donna Rothstein, “Men who do not work during their prime years: What do the National Longitudinal Surveys of Youth data reveal?” *Beyond the Numbers*, vol. 8, no. 11, August 2019, [https://www.bls.gov/opub/btn/volume-8/male-nonworkers-nlsy.htm?view\\_full](https://www.bls.gov/opub/btn/volume-8/male-nonworkers-nlsy.htm?view_full).

[11](#) The Armed Forces Qualification Test (AFQT) is the cognitive test used in the National Longitudinal Survey of Youth 1997 (NLSY97) cohort examined for this article; The AFQT covers four sections of the Armed Services Vocational Aptitude Battery (ASVAB) and measures math and verbal aptitude. This test was given to NLSY97 respondents in 1997–98.

[12](#) Restricted-use data available upon application approval for use at the BLS or Federal Statistical Research Data Centers.

[13](#) Descriptive statistics in the tables that follow use Round 17 (2015–16 interview) survey weights. The NLSY97 sample weights reflect that Black and Hispanic individuals are oversampled in the survey, as well as other factors. As a result, the weighted percentages of nonworkers and workers differ from unweighted sample percentages.

[14](#) A *p*-value of .05 or less denotes a statistically significant difference in mean values.

[15](#) Data are available on the U.S. Census Bureau website; see <https://www.census.gov/programs-surveys/ces/data/public-use-data/opportunity-atlas-data-tables.html> and <https://www2.census.gov/ces/opportunity/Codebook-for-Table-2.pdf>. See also Raj Chetty, John Friedman, Nathaniel Hendren, Maggie R. Jones, and Sonya Porter, “The Opportunity Atlas: mapping the childhood roots of social mobility” (U.S. Census Bureau and Opportunity Insights, 2020), [https://opportunityinsights.org/wp-content/uploads/2018/10/atlas\\_summary.pdf](https://opportunityinsights.org/wp-content/uploads/2018/10/atlas_summary.pdf).

[16](#) See, for example, Raj Chetty and Nathaniel Hendren, “The impacts of neighborhoods on intergenerational mobility I: childhood exposure effects,” *Quarterly Journal of Economics* vol. 133, no. 3, August 2018, pp. 1107–1162, <https://doi.org/10.1093/qje/qjy007>; and Raj Chetty, Nathaniel Hendren, and Lawrence F. Katz, “The effects of exposure to better neighborhoods on children: new evidence from the Moving to Opportunity experiment,” *American Economic Review*, vol. 106, no. 4, April 2016, pp. 855–902, <https://www.aeaweb.org/articles?id=10.1257/aer.20150572>.

[17](#) Chetty and Hendren, “The impacts of neighborhoods on intergenerational mobility I.”

[18](#) Note that these results are descriptive and do not imply a causal relationship between the covariates and the likelihood of being a future nonworker.

[19](#) Descriptive statistics in figure 1 (and table 7) use 1996 survey weights (National Longitudinal Survey of Youth 1979) and 2015–16 interview survey weights (NLSY97).

[20](#) Coglianesi, “The rise of in-and-outs.”

[21](#) About 87 percent of the 3,499 men in my NLSY97 subsample were interviewed in 2017–18; the data from this interview recently became available.

[22](#) See, for example, Abraham and Kearney, “Explaining the decline in the U.S. employment-to-population ratio.”

[23](#) See Krueger, “Where have all the workers gone?” See also, Cherrie Bucknor and Alan Barber, “The price we pay: economic costs of barriers to employment for former prisoners and people convicted of felonies” (Washington, DC: Center for Economic and Policy Research, June 2016), <https://cepr.net/images/stories/reports/employment-prisoners-felonies-2016-06.pdf>.

[24](#) Michael Mueller-Smith finds incarceration decreases men’s likelihood of employment during and after their release. See, Mueller-Smith, “The criminal and labor market impacts of incarceration,” unpublished working paper, <https://sites.lsa.umich.edu/mgms/wp-content/uploads/sites/283/2015/09/incar.pdf>.

[25](#) See, for example, Binder and Bound, “The declining labor market prospects of less-educated men.”

[26](#) See Stewart, “Male nonworkers”; Coglianesi, “The rise of in-and-outs”; and Binder and Bound, “The declining labor market prospects of less-educated men.”

[27](#) See, for example, Chetty, Hendren, and Katz, “The effects of exposure to better neighborhoods on children.”

[28](#) See, for example, Joseph G. Altonji, Prashant Bharadwaj, and Fabian Lange, “Changes in the characteristics of American youth: implications for adult outcomes,” *Journal of Labor Economics*, vol. 30, no. 4, July 2020, pp. 783–828, <https://www.journals.uchicago.edu/doi/abs/10.1086/666536>; and James J. Heckman, Jora Stixrud and Sergio Urzua, “The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior,” *Journal of Labor Economics*, vol. 24, no. 3, July 2006, pp. 411–482, <https://www.journals.uchicago.edu/doi/abs/10.1086/504455>.

[29](#) Adam Looney and Nicholas Turner, “Work and opportunity before and after incarceration,” Brookings Report (Washington, DC: The Brookings Institution, March 2018), pp. 1–23, [https://www.brookings.edu/wp-content/uploads/2018/03/es\\_20180314\\_looneyincarceration\\_final.pdf](https://www.brookings.edu/wp-content/uploads/2018/03/es_20180314_looneyincarceration_final.pdf).

[30](#) Priyanka Anand and Purvi Sevak, “The role of workplace accommodations in the employment of people with disabilities,” *IZA Journal of Labor Policy*, vol. 6, no. 12, October 2017, pp. 1–20, <https://izajolp.springeropen.com/articles/10.1186/s40173-017-0090-4>.

[31](#) See, for example, Bucknor and Barber, “The Price We Pay”; and Mueller-Smith, “The criminal and labor market impacts of incarceration.”

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# Changes in consumer behaviors and financial well-being during the coronavirus pandemic: results from the U.S. Household Pulse Survey

*The onset of the coronavirus disease 2019 (COVID-19) pandemic led to considerable changes in consumer spending behavior in the United States. Using data from the Household Pulse Survey, this article examines the extent of pandemic-related behavioral changes reported in August 2020. The article also shows how these changes differed across generations and geography.*

Dedication: We dedicate this article to the memory of our colleague, Jennifer Edgar, past Associate Commissioner in the Office of Survey Methods Research. Jennifer significantly contributed to the testing of questions asked in the Household Pulse Survey.



In early 2020, the coronavirus disease 2019 (COVID-19) pandemic brought unprecedented health, economic, and social upheaval throughout the world. For many people living in the United States, the pandemic began on January 31, 2020, when the U.S. Secretary of Health and Human Services declared a public health emergency in response to the outbreak. For others, the pandemic began months later, as the disease spread across the country. On the international stage, on March 11, 2020, the World Health Organization announced that COVID-19 could be characterized as a pandemic because of the high rates of infection in various countries around the globe. Shortly thereafter, on March 13, 2020, President Donald J. Trump declared that the coronavirus outbreak in the United States constituted a national emergency.<sup>1</sup> On March 27, 2020, the Coronavirus Aid, Relief, and Economic Security (CARES) Act was passed by Congress and signed into law by the President, providing an economic stimulus payment, extra unemployment benefits, additional funding for food and housing programs and activities, and other provisions.

From that point forward, general health concerns and a number of measures, such as stay-at-home orders, gathering restrictions, and store closings, led to a significant shift in the daily lives of people. Travel declined, telework increased, and consumer spending behavior changed in significant ways. Attesting to how these measures affected many consumers, Raj Chetty et al. reported that, from January to April 2020, total consumer credit and debit card spending by all consumers decreased by \$7.5 billion, about a 34-percent reduction.<sup>2</sup> More recently, some states and local governments have relaxed restrictions and resumed business, at least partially.<sup>3</sup> (See figure 1.) At the same time, as people have dealt with the consequences of the pandemic, they have experienced differential impacts in their financial well-being. Yet, regardless of where we are today—personally, financially, and health-wise—versus where we were before January 2020, all of our lives have been affected by the coronavirus pandemic.

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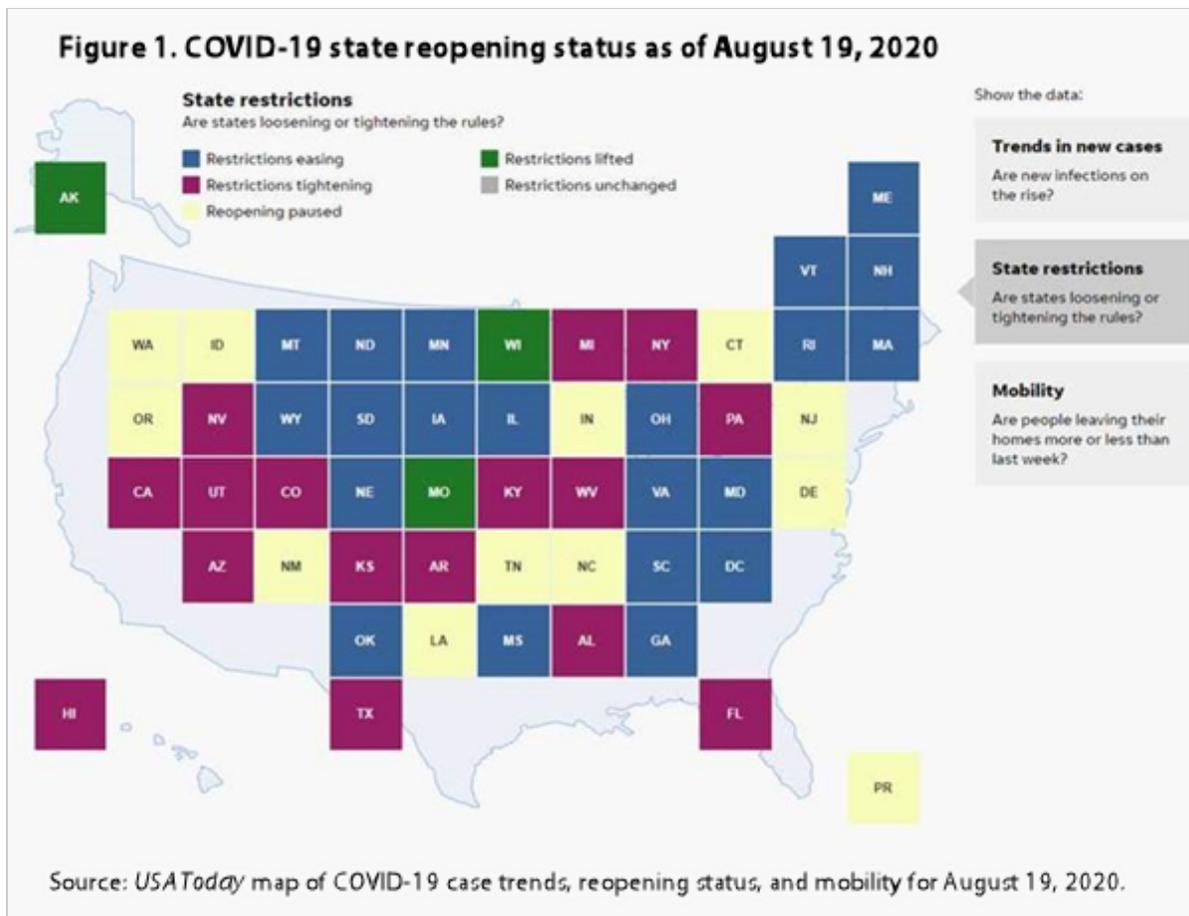
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Among the first major pandemic-related behavioral changes in the daily lives of people were those related to work and shopping behaviors. In many areas across the United States, these changes affected the use of public services. For example, in March 2020, public transportation authorities in many U.S. cities reduced transit services in an effort to address ridership declines and protect the health and safety of employees and customers.<sup>4</sup> Data from the U.S. Bureau of Labor Statistics (BLS) Current Population Survey indicate that, in May 2020, 35.4 percent of employed workers teleworked because of the coronavirus pandemic.<sup>5</sup> In April 2020, an analysis of personal credit and debit card purchases of millions of people in the United States showed spikes in online purchases of groceries, meals from restaurants, and products ordinarily purchased in stores. At the same time, dramatic drops in credit and debit card spending were reported for businesses associated with entertainment, transportation, and travel.<sup>6</sup>

Against this backdrop, a question arises whether consumer behavioral changes continued through the summer as more states and counties began phased reopenings. In this article, we address this question by analyzing [Household Pulse Survey](#) (HPS) data collected in August 2020.<sup>7</sup> Specifically, we examine the extent to which spending behaviors and financial well-being changed during August 2020 and show how these changes differed across generations and geography. The changes in consumer behavior and financial well-being presented here only reflect a snapshot in time, and future developments will depend on individual and state responses to changes in the incidence of COVID-19 cases.

The main findings of our analysis are as follows:

- *Tough times for younger respondents.* Meeting expenses was more difficult for younger respondents than for older respondents. While 64.7 percent of millennials (those born in 1981 or later) reported at least some difficulty in paying for expenses, only 34.5 percent of the Silent Generation (those born between 1928 and 1945) reported the same.
- *Protective (pandemic-avoidance) consumer behavioral changes (e.g., increasing online shopping, avoiding eating at restaurants) were reported as more likely than were relaxing consumer behavioral changes (e.g., increasing in-store shopping, resuming eating at restaurants).* Of all respondents, 46.8 percent reported participating in exclusively protective changes in behavior, the most frequent response among the options of protective changes, relaxing changes, or both. In contrast, only 4.3 percent of respondents reported exclusively relaxing changes in behavior.
- *Protective behavioral changes are concentrated among some states and less so among others.* Protective consumer behavioral changes are most pronounced in densely populated states.

## About the data

BLS, along with several other federal agencies, developed questions for the rapid-response HPS. The HPS, an online survey using a probability-based sample and email and text message invitations to elicit responses from participants, is a collaboration among the U.S. Census Bureau, BLS, the U.S. Department of Housing and Urban Development, the National Center for Education Statistics, the National Center for Health Statistics, and the Economic Research Service of the U.S. Department of Agriculture. The survey was developed for a quick release in the field, gathering data on the many ways in which the lives of people in the United States have been affected by the pandemic. The survey instruments include questions on respondent demographics, employment, food security, health, housing, education, financial well-being, and spending behaviors.<sup>8</sup>

The first phase of the survey was fielded from April 23 to July 21, 2020. The BLS Office of Prices and Living Conditions (OPLC) contributed questions related to the receipt and actual or expected use of Economic Impact Payments (also known as stimulus payments), as well as sources of income being used to meet spending needs during the pandemic. We recently published another article summarizing the results of the survey.<sup>9</sup>

The present analysis reports findings from the first week of the second phase of the survey. Fielded from August 19 to 31, 2020, OPLC questions shifted the focus from economic stimulus payments to potential long-term impacts of the coronavirus pandemic and related policies or changes in business practices that influence consumer buying behavior. (See appendix for a list of BLS questions in the HPS phase 2 questionnaire, including those contributed by the Office of Employment and Unemployment Statistics.<sup>10</sup>) The U.S. Census Bureau releases these data with person- and household-level weights. In our analysis of data for phase 2, we applied person-level weights, as we did in our analysis of data for phase 1. Thus, our results are shown for people as opposed to households, and the statistics are presented for weighted respondents. This distinction is important for readers who might wish to compare our results with those of researchers who use household sampling and weights in their analyses.

Readers examining our results should also note that the HPS questions about consumer behavioral changes reflect only a 7-day reference period. This question feature, discussed in greater detail in later sections, implies that although two respondents may have exhibited the same behavior during the pandemic (e.g., avoiding eating at restaurants), their responses to the same HPS question could differ. This difference would occur if one of the respondents made the change before the survey's 7-day reference period and the other made the change during

the reference period. Only the respondent who made the change during the reference period would be tabulated as such in the survey findings presented here.

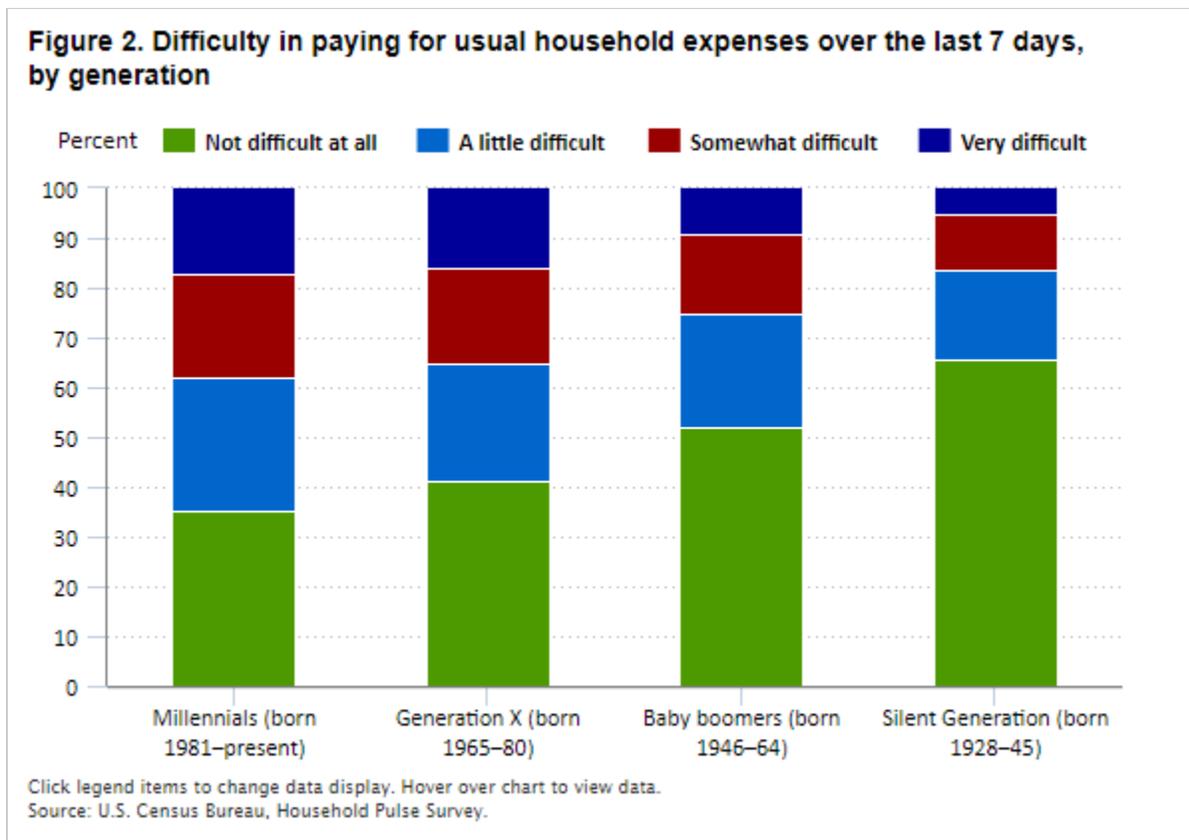
## Findings

This section discusses financial well-being with respect to reported consumer difficulties in meeting household expenses during the pandemic and identifies changes in spending behavior across generations and geography.

### Difficulty in paying for usual household expenses over the last 7 days

In response to the question, “In the last 7 days, how difficult has it been for your household to pay for usual household expenses, including but not limited to food, rent or mortgage, car payments, medical expenses, student loans, and so on?” 13.6 percent of respondents (weighted to represent the population) reported it being very difficult, and 18.3 percent reported it being somewhat difficult. In comparison, in response to an August 2020 RAND survey question, “In the past month, how difficult has it been for you to cover your expenses and pay all your bills?” 7.1 percent of respondents reported it being very difficult, and 26.6 percent reported it being somewhat difficult.<sup>11</sup> Similarly, according to results from wave 4 (July 2–13, 2020) of the Consumer Finance Institute COVID-19 Survey of Consumers, 11.5 percent of respondents reported being very concerned about their ability to make ends meet over the next 3 months.<sup>12</sup> In contrast, in answering a 2019 Federal Reserve Board survey question, “Overall, which one of the following best describes how well you are managing financially these days?” 6 percent of respondents reported finding it difficult to get by, while 18 percent reported just getting by.<sup>13</sup> In an April 2020 supplemental survey questionnaire, these percentages had increased marginally, with 7 percent of respondents reporting finding it difficult to get by and 20 percent reporting just getting by.<sup>14</sup>

The findings about difficulty in paying for usual household expenses were more pronounced for younger respondents than for older respondents. While 64.7 percent of millennials reported at least some difficulty in paying for usual expenses, only 34.5 percent of the Silent Generation reported the same.<sup>15</sup> (See figure 2.) Additionally, as expected, those in the lowest income category reported the most difficulty in paying for usual expenses. (See table 1.)



**Table 1. Difficulty in paying for usual household expenses over the last 7 days, by household income**

Household income	Percent distribution			
	Not difficult at all	A little difficult	Somewhat difficult	Very difficult
Less than \$25,000	18.0	22.9	26.4	32.7
\$25,000 to \$34,999	26.3	25.4	26.5	21.8
\$35,000 to \$49,999	33.3	26.9	21.4	18.4
\$50,000 to \$74,999	44.1	25.3	18.8	11.8
\$75,000 to \$99,999	51.0	25.3	15.8	7.9
\$100,000 to \$149,999	63.5	21.2	10.8	4.5
\$150,000 to \$199,999	70.4	18.2	8.1	3.2
\$200,000 and more	80.6	11.9	4.8	2.7
Did not report	38.9	27.4	20.5	13.3

Note: Values may not sum to 100 because of rounding.

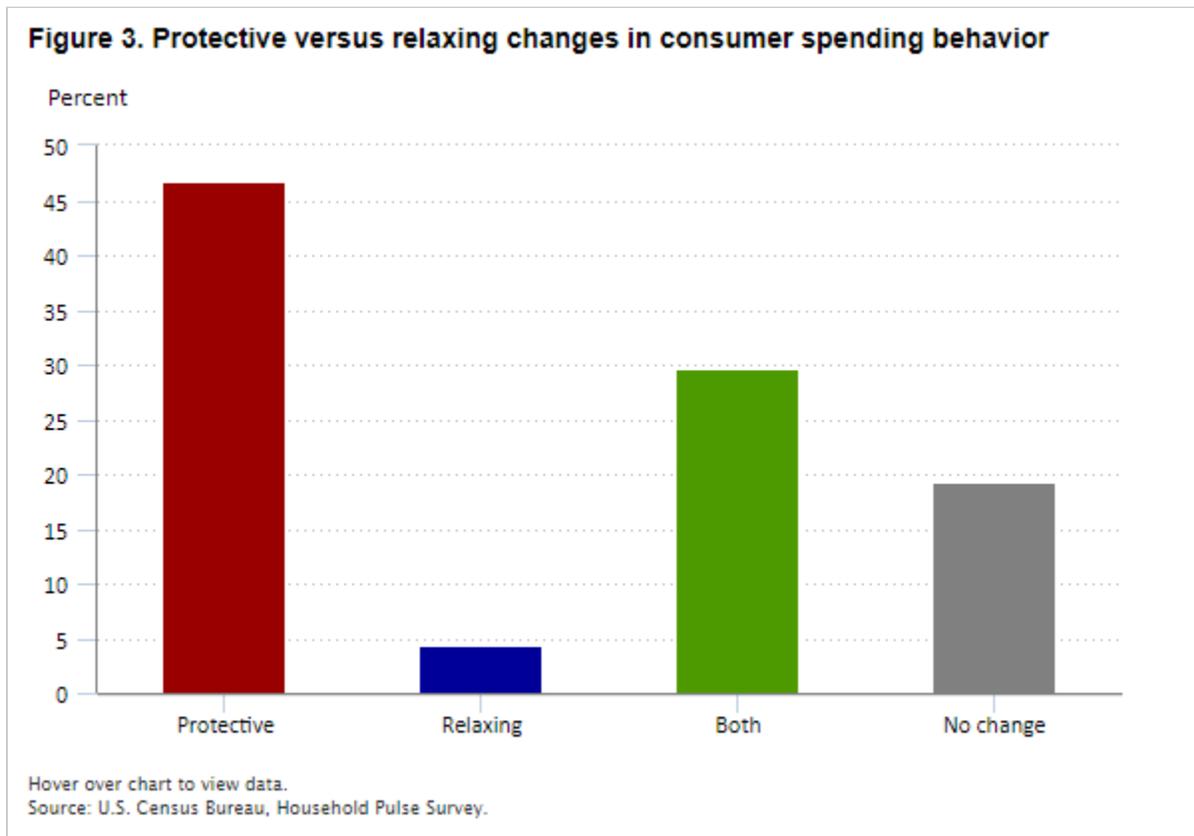
Source: U.S. Census Bureau, Household Pulse Survey.

## How spending behaviors changed

Respondents were presented with a list of behavioral changes and asked to indicate how their shopping behavior had changed within the last 7 days. For the present analysis, we created categorical variables based on responses to the question’s check-all-that-apply response options. The consumer behavioral changes in the list were classified as “protective” or “relaxing” on the basis of their adherence to pandemic-avoidance behaviors. A

“protective” behavioral change is one that conforms to pandemic-avoidance behaviors (e.g., increasing online shopping, avoiding eating at restaurants), whereas a “relaxing” behavioral change indicates a weaker adherence to pandemic-avoidance behaviors (e.g., increasing in-store shopping, resuming eating at restaurants).

As seen in figure 3, 46.8 percent of respondents reported exclusively protective changes in behavior, the most frequently reported category. In contrast, only 4.3 percent of respondents reported exclusively relaxing changes in behavior. A subset of respondents, 29.7 percent, reported at least one protective and one relaxing behavioral change. (A more detailed analysis of this group’s behavioral changes is provided later in this article.)



Focusing on individual behavioral changes reveals that 54.6 percent of respondents reported a change toward avoiding eating at restaurants, 48.5 percent reported a change toward making more online purchases, and 34.8 percent reported a change toward increasing their use of credit cards or mobile apps for purchases. These findings agree with recent global results reported in September 2020 by the Organisation for Economic Co-operation and Development, which show that the United States has had persistent pandemic-avoidance behaviors relative to nations such as France, Germany, Italy, and Great Britain, all of which saw a more pronounced relaxation of avoidance strategies.<sup>16</sup> In our data, the most frequently reported relaxing change in U.S. spending behavior only ranked sixth among all reported consumer behavioral changes, and that change was for a necessity (20.4 percent of respondents reported changing spending to attend in-person medical or dental appointments) as opposed to discretionary spending (such as resuming eating at restaurants). A little over one-fifth of respondents (18.5 percent) reported no change in their spending or shopping behavior. (See figure 4.) A possible explanation for the high rate of “no change” responses could be the question’s reference period (last 7 days). As noted previously,

respondents may have implemented some of the behavioral changes that the question asks about, but they may have done so more than 7 days ago.

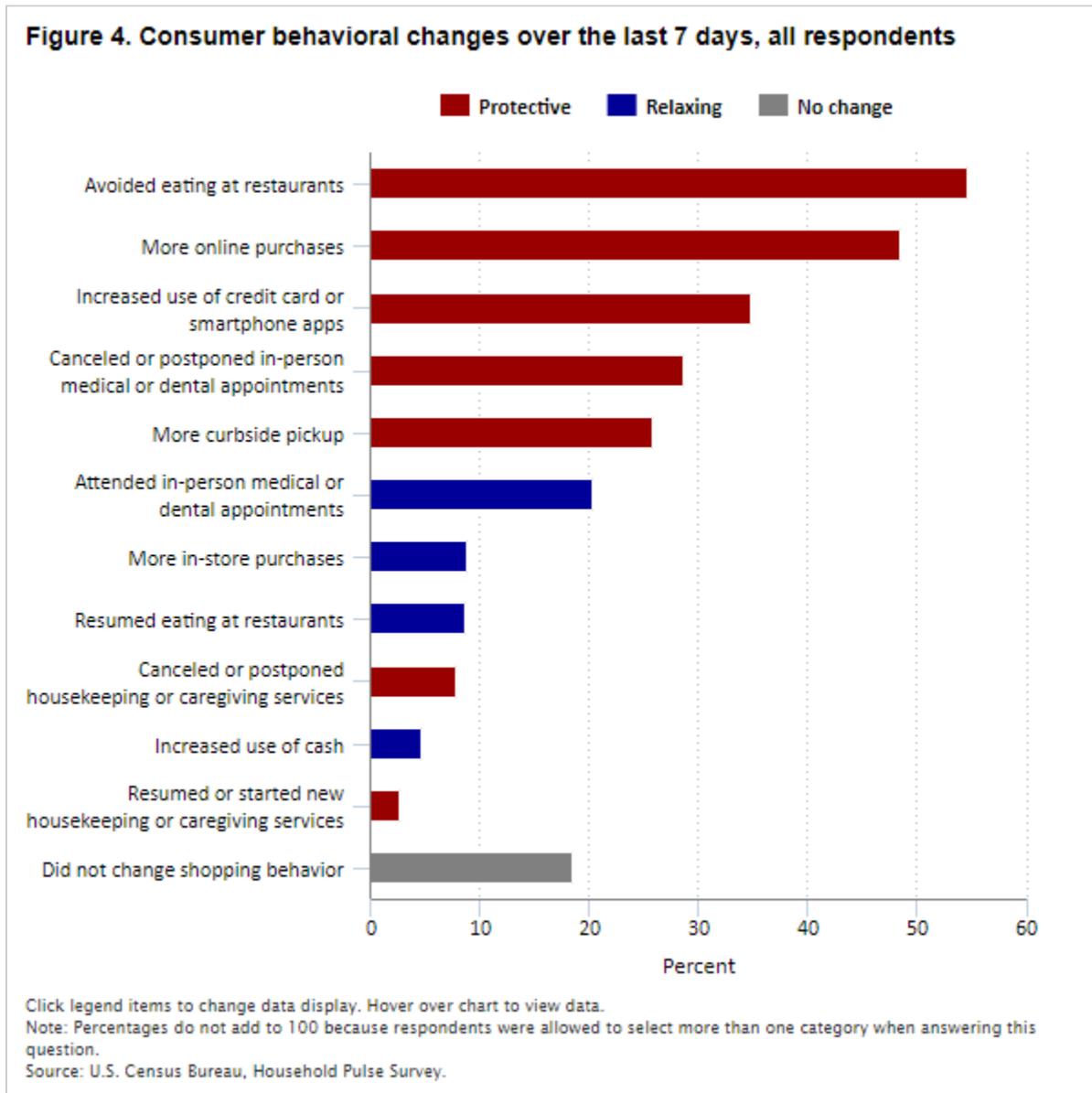
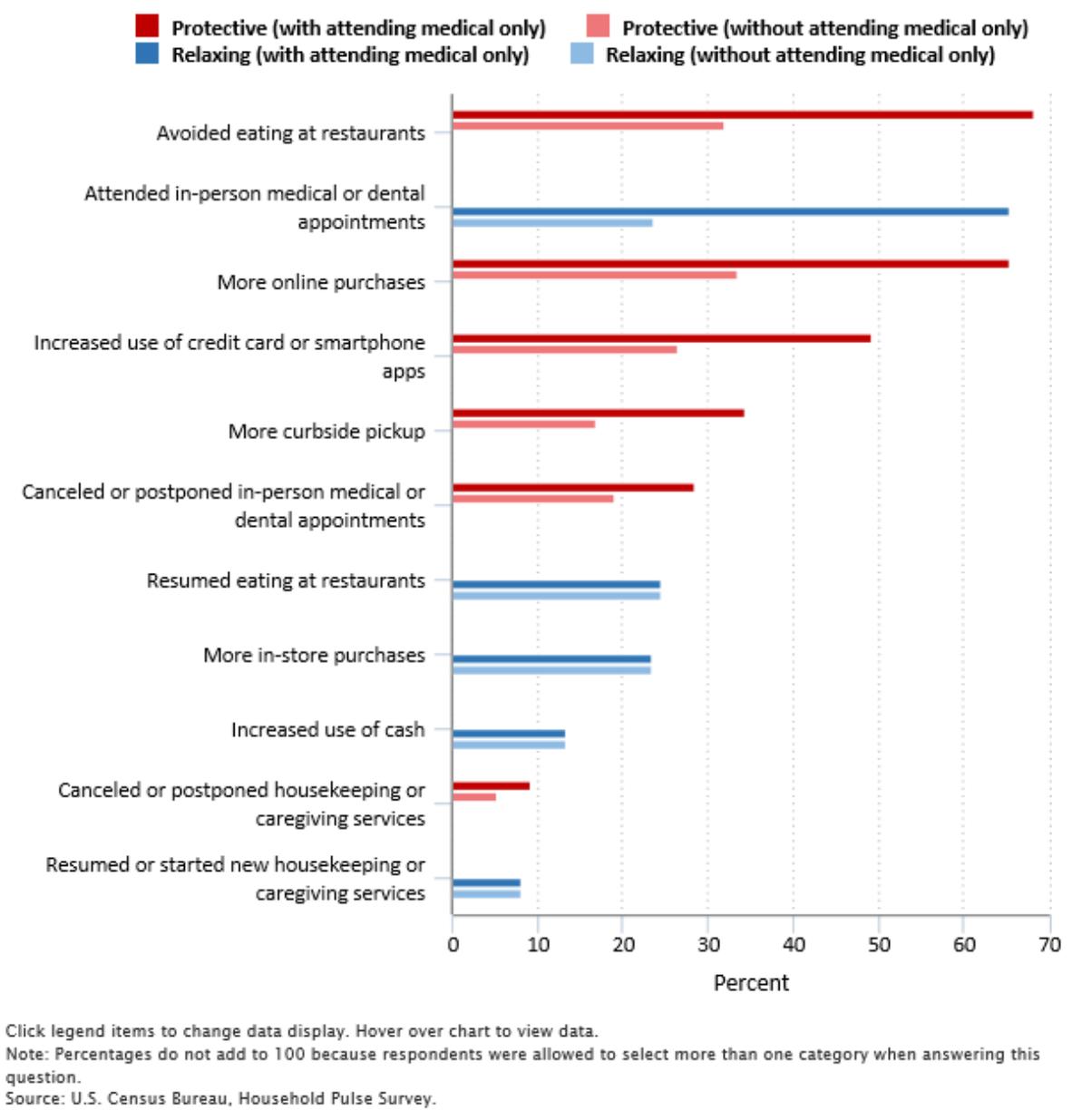


Figure 5 provides a more detailed look at those respondents who reported at least one protective behavioral change and at least one relaxing behavioral change. The darker red and darker blue bars in the figure show the percentage of respondents who reported both protective and relaxing behavioral changes and the corresponding change in spending behavior. For example, the top dark red bar shows that, among respondents who reported at least one protective and at least one relaxing behavioral change, 68.3 percent reported avoiding eating at restaurants within the past 7 days. Attending in-person medical or dental appointments was the most frequently reported relaxing behavioral change, with 65.4 percent of respondents within the “both” category reporting it, and the second most frequently reported change in behavior for this group.

**Figure 5. Consumer behavioral changes over the last 7 days, subset of respondents with at least one protective and at least one relaxing change**



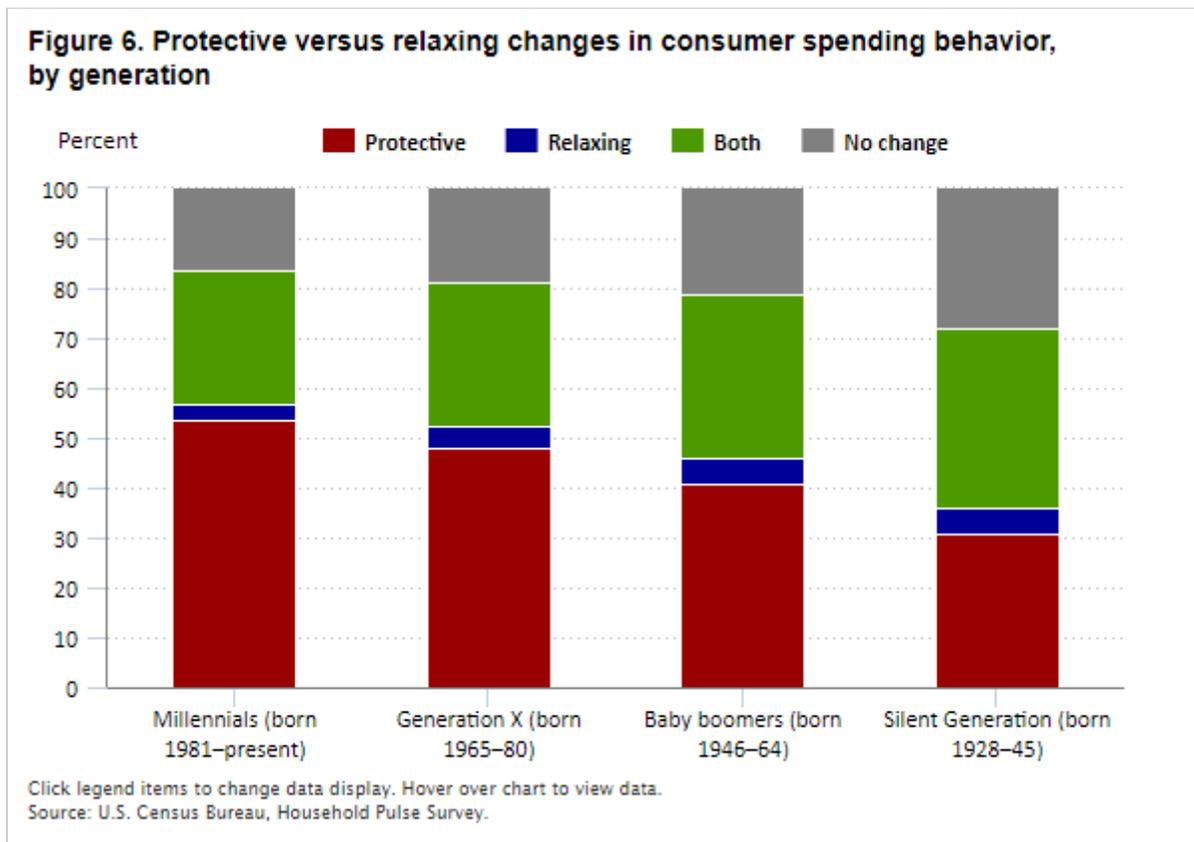
Because attending in-person medical or dental appointments is viewed as a necessity, it may be the only relaxing behavior for many respondents who reported both protective and relaxing behaviors. To determine the effect of these respondents on the results reported in figure 5, we dropped them from the analysis. The results based on this exclusion are represented by the figure’s light red and light blue bars.

The difference between the dark blue and light blue bars corresponding to attending in-person medical or dental appointments represents the percentage of respondents whose only reported relaxing behavior was attending in-person medical or dental appointments (41.8 percent). The difference between the dark red and light red bars represents the percentage of respondents who reported a given protective behavior and whose only relaxing behavior was attending in-person medical or dental appointments. For example, among respondents who reported

avoiding eating at restaurants, 36.3 percent (68.3 percent minus 32.0 percent) reported attending in-person medical or dental appointments as their only relaxing behavior.

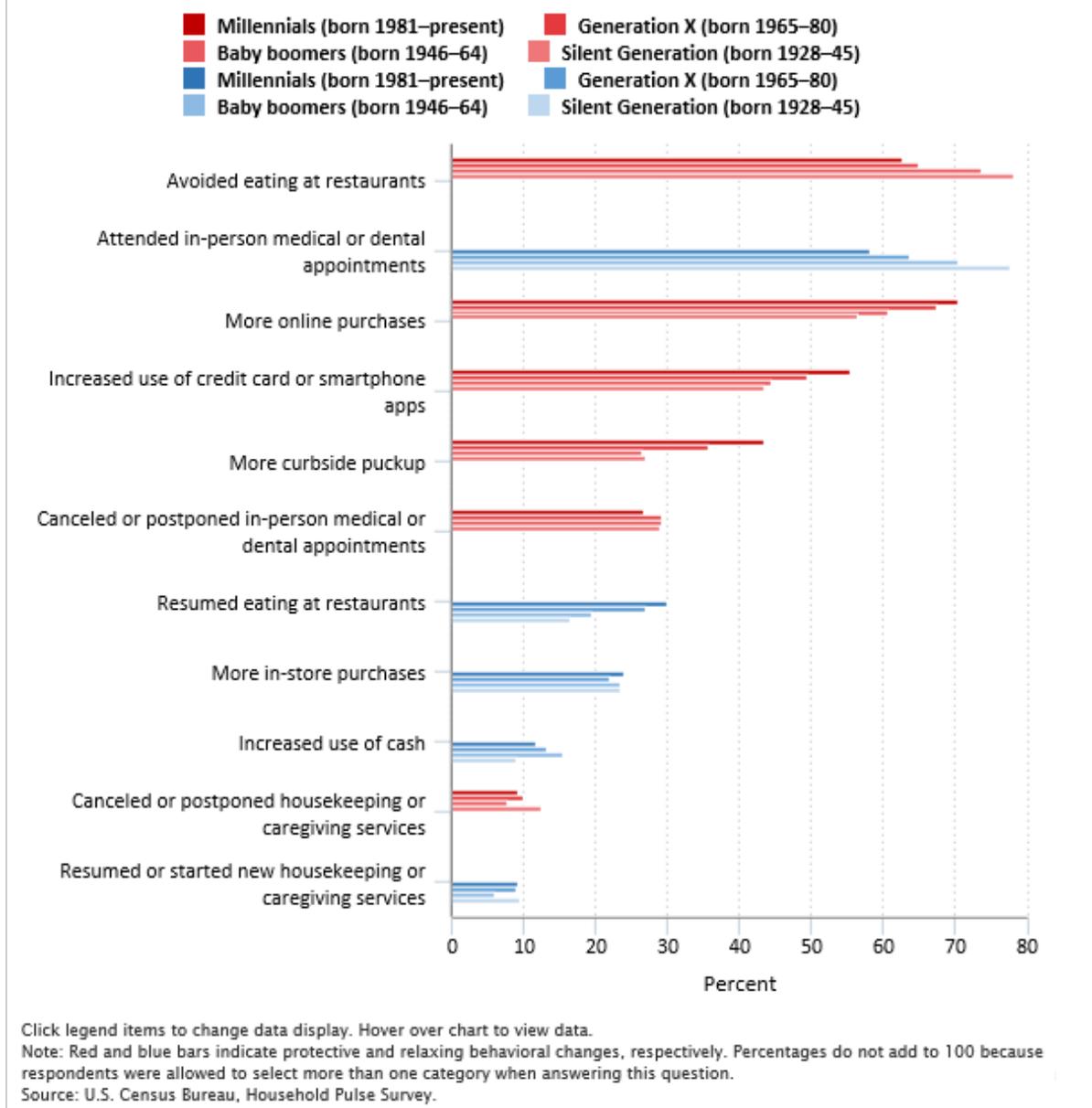
Spending behavioral changes differed by generation. Older respondents were more likely to report avoiding eating at restaurants: 78.3 percent of respondents in the Silent Generation reported this protective behavioral change, compared with 62.7 percent of millennials. On the other hand, older respondents were more likely to resume attending in-person medical or dental appointments: 77.7 percent of respondents in the Silent Generation reported this relaxing behavioral change, compared with 58.3 percent of millennials.

Younger respondents were more likely to report a protective change only (53.6 percent of millennials versus 31.0 percent of respondents in the Silent Generation), whereas older respondents were more likely to report no change (28.3 percent of respondents in the Silent Generation versus 16.4 percent of millennials). (See figure 6.) This difference suggests that older respondents adopted a pandemic-avoidance strategy early and remained firm in that decision, while younger respondents were more prone to changing their behavior.



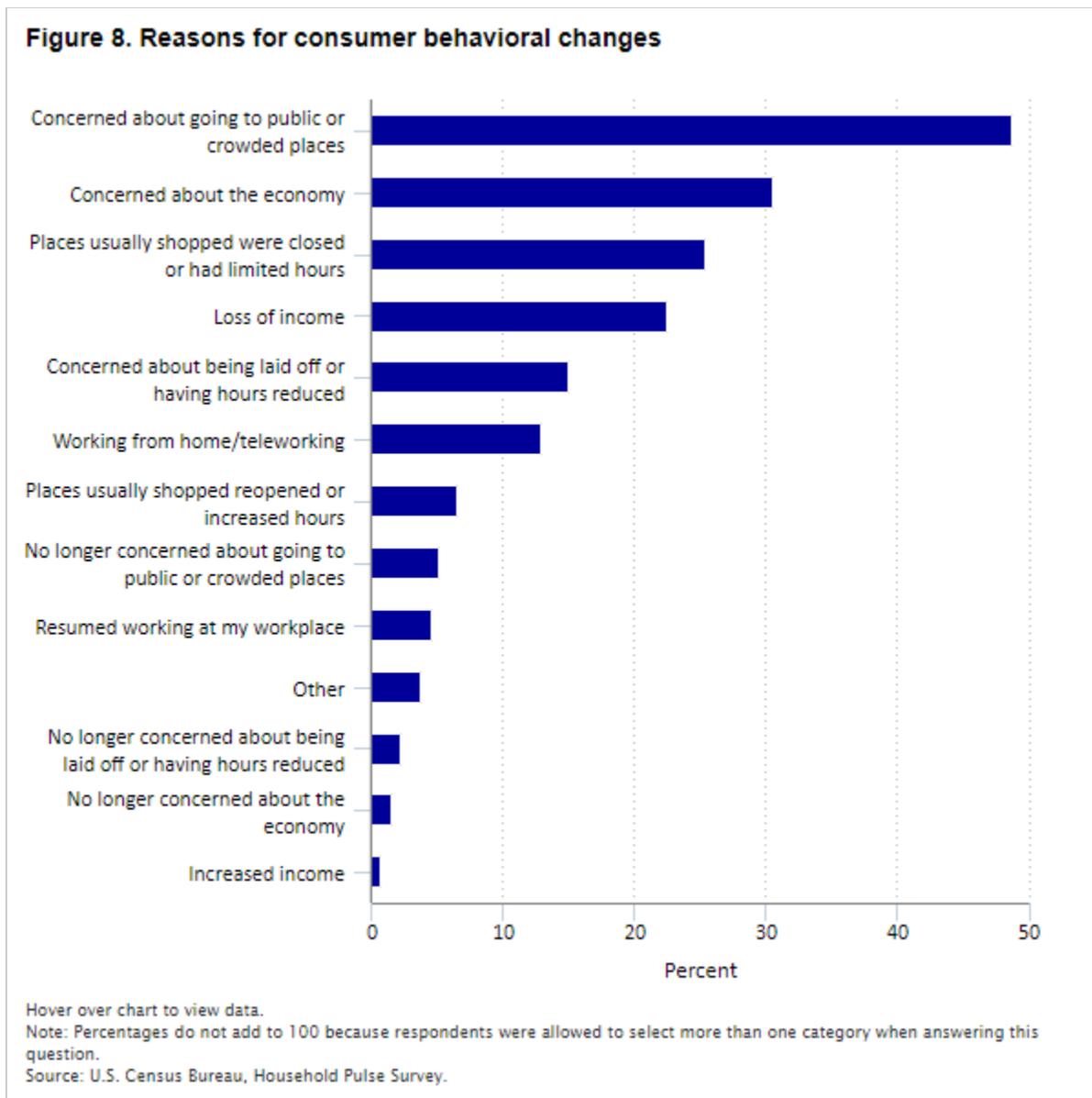
Younger respondents were more likely to make more purchases online: 70.4 percent of millennials reported this behavioral change, compared with 56.5 percent of respondents in the Silent Generation. Younger respondents were also more likely to opt for more curbside pickup: 43.5 percent of millennials reported doing so, compared with 27.0 percent of respondents in the Silent Generation. (See figure 7.)

**Figure 7. Consumer behavioral changes over the last 7 days, by generation**



## Reasons for consumer behavioral changes

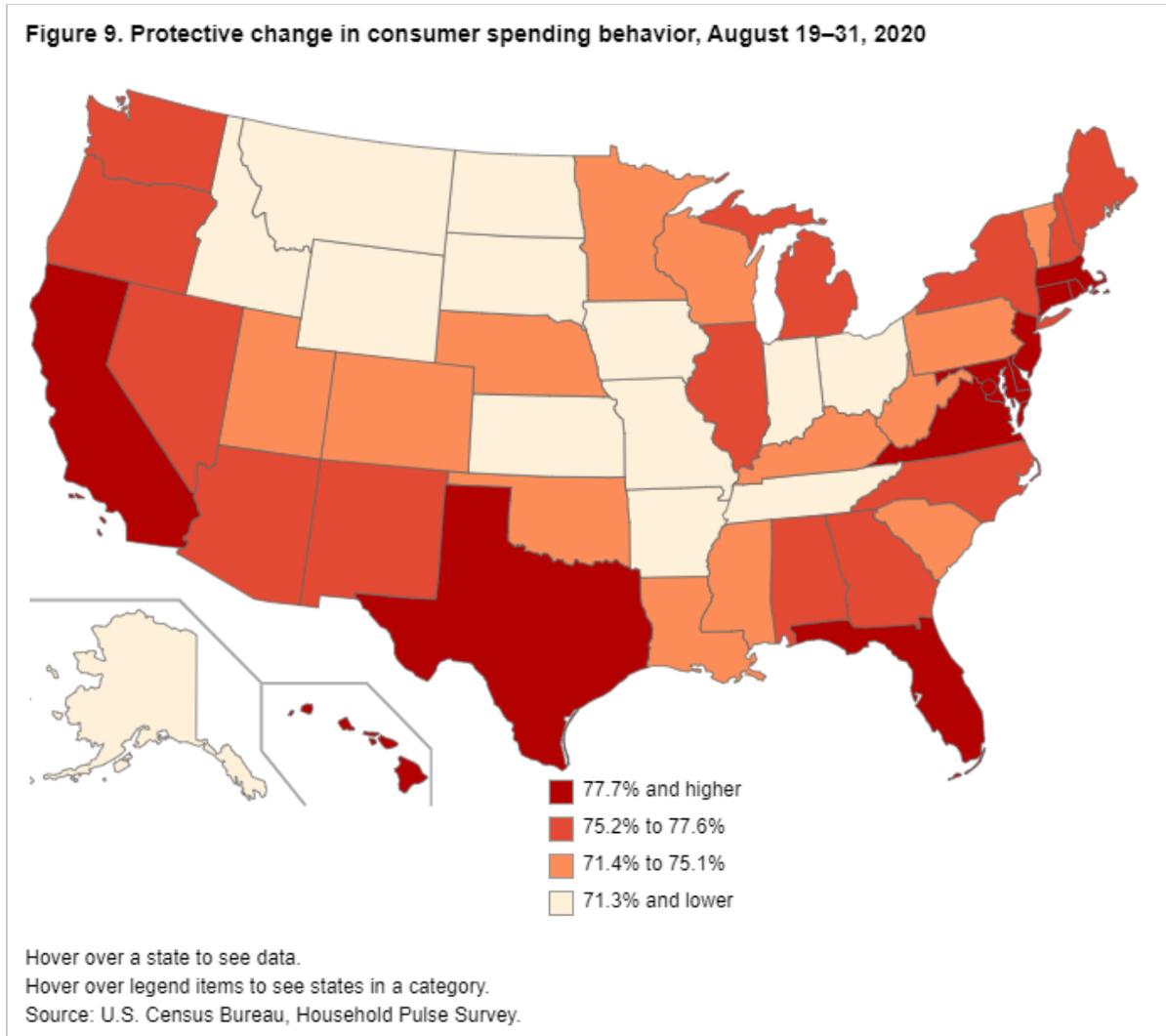
When asked the question, “In the last 7 days, for which of the following reasons have you or your household changed spending?” 48.8 percent of respondents reported concerns about being around public or crowded places or high-risk people, while 30.5 percent reported concerns about the economy.<sup>17</sup> (See figure 8.) The top six reasons given by respondents for changing spending behavior were related to pandemic avoidance.



### Consumer behavioral changes by state

Besides being affected by usual sociodemographic characteristics such as age and income, decisions about protective or relaxing consumer behavioral changes are influenced by fluid pandemic conditions in each state and local jurisdiction. Media reporting, rates of infection, hospitalizations, deaths, and state- and local-level openings or closings may all affect the pandemic-avoidance tolerance thresholds and day-to-day activities of consumers. In this article, we focus on behavioral changes at the state level only. Protective behavioral changes appear to be more concentrated among certain states (e.g., California, Florida, Maryland, Massachusetts, New Jersey, Washington) and less so among other states (e.g., Arkansas, Iowa, Missouri, Montana, North Dakota, South Dakota, Wyoming). (See figure 9.)

**Figure 9. Protective change in consumer spending behavior, August 19–31, 2020**



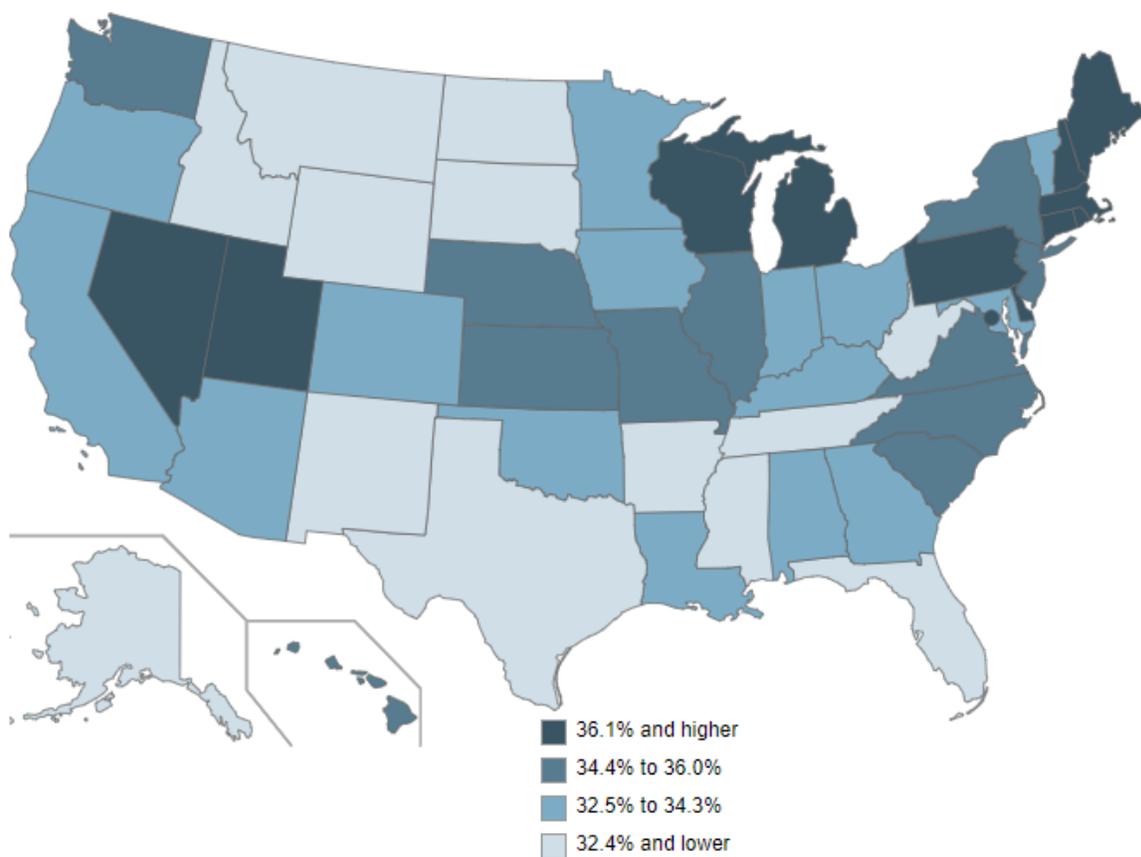
Notably, this trend is related to population density. States with more densely populated areas tend toward protective consumer behavioral changes. (See table 2.) Conversely, less densely populated states tend toward relaxing consumer behavioral changes. (See figure 9.) Although relaxing changes are less prevalent overall, when they do occur, they are more likely to be adopted (relative to protective changes) by less densely populated states than by more densely populated states. Note that, unlike figure 6, which shows mutually exclusive behavioral change categories, figures 9 and 10 display the proportion of the population reporting a protective or relaxing behavioral change, respectively, without excluding the possibility that both types of changes were reported. In other words, in figure 9, some of the respondents included in the proportion reporting a protective behavioral change reported both a protective and a relaxing change. The same is true for figure 10, which shows the proportion of respondents reporting a relaxing behavioral change. Figure 11 displays the proportion of respondents who reported both protective and relaxing behavioral changes.

**Table 2. Population density (2015) and consumer behaviors, by state**

State		Population density (people per square mile)	Behavioral change (percent)	
			Protective	Relaxing
Most dense	District of Columbia	11,011	87.7	37.0
	New Jersey	1,218	80.7	35.8
	Rhode Island	1,021	80.0	37.1
	Massachusetts	871	80.7	37.0
	Connecticut	741	78.5	39.8
Least dense	South Dakota	11	64.2	30.6
	North Dakota	10	69.6	28.4
	Montana	7	62.4	29.4
	Wyoming	6	63.3	27.7
	Alaska	1	70.0	30.7

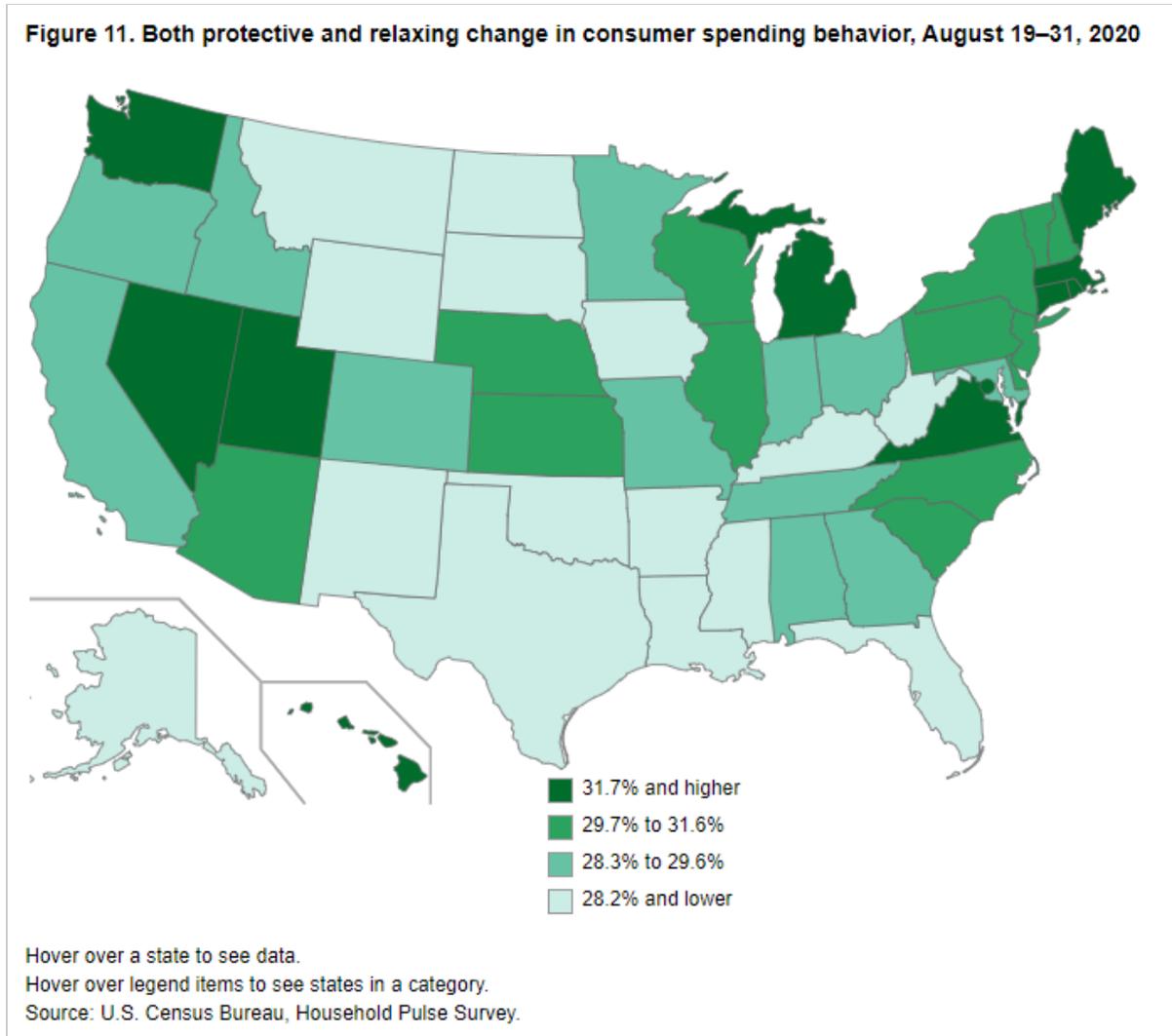
Source: U.S. Census Bureau, Household Pulse Survey and population density data.

**Figure 10. Relaxing change in consumer spending behavior, August 19–31, 2020**



Hover over a state to see data.  
 Hover over legend items to see states in a category.  
 Source: U.S. Census Bureau, Household Pulse Survey.

**Figure 11. Both protective and relaxing change in consumer spending behavior, August 19–31, 2020**



## Conclusion

The COVID-19 pandemic profoundly affected consumer spending patterns, both in the immediate aftermath of the national emergency declaration in March 2020 and into the summer months. This article suggests that concerns about disease spread and the economy are associated with consumer behavioral changes, and that many of the changes seen early in the pandemic have persisted and may continue for some time. Generational status and geographic location appear to be among the factors related to the likelihood of adopting consumer behavioral changes, although other factors may be revealed in more detailed multivariate analyses.

## Appendix: BLS questions in the Household Pulse Survey, phase 2

### Unemployment Insurance

Q14a. Since March 13, 2020, have you applied for Unemployment Insurance (UI) benefits? Select only one answer.

- Yes (1)
- No (2)

Q14b. Since March 13, 2020, did you receive Unemployment Insurance (UI) benefits? Select only one answer.

- Yes (1)
- No (2)

Q14c. Including yourself, how many people in your household received Unemployment Insurance (UI) benefits since March 13, 2020? Please enter a number.

### **Difficulty in paying for usual household expenses**

Q19a. In the last 7 days, how difficult has it been for your household to pay for usual household expenses, including but not limited to food, rent or mortgage, car payments, medical expenses, student loans, and so on? Select only one answer.

- Not at all difficult (1)
- A little difficult (2)
- Somewhat difficult (3)
- Very difficult (4)

### **Consumer behaviors**

Q19b. In the last 7 days, which of the following changes have you or your household made to your spending or shopping? Select all that apply.

- More purchases online (as opposed to in store) (1)
- More purchases by curbside pickup (as opposed to in store) (2)
- More purchases instore (as opposed to purchases online or curbside pickup) (3)
- Increased use of credit cards or smartphone apps for purchases, instead of using cash (4)
- Increased use of cash instead of using credit cards or smartphone apps for purchases (5)
- Avoided eating at restaurants (6)
- Resumed eating at restaurants (7)
- Canceled or postponed in-person medical or dental appointments (8)
- Attended in-person medical or dental appointments (9)
- Canceled or postponed housekeeping or caregiving services (10)
- Resumed or started new housekeeping or caregiving services (11)
- Did not make any changes to spending or shopping behavior (12)

Q19c. In the last 7 days, for which of the following reasons have you or your household changed spending? Select all that apply.

- Usual shopping places were closed or had limited hours (e.g., restaurant, doctor/dentist office, health club, hair salon, childcare center) (1)
- Usual shopping places reopened or increased hours (2)
- Concerned about going to public or crowded places or having contact with high-risk people (3)

- No longer concerned about going to public or crowded places or having contact with high-risk people (4)
- Loss of income (5)
- Increased income (6)
- Concerns about being laid off or having hours reduced (7)
- No longer concerned about being laid off or having hours reduced (8)
- Working from home/teleworking (9)
- Resumed working onsite at workplace (10)
- Concerns about the economy (11)
- No longer concerned about the economy (12)
- Other, specify (13)

## Resources for spending needs

Q20. Thinking about your experience in the last 7 days, which of the following did you or your household members use to meet your spending needs? Select all that apply.

- Regular income sources like those received before the pandemic (1)
- Credit cards or loans (2)
- Money from savings or selling assets (3)
- Borrowing from friends or family (4)
- Unemployment Insurance (UI) benefit payments (5)
- Stimulus (economic impact) payment (6)
- Money saved from deferred or forgiven payments [to meet your spending needs] (7)
- Supplemental Nutrition Assistance Program (SNAP) (8)

### SUGGESTED CITATION

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### NOTES

<sup>1</sup> See "Proclamation on declaring a national emergency concerning the novel coronavirus disease (COVID-19) outbreak" (The White House, March 13, 2020), <https://www.whitehouse.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/>.

<sup>2</sup> Raj Chetty, John N. Friedman, Nathaniel Hendren, Michael Stepner, and the Opportunity Insights Team, "The economic impacts of COVID-19: evidence from a new public database built using private sector data," working paper (Cambridge, MA: Opportunity Insights, November 2020), [https://opportunityinsights.org/wp-content/uploads/2020/05/tracker\\_paper.pdf](https://opportunityinsights.org/wp-content/uploads/2020/05/tracker_paper.pdf).

<sup>3</sup> For updates on case trends, reopening status, and mobility, see "COVID-19 restrictions: map of COVID-19 case trends, restrictions, and mobility," *USA Today*, <https://www.usatoday.com/storytelling/coronavirus-reopening-america-map/#restrictions>.

<sup>4</sup> Kate Taylor, "No bus service. Crowded trains. Transit systems struggle with the virus." *The New York Times*, March 17, 2020, <https://www.nytimes.com/2020/03/17/us/coronavirus-buses-trains-detroit-boston.html>.

<sup>5</sup> “One-quarter of the employed teleworked in August 2020 because of COVID-19 pandemic,” *The Economics Daily* (U.S. Bureau of Labor Statistics, September 15, 2020), <https://www.bls.gov/opub/ted/2020/one-quarter-of-the-employed-teleworked-in-august-2020-because-of-covid-19-pandemic.htm>.

<sup>6</sup> Lauren Leatherby and David Gelles, “How the virus transformed the way Americans spend their money,” *The New York Times*, April 11, 2020, <https://www.nytimes.com/interactive/2020/04/11/business/economy/coronavirus-us-economy-spending.html>.

<sup>7</sup> “Household Pulse Survey: measuring social and economic impacts during the coronavirus pandemic” (U.S. Census Bureau), <https://www.census.gov/programs-surveys/household-pulse-survey.html>.

<sup>8</sup> For more information about the Household Pulse Survey, see *ibid.*

<sup>9</sup> Thesia I. Garner, Adam Safir, and Jake Schild, “Receipt and use of stimulus payments in the time of the Covid-19 pandemic,” *Beyond the Numbers: Prices & Spending*, vol. 9, no. 10 (U.S. Bureau of Labor Statistics, August 2020), <https://www.bls.gov/opub/btn/volume-9/receipt-and-use-of-stimulus-payments-in-the-time-of-the-covid-19-pandemic.htm>.

<sup>10</sup> The full household questionnaire is available at [https://www2.census.gov/programs-surveys/demo/technical-documentation/hhp/Phase\\_2\\_Questionnaire\\_09\\_09\\_2020\\_English.pdf](https://www2.census.gov/programs-surveys/demo/technical-documentation/hhp/Phase_2_Questionnaire_09_09_2020_English.pdf).

<sup>11</sup> Katherine Grace Carman and Shanthi Nataraj, “2020 American Life Panel survey on impacts of COVID-19: technical documentation” (Santa Monica, CA: RAND Corporation, 2020), [https://www.rand.org/pubs/research\\_reports/RRA308-1.html](https://www.rand.org/pubs/research_reports/RRA308-1.html).

<sup>12</sup> Tom Akana, “CFI COVID-19 Survey of Consumers—wave 4 tracks how the vulnerable are affected more by job interruptions and income disruptions,” Consumer Finance Institute special report (Federal Reserve Bank of Philadelphia, September 2020), <https://www.philadelphiafed.org/-/media/frbp/assets/consumer-finance/reports/cfi-covid-19-survey-of-consumers-wave-4-updates.pdf>.

<sup>13</sup> See appendix B, “Consumer responses to 2019 survey questions,” in *Report on the economic well-being of U.S. households in 2019, featuring supplemental data from April 2020* (Board of Governors of the Federal Reserve System, May 2020), <https://www.federalreserve.gov/publications/2020-supplemental-appendixes-2019-Appendix-B-Consumer-Responses-to-2019-Survey-Questions.htm>.

<sup>14</sup> See appendix D, “Consumer responses to April 2020 supplemental survey questions,” in *Report on the economic well-being of U.S. households in 2019, featuring supplemental data from April 2020* (Board of Governors of the Federal Reserve System, May 2020), <https://www.federalreserve.gov/publications/2020-supplemental-appendixes-2019-Appendix-D-Consumer-Responses-to-2019-Survey-Questions.htm>.

<sup>15</sup> Millennials are those born in 1981 or later, Generation X are those born between 1965 and 1980, baby boomers are those born between 1946 and 1964, and the Silent Generation are those born between 1928 and 1945.

<sup>16</sup> See slide 10 in Laurence Boone, “Living with uncertainty,” *OECD Economic Outlook* presentation (Organisation for Economic Co-operation and Development, September 16, 2020), [https://read.oecd-ilibrary.org/view/?ref=136\\_136495-20g6l69n4a](https://read.oecd-ilibrary.org/view/?ref=136_136495-20g6l69n4a).

<sup>17</sup> The interpretation of “concerns about the economy” was left open to the respondent; for example, some respondents may have been concerned about the impact of the pandemic on the value of their retirement accounts, the stock market, or business closings, and these concerns may have resulted in either spending less or spending more.

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# Employment recovery in the wake of the COVID-19 pandemic

*The coronavirus disease 2019 (COVID-19) pandemic's impact on the U.S. labor market is unprecedented. This article reviews economic research on recent pandemic-related job losses in the United States in order to understand the prospects for employment recovery. The research examines telework use, the incidence of job loss, disruptions in labor supply, and progress toward recovery. Massive temporary layoffs drove a spike in unemployment, and subsequent recalls of unemployed workers drove a rapid but partial recovery. The prospects for full recovery are murkier, both because the fraction of the remaining unemployed expecting to be recalled is decreasing and because the pandemic's future course remains uncertain.*

This article discusses the factors that have affected U.S. job recovery over the course of the coronavirus disease 2019 (COVID-19) pandemic and the jobs that have disappeared at least temporarily. It draws from the large volume of economic literature written on the COVID-19 pandemic since March 2020.

The magnitude of job loss in March and April 2020 had no precedent since the end of World War II. Early in the crisis, many expressed hope that, with government support, employers and employees could quickly return to prepandemic employment arrangements. However, as the COVID-19 crisis continues, more employer–employee bonds break, amplifying the economic and societal damage.

Figures 1 and 2 illustrate the pandemic's impact on the labor market.<sup>[1]</sup> Figure 1 plots cumulative Current Employment Statistics (CES) employment changes in the current crisis, in the Great Recession, and in all other post-World War II recessions. More than twice as many jobs were lost between March and April 2020 as were lost



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during the entire 2007–09 period, and only a third of those jobs recovered quickly in May and June, largely through recalling laid-off workers. It is not yet clear how quickly employment will fully recover. It took more than 5 years for the labor market to recover after the end of the Great Recession. The 2007 unemployment rate of less than 5 percent was not seen again until 2016, and, according to calculations from Harris Eppsteiner, Jason Furman, and Wilson Powell III, the age-adjusted employment–population ratio did not recover until 2018.<sup>[2]</sup> The unemployment rate in April and May 2020 was much higher than the rate in the Great Recession.

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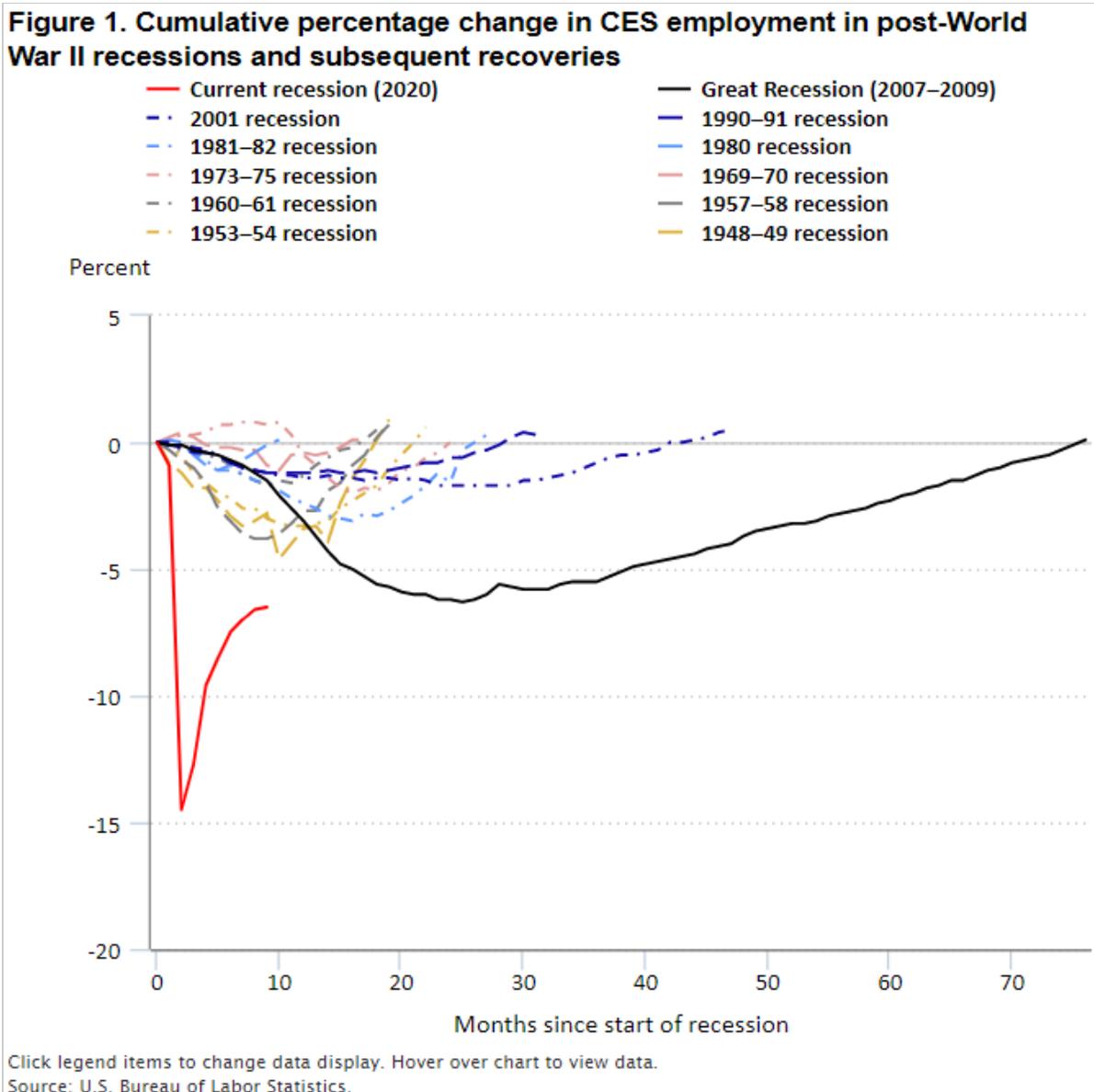
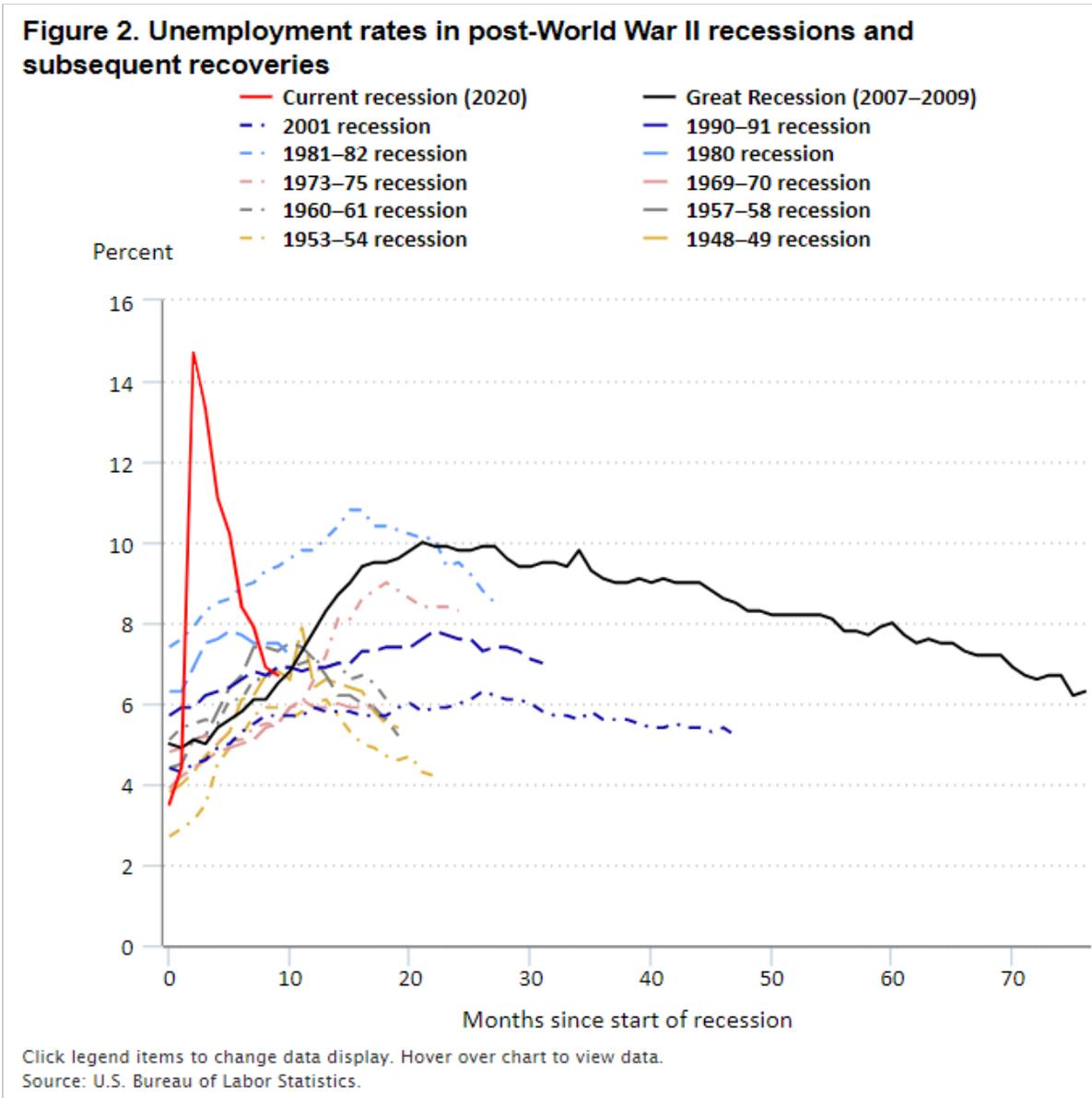


Figure 2 plots unemployment rates in the current crisis, in the Great Recession, and in all other post-World War II recessions. Each line begins at a peak in economic activity, as identified by the National Bureau of Economic Research and ends when employment surpasses the level recorded at that peak.<sup>[3]</sup>

Robert E. Hall and Marianna Kudlyak point out the alarming shape of the slow recovery in unemployment rates after the Great Recession—the straight line starting around month 25 and ending in month 80 (see figure 2). During all previous recessions, the shape of unemployment rate recovery has also been a straight line.<sup>[4]</sup> In many macroeconomic models, having so many people out of work at the bottom of recessions should mean that early recoveries are faster than later recoveries when the economy is nearing “full employment.” Hall and Kudlyak suggest that we observe these linear recoveries for two reasons: (1) employers have more trouble choosing which new employees to hire when unemployment is high (a situation the authors call “congestion externality”) and (2) bank lending, to employers wanting to expand their operations, recovers slowly from deep recessions. It is also possible that hiring is slow when unemployment is high because potential employers have gone out of business. As Erica Groshen argues, the speed of recovery depends on maintaining prerecession links between employers and their employees. Creating new businesses and establishing new employment matches are likely to take more time.<sup>[5]</sup>



During the Great Recession high rates of unemployment were linked with slow hiring and layoffs. The Job Openings and Labor Turnover Survey of the U.S. Bureau of Labor Statistics shows that hiring declined dramatically during the Great Recession and recovered slowly.[6] Eliza Forsythe et al., find that weekly online job postings collapsed in late March 2020 (from about 850,000 per week to about 550,000 per week) across all geographic areas, industries, and occupations, except essential retail (such as pharmacies and grocery stores) and nursing.[7] Researchers at Opportunity Insights show that these job postings recovered from April through June, but have remained 10 to 20 percent lower than they were in January and February 2020.[8]

Studies of the labor market during the COVID-19 pandemic typically divide the pre-crisis labor force into three categories. The first group includes essential workers who have continued working in the same workplaces throughout the pandemic. These workers are outside the scope of this article. The second group includes workers who continued to do their jobs by working from home. This article addresses such workers only insofar as their

number grew during the crisis. The third group includes laid-off workers—some temporarily, a growing number permanently—during the crisis. These workers are the main focus here.

The rest of the article is divided into sections covering the following topics: telework and how it preserved many jobs; pandemic-related job losses; labor supply issues; quick partial recovery from May through the summer of 2020 and prospects for its continuation; the effects of voluntary and mandatory distancing measures; and the prospect of full recovery. A final section concludes.

## Telework

This section summarizes how telework preserved some jobs during the pandemic. A substantial proportion of U.S. jobs can be carried out remotely, and remote work is compatible with social distancing. Telework therefore increased greatly.

Based on job descriptions for 1,000 different occupations, Jonathan I. Dingel and Brent Neiman estimate that 37 percent of U.S. jobs can be performed from home, with much variation across cities and industries.<sup>[9]</sup> These jobs typically pay more than others; together, they account for 46 percent of all U.S. wages. Abigail Adams-Prassi et al. find that, even within occupations, workers report differences in how much of their work can be done from home.<sup>[10]</sup> Patrick Baylis et al. find that in Canada less educated workers were less likely to work remotely during the pandemic, not because of their job characteristics but because their living arrangements were too crowded.<sup>[11]</sup>

Matthew Dey et al. find that, as the pandemic took hold, workers who could work from home were much less likely to lose their jobs.<sup>[12]</sup> Between February and April 2020, the unemployment rate for workers who could telework increased by 6 percentage points, whereas the rate for workers who could not telework rose by 14 percentage points. The authors report that workers who could telework tended to be more educated, aged 25 or older, married, White, and working full time. Manuela Angelucci et al. find that workers who could not telework had worse respiratory health and suffered 3 times the job loss compared with workers who could telework.<sup>[13]</sup>

Using April and May Google Consumer Surveys of 25,000 people, Erik Brynjolfsson et al. find that about one-third of all U.S. workers shifted to remote-only work by April 2020, with little further change between April and May.<sup>[14]</sup> Another one-sixth of the workforce was already doing remote-only work.

New questions added to the Current Population Survey (CPS) show that, once people who worked entirely from home before the pandemic were excluded, the proportion of other workers who teleworked declined from 35 percent in May to 23 percent in September, then remained stable through November. The responses to the new CPS questions confirm many of the findings reported above. They reveal that, during the pandemic, women were more likely to telework than men; Asians were most likely to telework and Hispanics were least likely; workers under age 25 were the least likely to telework; and the fraction of workers who teleworked increased dramatically with education. The fraction of people teleworking because of the pandemic varied considerably by occupation and industry, and government workers were more likely than private sector workers to telework.<sup>[15]</sup>

Using cell phone data, Simon Mongey, Laura Pilossoph, and Alex Weinberg find that people in areas where more workers can telework were more likely to stay at home during the pandemic.<sup>[16]</sup> This is particularly true of workers who have high-speed internet access. Lesley Chiou and Catherine Tucker show that people's ability to stay at home (and presumably work remotely) is greater if they have high-speed internet access.<sup>[17]</sup>

Workers who are able and willing to telework may still have experienced pandemic-related disruptions to their employment arrangements. Teleworkers may be laid off because of demand or supply chain shocks or because their employers' continued operation depends on other jobs that cannot be done remotely. The pandemic may also reduce labor supply, for example when schools or daycare centers are closed. In addition, Jose Maria Barrero, Nick Bloom, and Steven J. Davis point out that increased telework can disrupt others' employment by reducing demand for worksite-related goods and services (e.g., transportation, office space, and commercial district restaurants and gyms) while increasing demand for other goods and services (such as home improvement, video streaming, gaming, food delivery, and online grocers).[18]

A switch to telework can affect productivity. Alexander W. Bartik et al. survey firms and found diverse perceptions about the effect on productivity. Businesses with more teleworkers before the pandemic report greater productivity of teleworkers during the pandemic.[19] Larger businesses report lower telework productivity. A substantial number of surveyed businesses believe that much of the shift to telework will become permanent. Other evidence raises questions about telework productivity. Masayuki Morikawa finds that Japanese teleworkers report reduced productivity.[20] Scoppa and Bryson et al. both find that soccer referees make different calls when fans are absent, illustrating that workers' remoteness from those who normally would observe and influence their work on-site can sometimes change consequential decisions they make on the job.[21] Steffen Künn, Christian Seel, and Dainis Zegners find that the performance of elite chess players suffers when their matches are held remotely.[22]

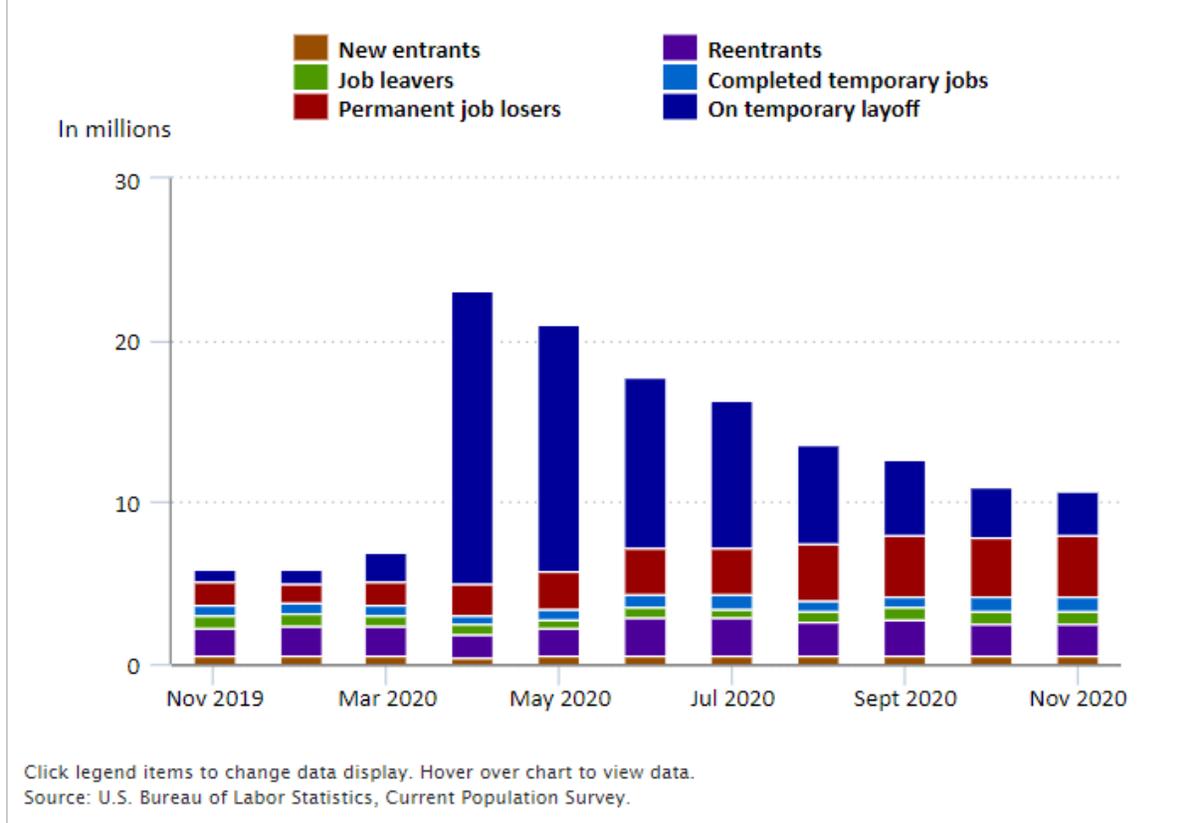
According to May's Survey of Business Uncertainty, the share of days worked from home will potentially triple—rising from 5.5 percent in 2019 to 16.6 percent after the pandemic.[23] Firms anticipate that, after the pandemic, 10 percent of their full-time workforce will be working from home 5 days a week.

## Job losses

This section summarizes research findings about how workers who have been furloughed or laid off were reemployed. Reemployment has been especially likely for workers who maintained an attachment to their prior employer. Hours of work have rebounded partially. Mandatory social distancing measures such as stay-at-home and shutdown orders have had a relatively small effect on employment recovery, while the incidence of the virus has had a larger effect. This suggests that even in the absence of mandatory shutdowns, employment may not fully recover until the pandemic subsides.

The U.S. economy lost 22 million jobs from February to April 2020. By August, jobs had rebounded to 11 million (seasonally adjusted) below February's peak. The recovery then slowed, and by November 2020 there were still 10 million fewer jobs than in February.[24] Meanwhile, the number of unemployed people increased from 6 million in February to a peak of 23 million in April, before falling to 14 million in August and 11 million in November. This trajectory reflected two major influences. The first was a spike in the number of unemployed workers on temporary layoff and expecting recall. Their numbers grew from 800,000 in February to 18 million in April, then declined to 6 million in August and 3 million in November. Second, the number of unemployed workers not expecting recall—a status Hall and Kudlyak call "jobless unemployment"—increased later, growing from 5 million in April to 8 million in September, and remaining there through November. [25] (See figure 3.) Not all workers who expect to be recalled will be.

**Figure 3. Unemployed people by reason for unemployment**



April’s spike in pandemic unemployment was unprecedented. Never before had a majority of unemployed workers reported being on temporary layoff. CPS data on temporary layoffs began in 1967, and the fraction of unemployed workers reporting this status reached its previous high at 28 percent in 1975. In contrast, in April 2020, 79 percent of unemployed workers reported they were on temporary layoff. Jessica Gallant et al. noted that, by August, only a small fraction of temporarily unemployed workers had reported becoming permanently unemployed each month. These authors emphasize the importance of temporary unemployment and predicted that recalls would continue to fuel the economic recovery.<sup>[26]</sup> The subsequent growth in jobless unemployment may slow that recovery, however.

The largest employment losses by industry were in leisure and hospitality, especially in food services and drinking places; education and health services; professional and business services; retail trade; and arts, entertainment, and recreation. Job losses were greater in industries employing less advantaged groups, creating greater inequality.

An early analysis of establishment data by Matthew Dey and Mark A. Loewenstein finds that 20 percent of U.S. workers worked in the sectors most likely to be disrupted by the pandemic, such as hospitality.<sup>[27]</sup> Jobs in these industries tended to have lower wages, accounting for 12 percent of aggregate pay, and were concentrated in certain states, especially Nevada and Hawaii. Using household data, Matthew Dey et al. further find that the workers most represented in the exposed sectors tend to include those who are single parents, younger, less educated, and working part time. Eleven percent of families with children earned all of their income in these sectors.<sup>[28]</sup> From February to April 2020, employment in more pandemic-exposed sectors dropped 38 percent,

compared with 11 percent in less exposed sectors. Younger and less educated workers also suffered larger declines in employment overall and in less exposed sectors. In more exposed industries, employment losses were much greater but affected different demographic groups more evenly.

A substantial share of the pandemic employment decline is attributable to depressed consumer demand.<sup>[29]</sup> Beginning in March 2020, consumers sharply reduced expenditures on goods and services that require personal contact. Raj Chetty et al. find that most of the reduction in spending occurred for goods and services that require close in-person physical interaction, such as that occurring in restaurants, stores, hotels, or transportation.<sup>[30]</sup> Expenditures on services that do not require personal interaction, such as lawn services or home swimming pools, were unaffected. These spending declines created unemployment in many service industries, particularly among low-paid workers in high income communities. This article argues that the pandemic's negative economic effects are most severe and likely to be longest lasting for low-paid workers in more affluent locations. These workers depend on high-income consumers' purchases of services, which are unlikely to rebound until such consumers feel safe, perhaps after an effective vaccine is widely administered.

Seung Jin Cho, Jun Yeong Lee, and John V. Winters find that job losses were worse in larger U.S. cities than in smaller communities.<sup>[31]</sup> This finding highlights dense cities' inherent economic vulnerability to infectious disease pandemics. Between April 2019 and April 2020, the fraction of adults who were employed and at work fell by 15 percentage points in Metropolitan Statistical Areas with populations of 5 million or more, compared with 10 percentage points in nonmetropolitan areas. Some of this difference can be explained by the concentration of more vulnerable industries and jobs in big cities. Cities' higher COVID-19 infection rates this spring were an important driver of job losses. In contrast, by the end of 2020 the pandemic also affected many rural areas strongly.

In a second paper, Cho, Lee, and Winters use CPS data to estimate the number of workers leaving the food service subsector and to examine the reasons for these job losses.<sup>[32]</sup> One reason is that facilities close; another is that workers exit the labor force when the local area has more infections. Noting that pandemics may recur, the authors identify the potential consequences of or responses to a recurrence, including reduced labor productivity, more automation, safety measures, or higher pay.

Although we think of healthcare as the essential front line against the pandemic, much of the sector contracted because patients and providers skipped nonemergency "elective care." Examining Medicare claims by hospitals in the paths of hurricanes from 1997 to 2012, Tatyana Deryugina, Jonathan Gruber, and Adrienne Sabety suggest that the recovery of demand for medical services after the pandemic may be similar to the recovery of hospital services after a hurricane.<sup>[33]</sup> Overall, elective services fall by about 7 percent in the month in which a hurricane hits a county, and these services are made up over the following 10–11 months. However, for particularly severe hurricanes (with wind speeds of at least 100 mph), elective services fall by more than 20 percent in the month a hurricane hits the county and are not made up within the year; affected hospitals appear to survive by increasing outpatient revenue. Noting that COVID-19 has had a substantially larger impact on elective medical services than even the largest hurricane, the authors predict that if the pandemic reduces elective hospital visits for as little as 3 months, it would take hospitals more than 40 months to recoup the lost revenue and more than 12 years to make up all the missed visits. The authors' data do not enable them to measure the impact of hurricanes on hospital

employment. However, the closures of rural hospitals and the resulting spillovers to local economies have generated a great deal of news coverage in recent years.[34]

Mongey, Pilossoph, and Weinberg consider which workers are most vulnerable. For instance, salon workers, sales assistants, and dentists would be considered vulnerable because they perform nonessential work that cannot be done with social distance.[35] The authors find that this vulnerability correlates tightly with general economic vulnerability, especially in the tail of the distribution, noting that a substantial portion of workers in the correlated tail are older. These workers are at risk both of unemployment and, if they work, of contracting the virus.

Using CPS data on small business owners, Robert W. Fairlie tracks the decline in small business employment.[36] From February to April 2020, the number of active business owners declined by 3.3 million, or 22 percent—the largest drop on record. Losses were felt across nearly all industries. African-American business owners were hit especially hard, experiencing a 41-percent drop in employment, and Latin-American business owners' employment fell by 32 percent. Industry compositions partly put these groups at a higher risk of losses. Immigrant business owners experienced substantial employment losses of 36 percent.

Small businesses were also affected by labor supply issues. Charlene Marie Kalenkoski and Sabrina Wulff Pabilonia show that family structure and gender affected whether self-employed (unincorporated) workers ceased work or cut back hours.[37] These factors may influence when and whether these workers resume pre-COVID-19 levels of work. Kalenkoski and Pabilonia note that, although about one-half of self-employed workers work from home, these workers might still be affected by school and daycare disruptions. The authors find that coupled women were less likely to work than coupled men, while single women were more likely to work than single men. However, fathers of school-age children who remained employed were working fewer hours than men without children.

## Labor supply

Past recessions have disrupted employment almost entirely from the demand side. The COVID-19 pandemic is unusual because it also disrupts labor supply. Health concerns, family demands, and government policies all play roles in who can work and when.

## School and childcare closures

Closures of in-person schools and childcare facilities have the greatest impact on the labor supply of parents. Childcare demands are likely to impair parents' ability to return to their previous levels of participation and hours. Even if the economy at large expands vigorously, parents may be slow to fully return to paid work, and this may erode their employment prospects when or if they finally do return.

The potential impacts of school and childcare closures are relevant for many American workers. Jonathan Dingel, Christina Patterson, and Joseph S. Vavra report that 32 percent of American workers have someone in their household who is younger than age 14, and 21 percent do not have a nonemployed adult in the household who might potentially serve as a caregiver.[38] According to Education Week, nearly every state ordered or recommended the closure of schools in spring 2020, and many schools have remained at least partially closed for fall 2020.[39] Childcare centers have reopened in most areas. However, many centers have low profit margins, especially if they serve low-income families, and may therefore have difficulty surviving even short-term closure.

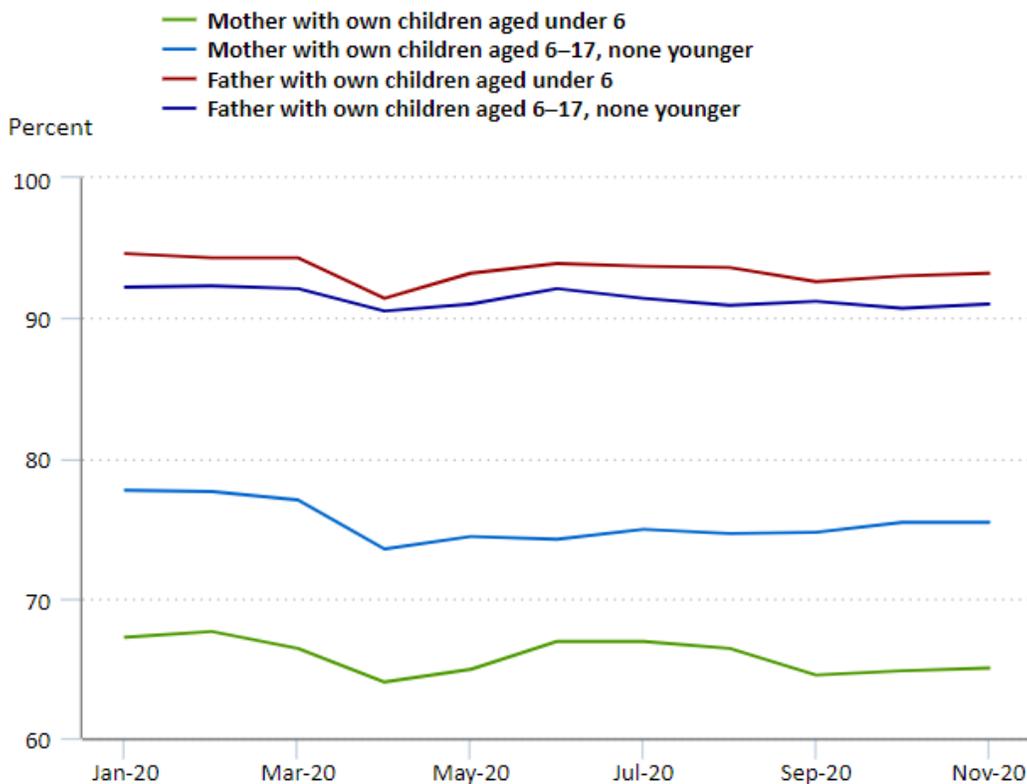
Rasheed Malik et al. argue that this prospect may exacerbate existing inequality in access to childcare.<sup>[40]</sup> Simon Workman and Steven Jessen-Howard calculate the productivity impact for childcare providers of compliance with state-level COVID-19 safety precautions, such as reducing class sizes and eliminating the use of “floating” staff. They estimate that the cost of providing care to 4-year-old children has increased by as much as 59 percent in center-based care.<sup>[41]</sup>

The implications of such findings are particularly serious for mothers. The interaction of high rates of layoffs in occupations that employ women and extended in-person school and childcare closures may have long-run impacts on maternal labor supply, especially in a situation in which grandparent care has become more dangerous. Just as some older manufacturing workers lost jobs in the Great Recession and eventually stopped looking for work and considered themselves “retired,” many mothers who lost jobs this spring and whose children returned to school in the fall may have ceased to look for work, and now consider themselves “homemakers.” This may have lasting and increasing impacts on their labor market experience and earnings. Titan M. Alon models how these long-term impacts will affect parental labor supply, taking into account that, in the long run, changes in telework and workplace flexibilities may help parents combine labor market participation with childcare responsibilities.<sup>[42]</sup>

Several studies address the impact of the pandemic on the productivity and labor supply of parents. Examining data from the Census Household Pulse Survey and the CPS, Joseph Briggs and David Choi estimate that, each week in May, June, and July 2020, about 7 million workers did not work because they had to provide care for children who were not in school or childcare.<sup>[43]</sup> Caitlyn Collins et al. use the CPS to examine dual-earner, opposite-sex married couples with children ages 1 to 17, with both parents still employed in April.<sup>[44]</sup> Mothers of children ages 1 to 12 reduced their paid work hours by about 2 hours per week, while fathers of these children did not reduce their paid work hours. Kalenkoski and Pabilonia find that fewer self-employed parents were working in April than self-employed nonparents, and among those at work, parents worked fewer hours than nonparents.<sup>[45]</sup> Kyle R. Myers et al. surveyed authors of scientific papers in April and found that their average work hours had declined from 61 to 54 hours per week. Scientists with children age 5 or younger reduced their work hours the most. Those with children aged 6 to 11 had smaller but still significant effects.<sup>[46]</sup>

Estimates from the CPS show that the labor force participation of mothers fell more than that of fathers. From February to April 2020, the labor force participation rate of mothers whose youngest child was ages 6 to 18 fell by 4.1 percentage points, and that of mothers whose youngest child was younger than age 6 fell by 3.6 percentage points. In comparison, the participation rate of fathers whose youngest child was ages 6 to 18 fell 1.8 percentage points, and that of fathers whose youngest child was younger than age 6 declined by 2.9 percentage points. From April to September 2020, the participation rate recovered 1.2 percentage points for mothers whose youngest child was 6 to 18 (29 percent) and only 0.5 percentage point for mothers whose youngest child was younger than age 6 (14 percent). In contrast, over the same periods, among fathers whose youngest child was 6 to 18, the participation rate recovered 0.7 percentage point (39 percent), and for fathers with a child younger than age 6, the participation rate recovered 1.2 percentage points (41 percent).

**Figure 4. Labor force participation rate, by sex and age of youngest child, 2020**



Click legend items to change data display. Hover over chart to view data.  
Source: U.S. Bureau of Labor Statistics.

## Family members in poor health

Labor force participation may also be reduced during the pandemic—particularly for women—if they have family members in poor health. Although nursing homes remain open, group care has become more dangerous. M. Keith Chen, Judith A. Chevalier, and Elisa F. Long find that links among nursing homes by staff working in more than one home were strong predictors of COVID-19 spread in the United States.<sup>[47]</sup> Changes in procedures to reduce disease transmission risk make nursing home care potentially more expensive and more isolating, at times preventing family members from providing additional care to institutionalized loved ones. Professional home-based, visiting caregivers might also pose or face their own health risks. Such developments might prompt more families to provide care at home to people who would, in ordinary times, receive care in group facilities or from visiting workers. As of 2017–2018, 13 percent of full-time workers provided some eldercare, spending an average of 3 hours per weekday on this activity.<sup>[48]</sup> Any pandemic-related increases in provision of such care could affect the labor supply of these family members, just as the work involved in full-time care for children affects the labor supply of parents.

## Unemployment insurance benefits

Another factor potentially affecting labor supply was the additional \$600 per week in special pandemic unemployment insurance (UI) benefits provided from April to July 2020. However, most economists think that the effect of such high UI compensation was very different this year than it would be in ordinary times. For most workers, the long-run benefits of retaining a job with an existing employer are probably more valuable than receiving UI benefits. Reasons for this include the uncertainty over the continuation of the special pandemic unemployment benefits, the importance of employer-provided health insurance, the huge number of layoffs, and the cost to workers of extended periods of unemployment. In mid-July, the Initiative on Global Markets (IGM) at the University of Chicago's Booth School of Business surveyed their panel of 40 distinguished economic experts on this matter, and none of the experts on the panel disagreed with the statement that, "Employment growth is currently constrained more by firms' lack of interest in hiring than people's willingness to work at prevailing wages."[\[49\]](#)

Peter Ganong, Pascal J. Noel, and Joseph S. Vavra show that most workers, especially those in low-wage occupations in low-wage states, could receive higher incomes from the enhanced UI benefits (available from April through July) than they earned from work.[\[50\]](#) They estimate that the median replacement rate was 134 percent. Two-thirds of workers eligible for UI during this period may have received benefits which exceeded lost earnings, and one-fifth may have received benefits at least double lost earnings. There was sizable variation in the effects of the Coronavirus Aid, Relief, and Economic Security (CARES) Act across occupations and states, with important distributional consequences.

Notwithstanding these high replacement rates of wages, there are economic models showing how, in the long run, workers may benefit more from returning to work at lower wages than from receiving the temporarily higher unemployment benefits provided by the CARES Act. Corina Boar and Simon Mongey model the likelihood of finding a new job during a recession, and the likelihood that a job offer will still exist if a worker turns down a recall offer. They estimate that only workers paid less than \$12 per hour, with a 95-percent probability that their job would still be available in 4 months, would choose UI benefits over a job recall.[\[51\]](#) Using occupation-level data on job separation and new job finding rates calculated from the CPS, Nicolas Petrosky-Nadeau estimates a similar model and finds that temporarily high UI benefits would outweigh the long-term value of steady employment only for workers in the lowest paid occupations.[\[52\]](#)

Several authors offer empirical evidence that these unusually high benefits did not slow employment recovery. Arin Dube provides such evidence by using the Census Household Pulse Survey, while Ernie Tedeschi provides similar evidence by using the CPS. Both find that workers with greater UI replacement rates were no less likely to return to work.[\[53\]](#) Using data from online job application portal Glassdoor, Ioana Elena Marinescu, Daphné Skandalis, and Daniel Zhao examine this issue in more detail. They show that job applications in the United States declined in March before the passage of the CARES Act, but that this decline was less steep than the decline in job vacancies, causing the number of applications per job vacancy to increase sharply overall.[\[54\]](#) The authors estimate the relationship between the number of job applications per vacancy for each occupation in each state and the UI replacement rates for that occupation and state calculated by Ganong, Noel, and Vavra. They find that the job applications per vacancy for people in the top quartile of increases in UI generosity were 11 percent lower than those for people in the bottom quartile, which is evidence that the generosity of UI benefits is reducing job search. However, even for state-occupation combinations in this top quartile of UI benefit generosity, the number of

job applications per vacancy was still much higher in the spring than in January and February, suggesting that, on average, the generosity of UI was not leading to recruitment difficulties for employers.<sup>[55]</sup>

Kurt Mitman and Stanislav Rabinovich develop a job-search model in which the optimal policy would increase or decrease UI benefits relative to the fall and rise of search efficiency rather than the unemployment rate.<sup>[56]</sup> They find that it is optimal first to raise unemployment benefits and then to begin lowering them as the economy starts to reopen—despite unemployment remaining high. In their June paper, Mitman and Rabinovich concluded that the UI supplemental payment implemented under the CARES Act was close to the optimal policy. Under the assumption of a strong and uninterrupted economic recovery continuing at the rates observed in May and June, extending this UI supplement for another 6 months would hamper the recovery and reduce welfare. On the other hand, compared with the CARES Act alone, a UI extension combined with a reemployment bonus would further increase welfare, with only minimal effects on unemployment. None of the experts on the mid-July IGM panel disagreed with the statement, “A well-designed unemployment insurance system would tie federal contributions to states on the basis of each state’s economic and public health conditions.”<sup>[57]</sup>

## Partial recovery

After falling sharply in March and April 2020, U.S. employment began to recover quickly from May through August. Then, the recovery slowed. What does this partial recovery look like?

Using high-frequency data from payroll processor ADP, Tomaz Cajner et al. study patterns of job loss and partial recovery in spring 2020.<sup>[58]</sup> The main advantages of using the ADP data are weekly frequency, separate observations of paid and “active” employment, and the ability to identify whether employment gains come from recalls or new hires. The authors found millions of workers who were not being paid but were still active in their employers’ payroll systems this spring. The employment decline and partial recovery were most dramatic for businesses employing 50 or fewer workers and for sectors requiring interpersonal interactions. About one-third of the April–May employment rebound came from business reopenings, and these businesses were primarily bringing back their previous employees. Nearly all returning firms and about 90 percent of firms that never closed but laid off workers early in the pandemic still had lower employment at the end of May than they did in February. However, more than 10 percent of surviving businesses have increased employment, some of them quite substantially.

Cajner et al. further find that employment declines were largest in states with more cases of COVID-19. Continued employment losses were strongly concentrated among low-wage workers. Employment declines were larger for women than for men, in a way that cannot be explained by employer characteristics. Average wages increased because low-wage workers lost jobs, while wages actually fell for more than 11 percent of continuing workers (compare this percentage with 6 percent of continuing workers who received wage cuts during the Great Recession).

Matthew Dey et al. examine the partial rebound in employment from April to May 2020.<sup>[59]</sup> Growth was strongest in the industries that had been most severely affected, but May employment was still far lower than it was in February, especially in more highly exposed sectors. From February to May, employment fell by 33 percent in more exposed sectors and by 8 percent in less exposed sectors. The partial rebound included women, Hispanics, and younger workers—demographic groups that are overrepresented in more exposed sectors. However, there was little rebound in the employment of less educated workers without a high school diploma, and the employment

level of workers without a high school diploma in the more exposed sectors actually fell by 3.5 percent. Blacks' employment rebounded less than Whites'.

Alexander W. Bartik et al. examined microdata from Homebase, a provider of scheduling and time clock software to small businesses, particularly in the food and drink and retail trade sectors.<sup>[60]</sup> The authors found that rapidly growing firms were less likely to close, and if they closed, they were more likely to reopen. Unlike previous recessions, the 2020 pandemic downturn was driven by layoffs in service businesses, such as restaurants and retailers. Many workers initially expected their layoffs to be temporary. Older workers, Black and Asian workers, and unmarried mothers were more likely to lose their jobs in April and less likely to return to work in May, even after controlling for education. Hours worked reached their lowest levels during the second week of April. In April, about one-half of Homebase firms closed for at least a week, and, by mid-June, those firms' hours were still 60 percent below their normal levels. Two-thirds of the missing hours were attributable to firms that had remained closed, while the remaining hours were attributable to reopened firms that had reduced workers' hours. The authors documented weakening ties between firms and their workers. In April and early May, firms mostly recalled workers—new hires represented only 6 percent of those added to the workforce. But by mid-June, new hires accounted for 18 percent.

Fairlie finds that, across nearly all industries, self-employed U.S. business owners partially recovered from the pandemic shock after April. However, by June 2020, the number of active business owners was still 8 percent below its February level, and the hours worked by these business owners was also still lower than in February. The most affected groups, including Black and immigrant business owners, recovered less than others. In June, the number of Black business owners was still 19 percent lower than in February, while the number of immigrant business owners was 18 percent lower than in February.<sup>[61]</sup>

## Effects of voluntary and mandatory distancing

Many researchers seek empirically to isolate the effects of stay-at-home orders and forced shutdowns on consumption and employment from the effects of voluntary distancing that are due to fear of the virus. Using several different data sources, they find evidence that the decline in economic activity was driven more by the presence of the virus than by official stay-at-home orders.

Chetty et al. find that consumer spending decreased and time at home increased before shelter-in-place orders were established, and these changes were most pronounced in high-density areas with higher rates of COVID-19 infection.<sup>[62]</sup> Michael Dalton similarly finds that employment declines between February and April 2020 were closely related to the spread of the virus, even after controlling for shutdown orders at the state and metropolitan area levels.<sup>[63]</sup>

Austan Goolsbee and Chad Syverson use cell phone records to examine spending reductions in metropolitan areas in which part of the population was under shelter-in-place orders while the rest was not.<sup>[64]</sup> They find that, with the onset of the COVID-19 pandemic, consumer visits to businesses declined by 60 percent, but only 7 percent of the observed 60-percent decline was due to stay-at-home orders. Alexander D. Arnon, John A. Ricco, and Kent A. Smetters similarly attribute just 15 percent of the pandemic job losses to school and non-essential business closings and stay-at-home orders.<sup>[65]</sup> Edward L. Glaeser et al., however, find that lifting lockdowns boosted restaurant activity more than their imposition reduced it.<sup>[66]</sup>

Employment also fell in South Korea, which had no formal government lockdowns. Sangmin Aum, Sang Yoon (Tim) Shin, and Yongseok Lee find that employment spontaneously declined, even in the absence of government restrictions.[67] A 0.1 percent increase in infection rates caused a 2- to 3-percent decline in local employment, a relationship similar to that between local infection rates and local job loss observed in the United States. The authors conclude that citizens' response to the virus is important and that the end of formal lockdowns has limited impact on employment.

## Long-run (full) recovery

Long-run labor market recovery will be affected by several factors. One is that many existing employers may go out of business—particularly small firms, which have less access to capital. A second is that recessions do lasting harm to labor demand. A third is that, in recent years, much of the economy has evolved to use less labor per unit of output. A fourth consideration reflects changes in where and how work is done.

## Destruction of small firms

Small businesses employ a large share of the workforce and play an important role in hiring disadvantaged workers. It is unclear how many of the businesses that closed will reopen. Using data from credit card processor Womply, the Opportunity Insights team suggests that 34 percent of preexisting small businesses were closed in mid-April. Of those, slightly more than half reopened by the beginning of June, but very few have reopened since then.[68] Lukas Althoff et. al. found that the increase in pandemic-related telework reduced demand for local consumer services, such as restaurants and coffee shops especially in big cities, in areas where many of the people who have transitioned to telework were formerly sited. If some of the transition to telework becomes permanent, it will mean permanently reduced demand for local consumer services in business districts.[69]

Economists have used data from Yelp! and Google Maps to measure how many small businesses have permanently closed. One study estimates that 19 percent of small businesses in Oakland, CA, had permanently closed by the end of April.[70] However, these data cannot show how many small businesses may be able to reopen if a vaccine becomes available and demand for their products or services recovers. Furthermore, Leland Crane, Ryan Decker, Aaron Flaaen, et. al. point out that many business exits are in industries, such as restaurants, in which business closure is very common, even in ordinary times.[71]

Examining employment patterns with confidential CES microdata, Michael Dalton, Elizabeth Weber Handwerker, and Mark A. Loewenstein find that, from February to April 2020, employment in small businesses shrank faster than employment in larger businesses, but that since then, the very smallest businesses have had the fastest recovery in employment levels. From April to July, this pattern held more broadly, with businesses that began 2020 with fewer than 100 employees recovering employment more quickly than businesses that began 2020 with more than 100 employees. However, from July to September, the largest businesses began to recover employment more quickly than others. By September, the employment recovery of businesses with 500 or more employees was second only to that of businesses with fewer than 10 employees.[72] In an update to this paper, these same authors find that, by October 2020, employers that began 2020 with less than 500 workers experienced more job losses due to employer closures than job losses within employers that remained open.[73]

## Slow recovery from recessions generally

Employment has recovered rapidly so far from the pandemic job losses. However, Hall and Kudlyak showed that full employment recoveries proceed only gradually.<sup>[74]</sup> For example, the recovery from the Great Recession was slow, linear, and gently sloped.

In a second paper, Hall and Kudlyak document that the pandemic created both recall unemployment, which is temporary, and jobless unemployment, where the job permanently disappears. Until August 2020, the rapid decline in overall unemployment largely reflected recalls from unemployment. Job recalls became less frequent after August 2020. If people have to find new jobs, employment growth is likely to slow, to the extent that the pandemic slows new matches or triggers new job losses.<sup>[75]</sup>

Robert Martin, Teyanna Munyan, and Beth Anne Wilson find that output growth did not return to its prerecession trajectory after any of the 117 recessions experienced by Organisation for Economic Co-operation and Development (OECD) countries from 1960 to 2013.<sup>[76]</sup> The output gap was larger for severe recessions. In one subsample, the authors found that “deep and long recessions lead to a sustained loss from prerecession trend of about 10 percent after 8 years.”<sup>[77]</sup> After severe recessions, labor productivity returned to its long-term trend, but the growth of employment and hours worked did not. Labor force participation and total hours worked accounted for the entire change. Danny Yagan provides cross-section evidence that the employment–population ratio does not fully recover from unusually strong output shocks.<sup>[78]</sup> Martin, Munyan, and Wilson remark that “much of the growth disappointment discussed during recoveries arises from unsubstantiated expectations of rapid growth following the recession.”<sup>[79]</sup> Jonathan Heathcote, Fabrizio Perri, and Giovanni L. Violante show that, since 1967, hours and earnings for men without college education in the United States have fallen sharply during recessions and failed to recover fully in subsequent expansions.<sup>[80]</sup>

Mercan, Schoefer, and Sedlacek have a model which helps explain why recoveries from severe recessions are slow.<sup>[81]</sup> They suggest that in those cases, employers are flooded by job applicants returning from unemployment, new or young entrants, and displaced workers. Many of these applicants are forced to look for relatively unskilled jobs. Since most of these less-skilled workers cannot easily substitute for more experienced workers, they have relatively low productivity and must accept low-wage jobs. Their model helps explain both the slow recovery of overall employment and the “scarring” effect of lower long term earnings which typically occurs after deep recessions.

The overall shift of production from goods to services has slowed U.S. recoveries from recessions, as Olney and Pacitti have shown, and Martin Beraja and Christian Wolf find that the pattern of depressed consumption of services in this particular recession may further weaken the recovery.<sup>[82]</sup> The authors argue that demand for durable goods is low during recessions, and pent-up demand for these goods helps drive recoveries in general. However, much of the consumption of services, such as restaurant meals and haircuts during the pandemic recession, may be forgone rather than simply postponed.<sup>[83]</sup>

## The rise of superstar firms

As discussed above, there is growing evidence that large employers lost fewer jobs than small employers during this recession. Previous research has shown that many industries are increasingly dominated by large, highly productive “superstar” firms which have high profits and market power. As De Loecker et al. and Autor et al. show,

as these superstar firms expand, the share of national income going to profits increases and the share paid to labor declines.[84] Papers by Ufuk Akcigit and Sina T. Ates, and by James E. Bessen argue that technology, especially information technology, is driving this trend.[85] David Autor and Elisabeth Reynolds suggest the pandemic disproportionately advantaged these highly profitable dominant firms, at the expense of small and mid-size firms that typically allocate more of their income to wages and salaries. This shift will tend to slow employment or wage recovery.[86]

## Remote work, entrepreneurship, and automation

Barrero, Bloom, and Davis analyze the pandemic-driven reallocation of consumer spending.[87] They find that spending on airlines, hotels, rental cars, taxis, ride sharing, and movie theaters in the last week of March 2020 had fallen 75–95 percent relative to 2019. In contrast, spending on home improvement, video streaming, gaming, food delivery, and online grocers increased greatly. The authors expect that many of the responses to the pandemic will have lasting effects, including increased and technologically improved telework and more online commerce. This implies lasting reductions in demand for worksite-related goods and services, such as commercial district restaurants and gyms. Several authors point out that, after slowing down from March through May, Employer Identification Number applications compiled in the U.S. Census Bureau's New Business Formation Statistics (even for businesses likely to be employers) increased above normal levels during the summer.[88]

As long as the pandemic persists, people will work in ways that involve less interpersonal contact, which could accelerate automation. Video meetings are now common, and smartphones are used more than ever.[89] Investments into new technology may have increased during the pandemic and associated recession, because fixed cost investments in technology may be worth undertaking when normal business is shut down and because automation reduces health risks to workers. Mauro Caselli, Andrea Francasso, and Silvio Traverso show that industries employing more robots per worker in production experienced less COVID-19 contagion among workers.[90] The temporary shock in incentives to automate could have long-run effects.

However, Ahmed S. Rahman finds that automation shifts employment toward in-person jobs, and consequently increases worker vulnerability to the pandemic. Automation increases demand for high-contact service jobs that are not suitable for telework and present higher risk of illness, demand interruptions, and forced shutdowns.[91] Alex W. Chernoff and Casey Warman use O\*Net and American Community Survey data to identify the occupations most at risk from both automation and COVID-19 transmission and to examine how these occupations vary by geography and across demographic groups. The authors find that the occupations most at risk, such as customer service representatives, medical assistants, and pharmacy technicians, are in the service sector and are not geographically concentrated.[92]

## Conclusion

This article reviews recent economic research on pandemic-related U.S. job loss to understand prospects for employment recovery. At the beginning of this recession, unlike earlier recessions, a large majority of unemployed workers expected to be recalled to their jobs, and many were. Such recalls powered a rapid but partial recovery from May through the summer. However, the recovery has now slowed, and many temporary layoffs have become permanent. As the pandemic has continued, employment bonds between employers and their furloughed workers

have weakened. The process of matching unemployed workers to new employers is much slower than recalling them to their old jobs. These factors suggest future employment recovery might be slow.

As of December 2020, there is promising news about vaccines. As vaccines become widely available, consumer demand may rebound in many hard-hit industries, such as restaurants, trade, and transportation. However, the research that we have summarized above concludes that if there are lasting impacts of the pandemic, such as a permanent increase in telework, there will not be a full rebound of consumer demand for affected consumer services, such as restaurants located in business districts.

Many businesses closed and many workers left the labor force or were unemployed for long periods in 2020. There is an enormous body of research—outside the scope of this paper—showing that these forms of economic damage heal slowly.

#### SUGGESTED CITATION

Elizabeth Weber Handwerker, Peter B. Meyer, Joseph Piacentini, Michael Schultz, and Leo Sveikauskas, "Employment recovery in the wake of the COVID-19 pandemic," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, December 2020, <https://doi.org/10.21916/mlr.2020.27>.

#### NOTES

<sup>1</sup> Figures 1 and 2 were inspired by the graphical presentation of Current Employment Statistics Survey data by Catherine Rampell, "The good news, the bad news and the scariest jobs chart you'll see," *The Washington Post*, June 5, 2020, <https://www.washingtonpost.com/opinions/2020/06/05/may-jobs-report-good-news-bad-news-scariest-chart-youll-see/>.

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