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Wages grew in 2020 because the bottom fell out of the low-wage labor market

The State of Working America 2020 wages report

Report • By Elise Gould and Jori Kandra • February 24, 2021

What this report finds:

- **Wages grew historically fast between 2019 and 2020**—6.9% for the typical or median worker—but not for good reasons.
- **Wages grew largely because more than 80% of the 9.6 million net jobs lost in 2020 were jobs held by wage earners in the bottom 25% of the wage distribution**. The exit of 7.9 million low-wage workers from the workforce, coupled with the addition of 1.5 million jobs in the top half of the wage distribution, skewed average wages upward.

Why it matters:

- **Wage growth in 2020 is neither a cause for celebration nor a reason to inject fears of economic overheating into policy debates**. Most workers are still suffering from a relatively weak bargaining position that prevents them from securing pay raises sufficient to make up for decades of slow wage growth.
- **Compared with other recent recessions, this pandemic-induced recession was particularly hard on low-wage workers**, and those workers still need assistance: Less than 75% of low-wage workers were still working in 2020 compared with more than 90% of high-wage workers (workers in the top 25% of the wage distribution).

In 2020, the U.S. economy took a hit like none other in recent history. This report is the first in a series of reports examining the effects of the COVID-19 pandemic on the labor market and the living standards of workers and their families. This series will look at 2020 in historical perspective, examining the peculiarity of the 2020 recession in terms of job losses, wages, labor force participation, and unemployment. Because

the 2020 recession was driven by a highly unusual cause—the need to control the pandemic and keep people safe—its first-round impacts were far different than most previous recessions in terms of which sectors, wage levels, and workers were hit hardest and most durably.

As we look at the impact of the recession on U.S. workers and their families, it is important to remember the state of the economy as we entered the recession. Our annual State of Working America reports have long documented the rising wage inequality and slow and uneven hourly wage growth for the vast majority of workers that characterized much of the last four decades in the United States. Our State of Working America Wages 2019 report, published in February 2020, found that in only 10 of the last 40 years did most workers see any consistent positive wage growth (Gould 2020). For most of the last 40 years, typical workers' wage growth was slow and lagged far behind gains in productivity. Wage growth was not only unequal by wage level, but also by race, with significant and widening gaps in wages for Black and white workers. And, while more education leads to better labor market outcomes in general, our analysis of wages showed that education does not inoculate workers against slow wage growth or widening racial and gender wage gaps.

This year's series of reports begins with an examination of wage changes at different wage levels across the wage distribution. This report shows that what may appear to be strong overall wage growth is actually just an odd byproduct of how skewed job losses in 2020 were toward the lower end of the wage distribution. In other words, the faster wage growth between 2019 and 2020 reported here is largely a result of the changing *composition* of the workforce. It is not an accurate indicator of the amount of economic devastation and pain experienced by millions of workers and their families in 2020, nor is it an indicator that workers found themselves in a better bargaining position in 2020 that allowed them to wring some exceptional raises out of employers.

Unusually fast wage growth in a recession

Let's start with the basic facts. Unless otherwise noted, all data in this report are from EPI's Current Population Survey (CPS) Extracts (EPI 2021). Using these data for analysis, inflation-adjusted average hourly wages grew 7.2% between 2019 and 2020. Similarly, real median hourly wages—the wage growth from the middle of the wage distribution in 2019 to the middle of the wage distribution in 2020—grew 6.9% between 2019 and 2020. (Workers at the median are often referred to as "typical workers.")

These average and median growth rates between 2019 and 2020 far exceed any single-year wage growth over the prior 45 years of data available and exceed the second fastest single-year wage growth by 80% to 90%, depending on the measure.

Another government data source also shows strong wage growth, but not of the same magnitude. According to the Current Employment Statistics, a survey of establishments rather than households (the CPS collects data on individuals in households), average hourly earnings of all private-sector employees and average hourly earnings of production and nonsupervisory workers each grew 3.6% in inflation-adjusted terms between 2019 and

2020 (BLS-CES 2021). (Production and nonsupervisory workers are also considered a proxy for typical workers in the U.S. economy.)

The stronger wage growth in the CPS may be due in part to volatility in the data because of smaller sample sizes as well as nonrandom nonresponse in the household survey (with difficulties in the pandemic data collection and the uneven economic devastation affecting sample sizes and response rates) (Rothbaum and Bee 2020; Ward and Edwards 2020). This nonrandom nonresponse would add to the composition effect on wage growth that we will discuss in a bit more detail below. Regardless of these differences, all four measures of average and typical worker wages show strong wage growth, not what one would expect to see during a recession. The truth is that in recessions and early recoveries there will tend to be a composition effect—a change in wages produced by a change in who is working, versus a change in how workers fare over time. But the extent of the composition effect in 2020 is like a recessionary effect on steroids. Remember, this pandemic recession is highly unusual.

While it would be quite instructive to be able to analyze wage data within 2020—as opposed to the year as a whole—the sample sizes in the CPS are small enough even during normal years to introduce too much volatility for this to be of much use. And, because of stark changes in the labor market throughout 2020, including record job losses in March and April as well as a significant bounce back in May and June, these issues just became far more constraining this year. In this report, we compare the full year 2019 data with the full year 2020 data.

Table 1 shows hourly wage growth at different points of the wage distribution for select years between 1979 and 2020, as well as the annualized percent changes in wage growth over each business cycle from 1979 to 2020 and from 2019 to 2020. **Figure A** provides the cumulative change from 1979 to 2020 for select deciles, notably the 10th, 50th, and 90th percentiles of the wage distribution to summarize the experience of very low-, middle-, and very-high-wage workers. As noted, the 50th-percentile worker or median worker is often used as a proxy for a typical worker.

Taken together, these exhibits make three key points. The first is that over each business cycle (except for the 1990s) and for the entire period from 1979 to 2020, wage growth was strongest for workers in the highest-wage categories. From 1979 to 2020, wage growth at the 90th percentile was more than twice as fast as at the median and nearly five times as fast as at the bottom. Wage growth at the 95th percentile was even faster, a whopping 87.9%.[1] The second point from these exhibits is that wage growth for very low- and moderate-wage workers was relatively slow for most of that last 40 years. Even with the unusually strong wage growth over the last year, the cumulative wage growth of these workers was only 11.6% and 23.1%, respectively, over the 40-year period. The third key point that is readily apparent from these exhibits is that wage growth across the wage distribution in the past year was unusually fast. That's clear from the sharp upturn in the figure between 2019 and 2020 as well as the fact that wage growth ranged from 3.3% at the low end of growth (for the 30th-percentile worker) to 15.2% at the high end (for the 95th-percentile worker).

Table 1

Hourly wages of all workers, by wage percentile, selected years, 1979–2020

Year/range	10th	20th	30th	40th	50th	60th	70th	80th	90th	95th
1979	$9.87	$10.87	$12.80	$14.90	$17.00	$20.12	$23.56	$27.67	$33.74	$41.66
1989	8.19	10.17	12.27	14.56	17.05	20.17	24.03	28.47	36.34	44.88
2000	9.21	11.27	13.42	15.24	18.11	21.27	25.49	30.89	40.67	52.02
2007	9.45	11.38	13.43	15.76	18.71	21.95	26.25	32.48	43.71	56.45
2018	10.27	12.27	14.34	16.43	19.38	22.70	27.59	34.84	48.94	65.05
2019	10.20	12.46	14.82	16.91	19.57	23.23	28.29	35.42	48.68	67.97
2020	11.02	13.42	15.31	17.98	20.92	24.96	30.02	37.94	52.88	78.28
Annualized percent changes										
1979–1989	-1.9%	-0.7%	-0.4%	-0.2%	0.0%	0.0%	0.2%	0.3%	0.7%	0.7%
1989–2000	1.1%	0.9%	0.8%	0.4%	0.5%	0.5%	0.5%	0.7%	1.0%	1.3%
2000–2007	0.4%	0.1%	0.0%	0.5%	0.5%	0.4%	0.4%	0.7%	1.0%	1.2%
2007–2019	0.6%	0.8%	0.8%	0.6%	0.4%	0.5%	0.6%	0.7%	0.9%	1.6%
2019–2020	8.0%	7.7%	3.3%	6.3%	6.9%	7.4%	6.1%	7.1%	8.6%	15.2%

Note: The xth-percentile wage is the wage at which x% of wage earners earn less and (100−x)% earn more.

Source: Authors' analysis of EPI Current Population Survey Extracts, Version 1.0.14 (2021), https://microdata.epi.org.

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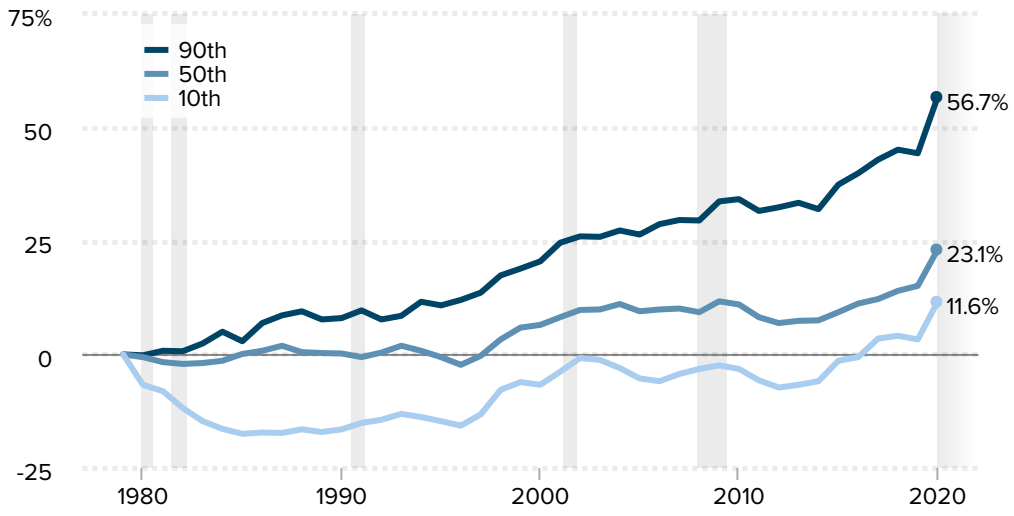
Figure A

Wages grew unusually fast between 2019 and 2020

Cumulative change in real hourly wages of workers, for selected wage percentiles, 1979–2020



Notes: The xth-percentile wage is the wage at which x% of wage earners earn less and (100−x)% earn more. Shaded areas denote recessions.

Source: Authors' analysis of EPI Current Population Survey Extracts, Version 1.0.14 (2021), https://microdata.epi.org.

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Low-wage workers experienced the brunt of the job losses in 2020

The fast wage growth discussed in the previous section is not good news, as it does not represent broad-based wage growth or improvements in living standards for workers in the pandemic recession. Our analysis of CPS data for Figure A captures wages of workers in repeated cross-sections in each year. Federal Reserve Board of Atlanta (2020) analysis of continuously employed workers shows that wages did not accelerate from 2019 to 2020 for the median of the wage distribution.

Instead of being good news, the rapid wage growth shown in Table 1 and Figure A is largely the result of a very sharp compositional change in the workforce, one that was driven by which parts of the economy lost jobs during the COVID-19 recession. It is largely understood that job losses disproportionately occurred in sectors that require face-to-face interactions, such as leisure and hospitality. The average wage in leisure and hospitality is the lowest of all the major industrial sectors (BLS-CES 2021). Similarly, using median wages of each major occupation, Federal Reserve Bank of New York researchers find that lower wage occupations have experienced the sharpest employment losses since February 2020 (Abel and Deitz 2021).

While those researchers use major industries or occupations to examine where the job losses occurred, analysis on job losses *across the wage distribution* generally are harder to come by. Researchers who want to measure wage changes across time only have access to wage data for people actually working. (To be very clear on this: those not working are not assigned a wage of zero in these samples; they are just completely removed from the analysis). Given this measurement difficulty, analysts might try to proxy for wages using other metrics, such as education, that can predict wages. In the exhibits to come, we use a different method. We allocate the 2019 workforce to hourly wage bands or bins, then look at employment levels within those bands in both 2019, the base year, and 2020, the recession year.

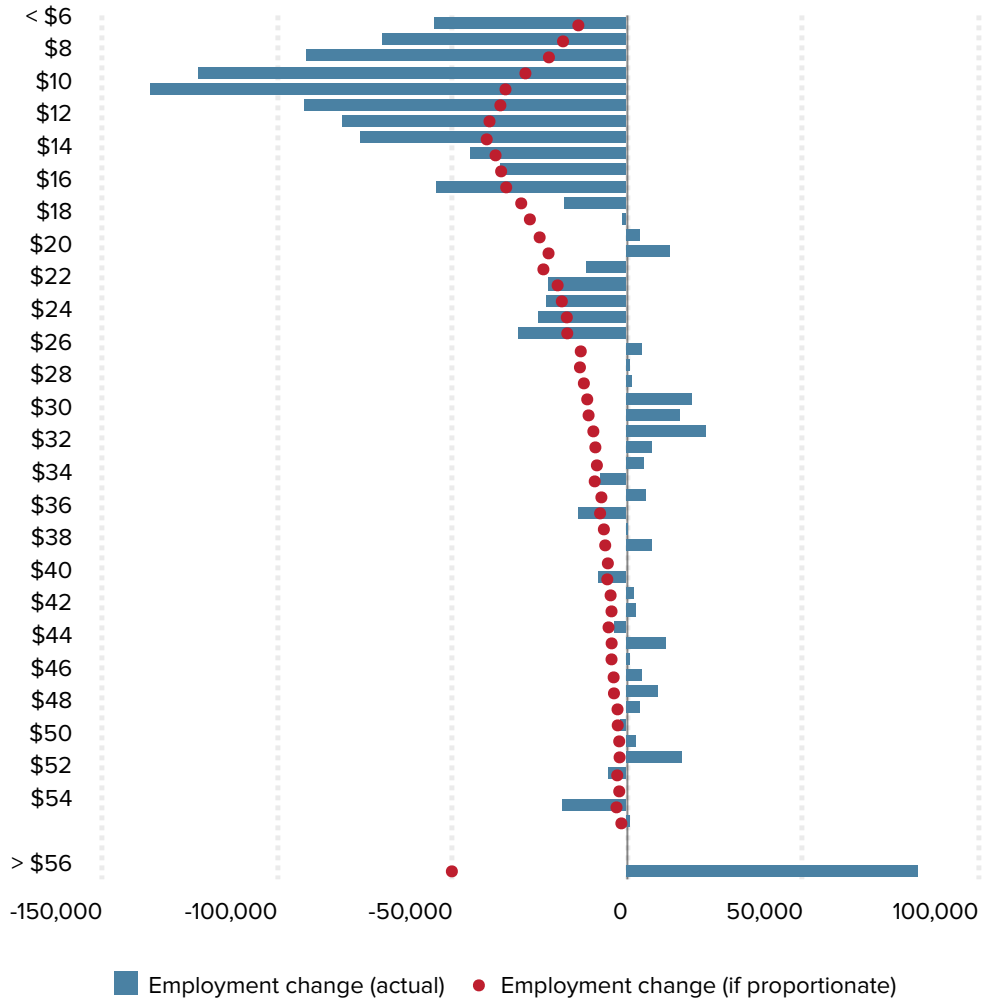
In **Figure B,** the blue bars represent the difference between the number of jobs paying that wage level in 2019 and the number of jobs paying that wage level in 2020. We divide the annual employment into months for comparison with analysis in the next section. Note that with the exception of the first and last ones, the wage bands are labeled by the midpoint value of the band. So, for example the bar at $11 represents the loss in jobs with hourly wages from $8.50 to $13.49. As the figure shows, there were large employment losses at the low end of the wage distribution and a big gain at the highest end of the distribution.

The red dots on the charts are provided as benchmarks—they show how much employment would have contracted at each wage level from 2019 to 2020 if jobs had contracted proportionately across the entire wage distribution. Thus, if a bar extends left of the y-axis but not beyond its dot, job losses were slower than proportionate at that wage level. If a bar extends left of the y-axis beyond its dot, job losses were faster than if they had been proportionate to their employment shares at that wage. And finally if a bar

Figure B

Lower-wage workers experienced job losses in far excess of the proportionate shares

Employment change from 2019 to 2020, by wage level



Notes: Wages are adjusted for inflation using CPI-U-RS. The bars represent how much average employment changed, on a monthly basis, for workers in hourly "wage bands" (i.e., levels) labeled by the midpoint value of the band. For example, the bar at $10 represents the monthly loss in jobs with hourly wages from $7.50 to $12.49 and the bar at $11 represents the monthly loss in jobs with hourly wages from $8.50 to $13.49. (The last bar represents jobs with wages $56 an hour or higher.) This smoothing of employment into wage bands was used to clarify underlying trends. The dots are provided as benchmarks—they show how many jobs would have been lost at each wage level if jobs had contracted proportionately across the entire wage distribution. If a bar extends to the right of the zero axis, workers at that wage level actually gained jobs. If the bar extends left of the zero axis but does not extend beyond its dot, workers at that wage level lost jobs but fewer than they would have had jobs been shed proportionately to how many jobs were in that bin in 2019. Finally if the bar extends to the left of its dot, workers at that wage level lost jobs at a faster rate than would have occurred if the losses were proportionate.

Source: Authors' analysis of EPI Current Population Survey Extracts, Version 1.0.14 (2021), https://microdata.epi.org.

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extends right of the y-axis, jobs increased.

What should be clear from this picture is that workers at the lower end of the wage distribution—those earning under about $14 an hour—lost far more jobs than their proportionate shares would have predicted, while workers earning more than roughly $25 not only beat expectations of job losses simply based on their employment share, they typically saw job *gains*.

Figure C simplifies the picture by showing actual and proportionate employment changes for each wage *quartile*. Using the 25th-, 50th-, and 75th-percentile values in the 2019 wage distribution, each bin contains 25% of workers.[2] With the same wage cutoff values in both 2019 and 2020, employment changes from 2019 to 2020 are reported in each wage group. As with Figure B, the red dots represent employment losses for that wage group if losses were proportionate to overall job losses. Here we find that nearly 7.9 million of the 9.6 million net job losses were among low-wage workers (the bottom fourth of the wage distribution, here meaning those earning $13.67 or less per hour). This means that over 80% of the job losses were among the lowest 25% of wage earners. This is more than three times as much as would have occurred if job losses were even across the wage distribution. Furthermore, the top half of the wage distribution experienced outright gains in employment in 2020. These results are consistent with findings the Federal Reserve reported early in the pandemic recession. Using data from the payroll processor ADP, the Federal Reserve finds evidence that employment declines were far more severe for low-wage workers than middle- or high-wage workers (Figure A from Federal Reserve Board of Governors 2020).

To further solidify the finding that low-wage workers were most hurt by the pandemic recession, we used the longitudinal capacity of the CPS to track those working in 2019 to examine their labor force behavior in 2020 (EPI 2021, Flood et al. 2020). By design, half of survey respondents in each month of 2019 data are resurveyed the same month the following year. (Half of the 2019 respondents would have been initially surveyed in 2018.)

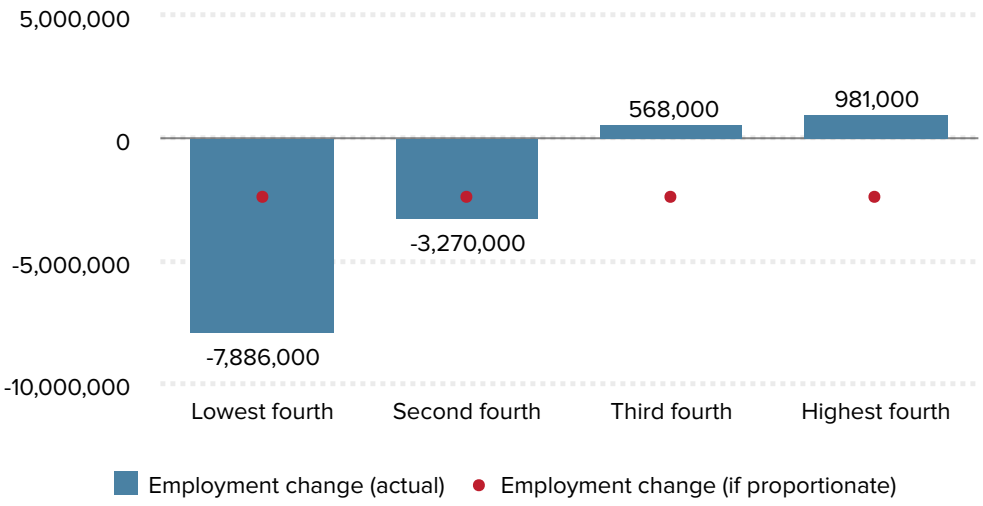
As in the earlier analysis, we use the 25th-, 50th-, and 75th-percentile values in the 2019 wage distribution to sort workers by wage level. **Figure D** presents these workers' outcomes in 2020. The sample is those with jobs in 2019 who were also in the 2020 survey. We sort 2019 workers into two labor market outcomes for 2020: employed or not. The not employed category includes workers who are unemployed as well as those who are not in the labor force (i.e., they were not actively looking for work so are not counted as unemployed). The same issue of survey nonresponse discussed earlier arises here and may even be exacerbated when households were returned into the survey in the same month a year later. As before, it is likely that nonrespondents were more likely to be among those who lost their jobs in the interim. If true, this means that the results presented here are a lower bound on job losses.

The results clearly indicate that the higher one's wage in 2019, the more likely one is to still be working in 2020. Less than 75% of low-wage workers—in the bottom 25% of the wage distribution—were still working in 2020 compared with more than 90% of high-wage workers.[3] This analysis only accounts for the flows out of the workforce. To be clear, there

Figure C

Lowest-wage workers lost nearly 7.9 million jobs, while the highest-wage workers *gained* nearly a million

Employment change from 2019 to 2020, by wage level



Notes: Wages adjusted for inflation using the CPI-U-RS. Employment changes in blue are calculated between 2019 and 2020 in the quartiles set by the 2019 data. Red dots reflect employment changes in 2020 if they were proportionate to the 2019 employment shares. A small amount of noise was added to the wage data when setting wage quartiles to minimize clumping at particular values to ensure equal bin size.

Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata.

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were many new entrants to the labor force in 2020: those who didn't work in 2019 but did work in 2020. Even so, this analysis makes clear that far greater numbers of lower-wage workers left employment in 2020 than did higher-wage workers.

Low-wage workers have not always borne the heaviest burden in recessions

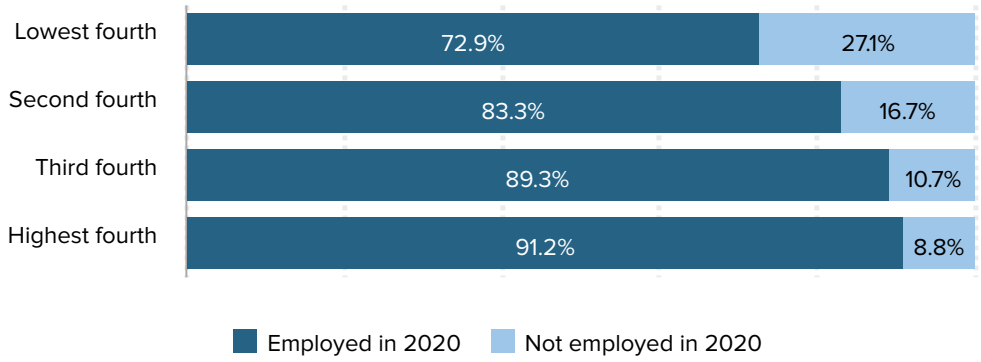
The extreme wage growth between 2019 and 2020 due primarily to the compositional effect of large and disproportionate job losses among low-wage workers is strong evidence that the pandemic recession was an atypical recession. This is sufficient evidence that this downturn is unique in historical terms, but it would take a deeper analysis to further confirm the downturn is as unusual as the data would suggest in its impact on low-wage workers. The extent of job losses in and of itself makes the pandemic recession an outlier. Only the Great Recession, which began in December 2007, compares to the sheer volume of job losses experienced in the last year.

While workers lost a great number of jobs during the Great Recession, that recession is different from the pandemic recession for a number of reasons. One key reason, which

Figure D

Lower-wage workers in 2019 were least likely to remain employed in 2020

Share of employed workers in 2019 were employed (or not) in 2020, by wage quartile



Note: "Not employed" refers to individuals who are either unemployed or not in the labor force.

Source: Authors' analysis of merged EPI and IPUMS Current Population Survey Outgoing Rotation Group microdata.

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makes direct comparisons difficult or impossible, is the fact that job losses dragged on for so long. There were significant job losses in 2008, 2009, and even 2010, after the official recession had ended (the National Bureau of Economic Research uses economic measures to pinpoint the official end but the labor market fallout often lingers well beyond that date). Therefore, we cannot use the longitudinal nature of the CPS to measure employment changes between workers by wage level in the Great Recession, as was done in Figure D for the pandemic recession. And, it's even inadvisable to compare wage quartiles (as in Figure C) across multiple years because of economic and policy changes that will impact the composition of the workforce outside of the effect of the recession itself, such as normal inflation or changes to the minimum wage, which occurred in both 2008 and 2009. Therefore, to make the case, we return to the data exercise in Figure B.

Figure E displays in the blue bars the employment changes by wage interval between 2007 and 2010 (with annual changes converted to average monthly changes). The red dots on the chart are provided as benchmarks—they show what employment change would have been at each wage level if jobs had contracted proportionately across the entire wage distribution between 2007 and 2010. For comparison, refer back to Figure B and recall the very clear pattern of disproportionate job losses at the bottom of the wage distribution and outright gains at the top in the coronavirus recession. In the Great Recession, a pattern is hard to decipher. There were employment losses at the very bottom of the wage distribution for workers with wages at or below $8 an hour. These losses were greater than if they had been proportionate, but some of these may be attributed to minimum wage increases as minimum wage workers saw wage gains pushing them into higher wage levels. Perhaps as further evidence of that phenomenon, it appears that there were job gains just a bit higher up the wage distribution—in the $9 to

$11 range—offsetting the losses at the very bottom.

Moving further up the wage distribution, we see additional disproportionate employment losses in the $14 to $18 range, just below the median in 2007 (see Table 1). We can discern no clear pattern in the remainder of the figure. Even at the top of the wage distribution, where the pandemic recession registered significant employment gains, Great Recession employment fell. What is clear is that job losses in the pandemic recession are quite different from those of the Great Recession.

If we conduct a similar analysis for the 2001 recession, any pattern of job loss or gain by wage level is even less apparent. **Figure F** displays job losses, as monthly averages, from 2001 to 2002 by wage level. Even though the official recession was in 2001, job losses in the annual CPS were between 2001 and 2002 and not 2000 to 2001, therefore those are the years we used for comparison. The job losses were far smaller overall—note the closeness of the red dots to the y-axis. And, employment losses exhibit almost a random appearance, seemingly unrelated to wage levels nearly throughout.

While not as streamlined and clear as the earlier analyses, the results of these graphs indicate the uniqueness of the pandemic recession in disproportionately harming low-wage workers. This result has been borne out by other recent research. Analysis of quartiles of the weekly earnings distribution suggest that the first seven months of this recession hit low-wage workers harder than did three prior recessions in both an absolute sense from the sheer volume of job losses, but also in a relative sense, compared with their middle and higher earning cohorts (Long et al. 2020).

Figure E

Job losses during the Great Recession are weakly related to wage level

Employment change from 2007 to 2010, by wage level

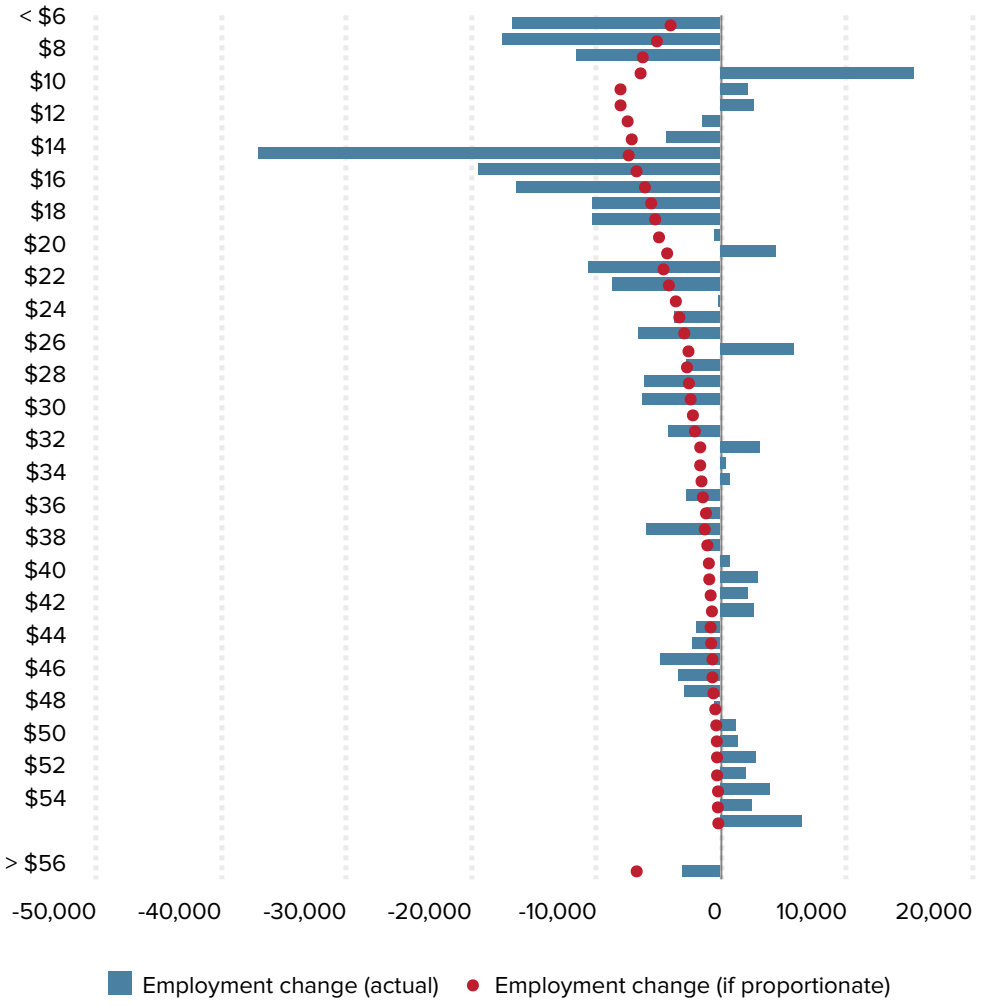

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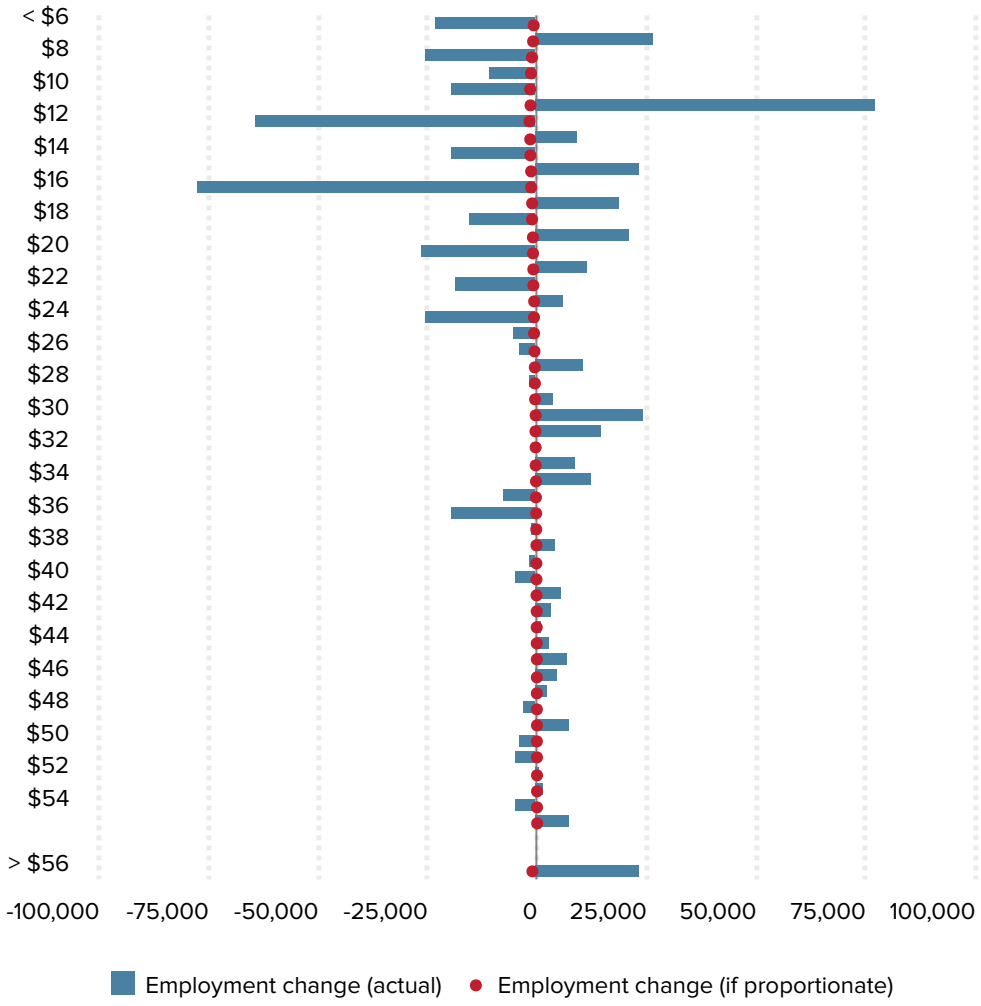
Figure F

Job losses in the early 2000s recession appear unrelated to wage level

Employment change from 2001 to 2002, by wage level



Notes: Wages are adjusted for inflation using CPI-U-RS. The bars represent how much average employment changed, on a monthly basis, for workers in hourly "wage bands" (i.e., levels) labeled by the midpoint value of the band. For example, the bar at $10 represents the monthly loss in jobs with hourly wages from $7.50 to $12.49 and the bar at $11 represents loss in jobs with hourly wages from $8.50 to $13.49. (The last bar represents jobs with wages $56 an hour or higher). This smoothing of employment into wage bands was used to clarify underlying trends. The dots are provided as benchmarks—they show how many jobs would have been lost at each wage level if jobs had contracted proportionately across the entire wage distribution. If a bar extends to the right of the zero axis, workers at that wage level actually gained jobs. If the bar extends left of the zero axis but does not extend beyond its dot, workers at that wage level lost jobs but fewer than they would have had jobs been shed proportionately to how many jobs were in that bin in 2001. Finally if the bar extends to the left of its dot, workers at that wage level lost jobs at a faster rate than would have occurred if the losses were proportionate.

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Conclusion

All of the analyses of job loss by wage level are evidence that employment losses in the pandemic recession were heavily skewed toward lower-wage workers and that these losses were far greater than what is seen in typical recessions. These findings help explain the unusually fast wage growth from 2019 to 2020. They also shed light on the absolute devastation felt across this country from a recession that disproportionately hit the more vulnerable workers and their families. These workers are among the least likely to have savings to draw on, and they strongly rely on the unemployment insurance system to keep their heads above water.

The next report in this series will examine which types of jobs were lost in the pandemic recession and will uncover not only industry differences, but also important distinctions between occupations within those industries—with the heaviest job losses in occupations employing Black and Hispanic workers as well as white women workers.

Endnotes

1. Wage growth for the 95th percentile can be calculated from Table 1. It is important to note that some of the faster wage growth at the very top of the wage distribution in the last couple of years may be due to the increasing difficulty of measuring high end earnings in the CPS, given that the top-coded value for weekly earnings has sat at the same dollar value in nominal terms since 1998, a 22-year period of growing wage inequality. For a detailed discussion of issues arising from top-coding, see Gould 2020.

2. Because of the clumping of workers at particular wage levels, we introduce a small amount of noise to the wage data in order to construct bins of equal size.

3. Lower-wage workers, in general, experience more churn in the labor market and are more likely to have spells of unemployment than higher-wage workers. The extent of the employment losses between 2019 and 2020 exceed those differences.

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