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Job Openings and Labor Turnover Before and During the COVID-19 Pandemic

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SUMMARY

The COVID-19 pandemic and recession in early 2020 resulted in the swift and marked deterioration of national labor market conditions, with some lasting effects. While public focus has largely been on headline labor market indicators, such as the unemployment rate and job numbers, pandemic impacts are also reflected in official job openings and labor turnover statistics. As the economy recovers, reports of labor shortages in some sectors have drawn greater interest in these indicators.

This report analyzes both long-term and recent trends for U.S. job openings, hires, quits, and layoffs as measured by the Bureau of Labor Statistics Job Openings and Labor Turnover Survey (JOLTS) at the national and sector level. Among other findings, this report shows the following.

For job openings and hires:

- In general, the number of job openings and hires have increased over time (and with the size of the economy), are procyclical (i.e., rising with economic expansion and falling during recessions), and exhibit considerable month-to-month volatility.
- The number of job openings typically increase at a faster rate than the number of hires. This is reflected across all sectors.
- In the 12 months following the end of the 2020 recession, both job openings and hires grew at a much faster rate than they did following the 2001 and 2007-2009 recessions. This was reflected across all sectors.
- The most recent six months for which data are available (July 2021 to December 2021) show an elevated growth rate in job openings and a declining growth rate in hires. At the sector-level, the growth in both job openings and hires were well below where they were in the immediate 12 months following the 2020 recession.

For quits and layoffs:

- In general, the number of quits has gradually increased over time and the number of layoffs has remained relatively stable. Quits exhibit a procyclical response to the business cycle, while layoffs exhibit a countercyclical (i.e., rising during recessions and falling with economic expansion) response. Both metrics show considerable month-to-month volatility.
- During the 2020 recession, layoffs reached the highest recorded value in the history of the JOLTS series (13.0 million in March 2020) and quits decreased substantially. The Leisure and Hospitality sector experienced the highest level of layoffs among all sectors.
- In the 12 months following the end of the 2020 recession, quits increased and layoffs decreased at a much faster rate than they did following the prior two recessions. This trend was reflected in most, but not all, sectors.
- The most recent six months for which data are available (July 2021 to December 2021) show continued growth in quits and declines in layoffs. At the sector-level, the growth in quits was exhibited across all sectors, though the degree of growth varied. Layoffs differed significantly by sector, with certain sectors showing declining layoffs and others showing increasing layoffs.

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Introduction

The onset of the COVID-19 pandemic in early 2020 resulted in a short but deep recession and led to marked deterioration of the U.S. labor market, with lasting effects.[1] The National Bureau of Economic Research (NBER) identified a recession lasting from February 2020 to April 2020. In January 2020, the unemployment rate was 3.5%, total nonfarm employment was at 152.2 million, and there were 164.5 million individuals in the labor force. By April 2020, the unemployment rate had increased to 14.8%, 22.1 million jobs had been lost, and 8.4 million individuals had left the labor force.[2] Since then, the labor market has improved substantially, but it has not fully recovered. By December 2021, the unemployment rate had decreased to 3.9% (0.4 percentage points above the January 2020 rate), but 3.3 million fewer individuals were employed in nonfarm industries than in January 2020.

Similar to the headline unemployment rate and jobs numbers, official data on job openings and labor turnover (i.e., hires and job separations) show a substantial labor market response to the pandemic and recession, and—more recently—a recovering labor market. According to data from the Bureau of Labor Statistics (BLS) Job Openings and Labor Turnover Survey (JOLTS), job openings declined from 7.2 million in January 2020 to 4.6 million in April 2020, and the number of hires declined from 6.0 million in January 2020 to 3.9 million in April 2020. The number of workers quitting their jobs fell to 2.1 million in April 2020 (from 3.6 million in January 2020), as layoffs[3] reached the highest level ever recorded in the JOLTS data series.[4] In 2021, however, JOLTS data appear to signal a potential rebound in employers' demand for labor, and greater confidence among workers about their labor market options. In December 2021, job openings were at 10.9 million, 6.3 million people were hired, 4.3 million people quit their jobs, and 1.2 million people were laid off.[5]

Together with indicators reported in the BLS monthly jobs report (e.g., the unemployment rate), BLS job openings and labor turnover data provide useful insights to labor market trends and current conditions. Job openings and labor turnover data are particularly valuable as a gauge of labor demand, the ease with which employers can hire workers, and labor market dynamics more generally. This report responds to ongoing congressional interest in the overall strength of the U.S. labor market, including the ability of employers and workers to make productive job matches, and the state of the workforce since the onset of the pandemic. It examines trends in job openings and labor turnover indicators in the period since JOLTS data collection started in December 2000, and considers recent data in the context of the COVID-19 pandemic and recession. Analysis is conducted for the national labor market, as well as for specific sectors.

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[1] The World Health Organization officially declared the virus a pandemic on March 11, 2020. World Health Organization, *Coronavirus Disease 2019 (COVID-19)*, Situation Report 51, March 11, 2020, p. 1, https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200311-sitrep-51-covid-19.pdf. See https://www.nber.org/cycles.html for its historical series of expansions and contractions. For more on its process for determining expansions and contractions, see https://www.nber.org/cycles/recessionsfaq.html#:~:text=What%20is%20an%20expansion%3F,more%20than%20a%20few%20months.&text=Expansion%20is%20the%20normal%20state,economy%3B%20most%20recessions%20are%20brief.

[2] For more information, see CRS Report R46554, *Unemployment Rates During the COVID-19 Pandemic*, coordinated by Gene Falk.

[3] Throughout this report, *layoffs* will include both layoffs and discharges. See **Table 1** for an overview of all JOLTS indicators discussed in this report, including layoffs and discharges.

[4] The Job Openings and Labor Turnover Survey (JOLTS) data have been reported on a monthly basis since December 2000.

[5] Data from the JOLTS have a one-month lag behind data collected by the Current Population Survey (CPS) and the Current Employment Statistics (CES) survey.

The Labor Market During the COVID-19 Recession and its Recovery

The COVID-19 pandemic dramatically disrupted the labor force in early 2020 as businesses closed or reduced operations and consumer demand shifted away from in-person commerce. The swift drop in economic activity led to a relatively short (two-month) but deep recession, with massive employment losses. Although job loss was widespread, some sectors were more affected than others. For example, whereas overall employment fell by nearly 15% between February and April 2020, employment in the Leisure and Hospitality sector was cut nearly in half (a 48.6% decline).

Since April 2020, progress toward labor market recovery has been relatively rapid, aided by a large number of individuals returning from temporary layoffs that occurred in the first months of the pandemic.[6] The unemployment rate, for example, dropped by 10 percentage points (and fell below 5%) in 17 months (April 2020 to September 2021).[7] However, the labor force participation rate remains relatively low,[8] and preliminary data for December 2021 indicate there were about 3.3 million fewer jobs on business payrolls than in January 2020.

These patterns suggest that labor market recovery following the pandemic-induced recession may differ from past recoveries. Importantly, pandemic conditions—while mitigated—persist, and appear to be affecting workers' decisions around work.[9] Some workers, particularly those serving the general public or working in close proximity to coworkers, may be reluctant to return to work due to concerns about potential workplace exposure or customer aggression.[10] Others may have taken on additional caregiving responsibilities that limited their options for market-based work.[11] In addition, access to federal cash payments for some families and strong personal savings rates in much of 2020 and the beginning of 2021 may allow some workers to prolong job search and to

[6] Temporary layoffs made up nearly 78% of unemployed workers in April 2020; see U.S. Bureau of Labor Statistics (BLS), Currently Population Survey data, https://data.bls.gov/timeseries/LNS13023654.

[7] By comparison, it took more than seven years for the unemployment rate to fall from its high of 10% during the Great Recession to it pre-pandemic rate; see BLS, Current Population Survey, https://data.bls.gov/timeseries/LNS14000000.

[8] The December 2021 rate was 1.5 percentage points below its January 2020 value.

[9] See a discussion of potential causes of recent employment patterns in CRS Insight IN11771, *Labor Market Tightness and the Economic Recovery, Part 2*, by Marc Labonte and Lida R. Weinstock.

[10] According to data from the Census Bureau's Household Pulse Survey, nearly 5% of nonretired persons who reported they were not working when interviewed between December 29, 2021, and January 10, 2022, indicated they had not worked because they were "concerned about getting or spreading the coronavirus." Census Bureau Household Pulse Survey, *Employment Table 3. Educational Attainment for Adults Not Working at Time of Survey, by Main Reason for Not Working and Source Used to Meet Spending Needs: United States*, Census Bureau, https://www.census.gov/data/tables/2021/demo/hhp/hhp41.html. See also Julia F. Lippert, Mackenzie B. Furnari and Charlie W. Kriebel, "The Impact of the COVID-19 Pandemic on Occupational Stress in Restaurant Work: A Qualitative Study," *International Journal of Environmental Research and Public Health*, vol. 18 (2021), https://www.mdpi.com/1660-4601/18/19/10378. Examples of reports of increased customer incivility is in Sarah Lyall, "A Nation on Hold Wants to Speak With a Manager," *The New York Times*, January 1, 2022, https://www.nytimes.com/2022/01/01/ business/customer-service-pandemic-rage.html; HD Byon, K. Sagherian, Y. Kim, J. Lipscomb, M. Crandall and L. Steege, "Nurses' Experience With Type II Workplace Violence and Underreporting During the COVID-19 Pandemic," *Workplace Health & Safety*, August 2021, https://doi.org/10.1177/21650799211031233; and Nada Elnahla and Leighann C. Neilson, *The Stressors Faced by Retail Workers during the COVID-19 Pandemic*, Association of Marketing Theory and Practice Proceedings, https://digitalcommons.georgiasouthern.edu/amtp-proceedings_2021/2.

[11] The Federal Reserve estimated that "nonparticipation in the labor force associated with caregiving has increased 0.7 percentage point" between 2020 and 2021; see Board of Governors of the Federal Reserve System, *Monetary Policy Report – July 2021*, July 9, 2021, https://www.federalreserve.gov/monetarypolicy/2021-07-mpr-part1.htm.

be more selective about job offers.[12] Consequently, some employers have raised concerns about potential labor shortages.

It is against this backdrop that this report considers trends in job openings and labor turnover in the context of the COVID-19 pandemic, recession, and economic recovery.

Job Openings and Labor Turnover Survey (JOLTS) Methodology

The JOLTS is a monthly survey of 20,700 nonfarm business and government establishments conducted by the BLS.[13] The sample is drawn from a database of approximately 9.4 million establishments compiled by the BLS Quarterly Census of Employment and Wages (QCEW) program. This QCEW database includes all establishments subject to state unemployment insurance laws and all federal agencies subject to the Unemployment Compensation for Federal Employees program. Data on employment, job openings, hires, quits, layoffs, and other separations are then collected from these sampled establishments on a voluntary basis.[14] Data definitions for JOLTS variables used in this report are provided in **Table 1**.

Table 1. JOLTS Indicator Definitions

Indicator	Definition
Job Openings	All positions that are open (not filled) on the last business day of the month. An *open* position must meet these criteria: • A specific position exists and there is work available for that position. The position can be full-time or part-time, and it can be permanent, short-term, or seasonal. • The job could start within 30 days, whether or not the establishment finds a suitable candidate during that time. • There is active recruiting for workers from outside the establishment location that has the opening.

[12] Rick Babson, Study shows surge in savings during the pandemic: Research found a significant increase in savings as a percentage of personal income amid COVID-19, Federal Reserve Bank of Kansas City, April 2021, https://www.kansascityfed.org/ten/2021-spring-ten-magazine/study-shows-surge-in-savings-during-the-pandemic/.

[13] On July 31, 2019, BLS published a notice in the *Federal Register* requesting clearance from the Office of Management and Budget (OMB) to make revisions to the JOLTS methodology. These revisions extended the time establishments remained in the sample from 24 months to 36 months, which, in turn, increased the sample size from 16,000 establishments to its current size of 20,700. See BLS, "Proposed Collection, Comment Request," 84 *Federal Register* 37350, July 31, 2019. BLS began the process of increasing the JOLTS sample size in February 2020. CRS confirmed with BLS that the increased sample size did not significantly impact the comparability of JOLTS estimates; CRS correspondence with BLS on August 4, 2021.

[14] BLS, *Economic News Release*, "Job Openings and Labor Turnover Technical Note," July 7, 2021, https://www.bls.gov/news.release/jolts.tn.htm.

Indicator	Definition
Hires	All additions to the payroll during the month. *Hires* include newly hired and rehired employees; permanent, short-term, and seasonal employees; full-time and part-time employees; on-call or intermittent employees who returned to work after having been formally separated; workers who were hired and separated during the month; transfers from other locations; and employees who were recalled to a job at the sampled establishment following a formal layoff lasting more than seven days. The following are excluded from hires: • Transfers or promotions within the sampled establishment. • Employees returning from strikes. • Employees of temporary help agencies, employee-leasing companies, outside contractors, or consultants working at the sampled establishment. A separate form is used to collect information from temporary help and employee-leasing firms for these employees.
Quits	All employees who left their establishment voluntarily and were separated from the payroll during the month, with the exception of retirements and transfers to other locations.
Layoffs and Discharges[a]	All employees who were involuntarily separated from the payroll by their employer during the month. *Layoffs and discharges* includes layoffs with no intent to rehire; discharges because positions were eliminated; discharges resulting from mergers, downsizing, or plant closings; firings or other discharges for cause; terminations of seasonal employees (whether or not they are expected to return next season); and layoffs (suspensions from pay status) lasting or expected to last more than seven days.

Source: U.S. Bureau of Labor Statistics (BLS), *Job Openings and Labor Turnover Survey*, "Data Definitions," last updated April 11, 2017, https://www.bls.gov/jlt/jltdef.htm#2.

a. Throughout this report, the *layoffs and discharges* category is referred to as layoffs.

Job openings and the labor turnover indicators (hires and separations) are calculated using somewhat different reference periods. Job openings describe the number of opening vacancies at the end of a given month. Because employers may continue efforts to fill a particular position over several months, job openings accumulate over time (i.e., the indicator does not merely measure jobs opened in a single month, but the cumulative number of job openings that are open on the last business day of that month). Hires, quits, and separations (layoffs and discharges) measure values on a monthly basis (i.e., they measure outcomes in a single month and do not directly reflect cumulative patterns). The difference in reference period affects comparisons of job openings to labor turnover measures. It is sometimes necessary to look back at several months of labor turnover indicators to get a sense of cumulative outcomes and put job openings in perspective.

As with all survey data collected from a sample of respondents, JOLTS estimates can be affected by sampling error and nonsampling error. Sampling error occurs when a survey covers a sample of a population as opposed to the entire population. As a result, sample estimates may differ from the actual values for the population. Nonsampling error may occur for a variety of reasons. BLS specifically mentions "the failure to include a segment of the population, the inability to obtain data from all units in the sample, the inability or unwillingness of respondents to provide data on a timely basis, mistakes made by respondents, errors made in the collection or processing of the data, and errors from the employment benchmark data used in estimation" as possible sources of

nonsampling error for JOLTS estimates.[15] In accordance with other BLS analysis, JOLTS estimates are conducted at a 90% confidence level.[16]

Job Openings and Labor Turnover in the National Labor Market

The monthly release of JOLTS data describes the overall number of job openings, hires, quits, and layoffs in the U.S. labor market. Data on these indicators have been provided on a monthly basis since December 2000. This gives researchers a robust data set for understanding trends in job openings and labor turnover.

Long-Term Trends in the Number of Job Openings, Hires, and Separations

Figure 1 presents monthly job openings and hires between December 2000 (the first month in the series) and December 2021. Three prominent features of these indicators are

- a general upward trend in job openings and hires, reflective of growing economic output over time;
- procyclical patterns: during the three economic recessions included in the data series the number of job openings and hires typically declined and during economic expansions they typically increased; and
- volatility that complicates the interpretation of month-over-month changes in the number of job openings or hires; longer-term trends tend to be more informative.

Figure 1 also reveals a pattern of relatively high growth in job openings, such that the number of job openings overtook the number of hires in June 2014 for the first time in the JOLTS series. The data reveal that the source of this change was the quicker rate of growth in job openings than hires for almost every month in the time series. As a result, the number of job openings has been greater than the number of hires for almost every month since job openings overtook hires and the gap between the two indicators has been growing over time.

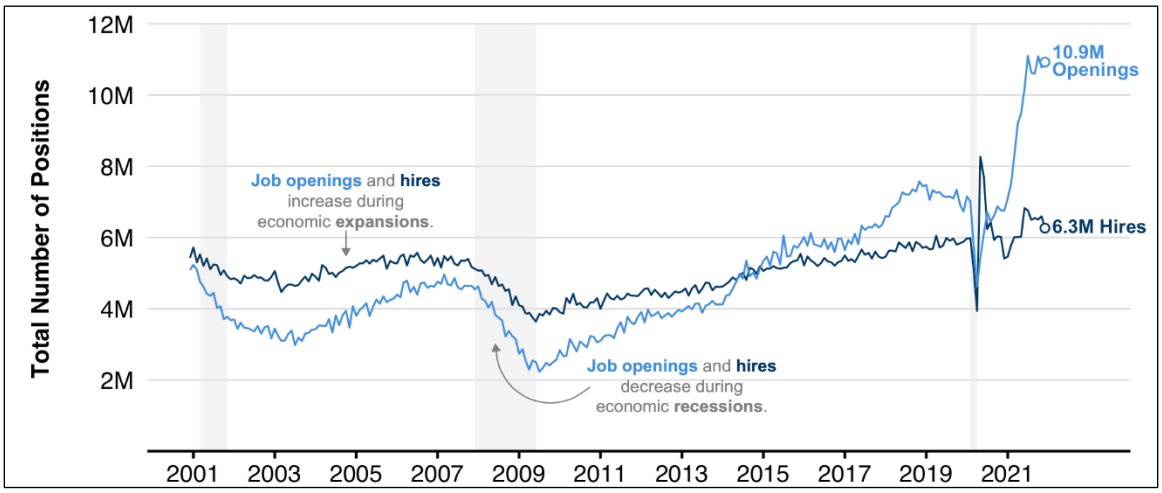
JOLTS data reveal a sharp decline in both job openings and hires during the 2020 recession, which was caused by the onset of the COVID-19 pandemic (see "The Labor Market During the COVID-19 Recession and its Recovery" section of this report). Pandemic-related layoffs and reduced labor supply among some worker groups compounded the standard downward pressure placed by recessions on job openings and hires. The number of job openings fell from 7.2 million at the end of January 2020 to 4.6 million at the end of April 2020. The number of hires experienced a similarly sharp decline from 6.0 million in January 2020 to 3.9 million in April 2020. Both indicators began to recover in May 2020, following the end of the recession. Job openings and hires increased substantially in 2021. By December 2021, employers reported 10.9 million job openings at the end of the month (3.7 million more than in January 2020) and 6.3 million hires over the course of the month (300,000 more than in January 2020).

[15] BLS, *Handbook of Methods*, "Chapter 18. Job Openings and Labor Turnover Survey," p. 8, https://www.bls.gov/opub/hom/pdf/jlt-20130314.pdf.

[16] This means there is a 90% chance that the sample value will be within 1.645 standard errors of the actual population value. For additional discussion, see BLS, Job Openings and Labor Turnover Survey, "Reliability of JOLTS Estimates," https://www.bls.gov/jlt/jltreliability.htm.

Figure 1. Overall Job Openings and Hires

Seasonally adjusted monthly data, December 2000 to December 2021



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Series JTS000000000000000JOL and JTS000000000000000HIL extracted using the JOLTS data series at https://www.bls.gov/data/.

Notes: Shaded regions indicate recessionary periods as identified by the National Bureau of Economic Research. The 2001 recession started in March 2001 and ended in November 2001. The Great Recession started in December 2007 and ended in June 2009. The 2020 recession started in February 2020 and ended in April 2020.

Figure 2 tracks the number of quits and layoffs between December 2000 and December 2021. Similar to job openings and hiring, quits and layoffs exhibited month-over-month volatility and responded to the business cycle. The number of quits is procyclical, increasing during economic expansions, when job opportunities are more plentiful. Layoffs are countercyclical, rising during recessions as business activity declines, and decreasing in expansions when labor demand tends to be higher.[17]

The number of workers who quit their jobs declined during the onset of the COVID-19 pandemic, from 3.6 million in January 2020 to 2.1 million in April 2020.[18] After the 2020 recession, quits increased, returning to their pre-recession level by March 2021 (approximately one year after the 2020 recession). Since then, quits have continued to increase. In December 2021, quits were at 4.3 million (770,000 more than in January 2020).

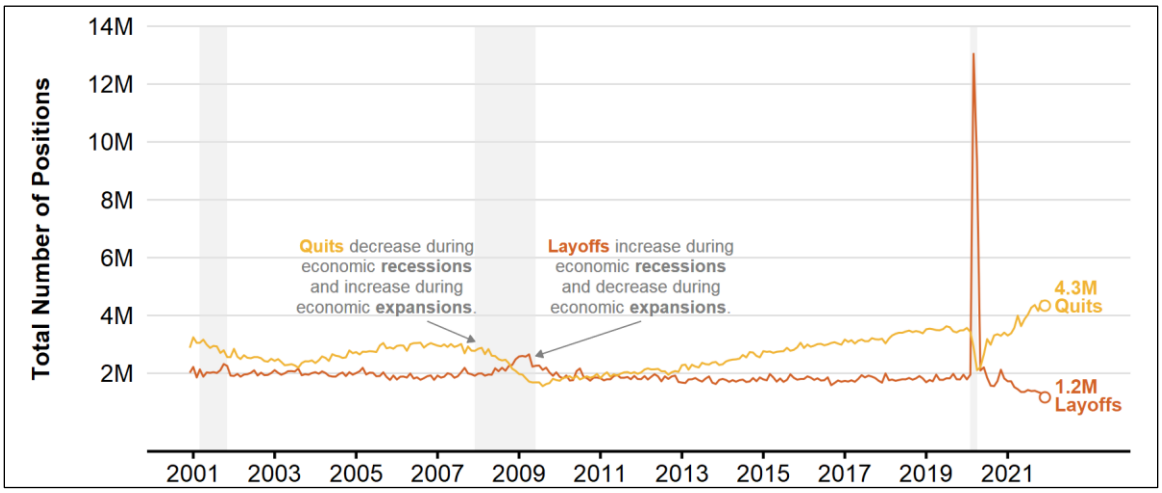
Layoffs increased sharply in the initial months of the COVID-19 pandemic as businesses across the country closed or curtailed operations in response to the spread of the virus. Layoffs increased from 1.8 million in January 2020 to 13.0 million (the highest recorded value in the series) in March 2020. The number of layoffs decreased rapidly in the months immediately following March 2020, falling to 9.3 million in April 2020 (still substantially higher than the pre-recession level) and then to 2.1 million in May 2020. Beginning in December 2020 and continuing into 2021, layoffs deceased further. In December 2021, layoffs were at 1.2 million (the lowest recorded value in the series).

[17] During the 2001 recession, the quits level remained above the layoffs level. However, as displayed in **Figure 2**, quits decreased and layoffs increased modestly during this period, which is in accordance with the cyclical nature of these two metrics.

[18] The decline in quits was also likely related to the historic increase in layoffs that occurred during the initial months of the COVID-19 pandemic. This rise in layoffs resulted in fewer overall jobs and, thus, fewer jobs that could be quit.

Figure 2. Overall Quits and Layoffs

Seasonally adjusted monthly data, December 2000 to December 2021



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Series JTS000000000000000QUL and JTS000000000000000LDL extracted using the JOLTS data series at https://www.bls.gov/data/.

Notes: Layoffs include layoffs and discharges. Shaded regions indicate recessionary periods as identified by the National Bureau of Economic Research. The 2001 recession started in March 2001 and ended in November 2001. The Great Recession started in December 2007 and ended in June 2009. The 2020 recession started in February 2020 and ended in April 2020.

Average Monthly Growth Rates Following a Recession, over Selected Time Periods

Figure 1 and **Figure 2** display trends in job openings and labor turnover from December 2000 to December 2021, a period that included three economic recessions. To some extent, each recession has its own story, in terms of factors that precipitated the downturn as well as its breadth, depth, and duration. But the most recent downturn was exceptional relative to others in recent history along several dimensions; it resulted in massive job loss over a very short period. (A brief discussion of the three recessions included in the JOLTS data series in the "The 2001, 2007-2009, and 2020 Recessions" text box below). Consequently, of some interest is how recovery from the most recent recession compared to others. The figures show that while there are some similarities between indicators across each recessions (e.g., declines in job openings, hires, and quits), there were differences as well. For example, **Figure 1** illustrates unprecedented changes in labor demand (as measured by job openings), in terms of magnitude, during and following the 2020 recession.

Interpreting changes in the *number* of job openings, hires, and separations between business cycles is challenging for several reasons. For one, certain indicators (like job openings) have increased over time such that a given change in magnitude translates into different rates of growth over time.[19] In addition, month-to-month indicator volatility means that estimated changes can be highly sensitive to the selection of months that define the period of interest. In addition, the

[19] This is because the *base* or starting point of the comparison is rising over time. For example, an increase of 10,000 in job openings translates to a 10% increase when the base is 100,000 job openings and a 5% increase when the base is 200,000 job openings.

durations of the three recessions and non-recessionary[20] periods included in the JOLTS series were not the same; for example, the 2007-2009 recession lasted 18 months, whereas the 2020 recession lasted 2 months. One way to address these issues and simplify comparisons is to use a summary indicator such as the average monthly growth rate, which is the average rate of month-to-month change in an indicator over a specific period. Such an indicator can be used to compare average changes across a chosen period, and can serve to smooth the month-to-month volatility. Given the difference in the reference periods for job openings and hires, comparing average monthly growth in these indicators may also provide more meaningful comparisons than considering growth in overall levels.[21]

The 2001, 2007-2009, and 2020 Recessions

The three recessions included in the JOLTS data series—the 2001 recession, the Great Recession (2007-2009), and the 2020 recession—occurred in response to separate economic conditions, and differed in terms of their depth, breadth, and duration, as well as their labor market impacts. The 2001 recession was comparatively short, lasting eight months, and was a relatively mild downturn. Several factors contributed to this recession, including sharply declining information technology (IT) investments and related production (following an IT bubble), and increased foreign competition for durable goods sales. Between March and November 2001, payroll employment fell by 1.6 million jobs, with losses concentrated primarily in Manufacturing and related sectors (Wholesale Trade, Trucking, and Professional Services).[22] Employment did not decline in all sectors, however; for example, payrolls for the Health Services and Higher Education sectors increased markedly in 2001. The labor market recovery from the 2001 recession was slower compared to previous recoveries. Employment continued to decline for several months after the recession's end and it took over three years for employment to return to its pre-recessionary level.

The Great Recession (December 2007 to June 2009) was a considerably longer and deeper downturn. Payroll employment fell by about 7.4 million jobs over the 18-month recession, and the unemployment rate increased markedly.[23] The construction and manufacturing industries were hit particularly hard, losing about 1.5 million jobs (a 19.8% decline) and 2 million jobs (a 14.7% decline), respectively, between December 2007 and June 2009. Large construction job losses followed the housing market collapse, a prominent driver of the recession. The subsequent and severe financial crisis drastically curtailed demand for manufactured goods and spending more generally. Losses were not exclusive to the goods-producing sectors; the service-producing industries lost 3.3% of employment, which—while small compared to Construction and Manufacturing sector losses—represented, at that time, the largest recession-related job loss in the service sectors since 1945.[24] Labor market recovery was slow by historical standards. The economy did not consistently add jobs (on net) until March 2010, and did not return to December 2007 levels until March 2014.[25]

[20] A non-recessionary month is a month in which the U.S. economy was not in a recession. A non-recessionary period is an aggregation of non-recessionary months; that is, a collection of months for which the U.S. economy was not in a recession.

[21] The number of job openings in any given month reflects both new job openings as well as those carried over from prior months. The number of hires includes only those that are counted during a specific month. While the average monthly growth rate does not eliminate the impact of these distinct methods of measurement, it does help to reduce its impact.

[22] A discussion of sector-level employment impacts of the 2001 recession is in David S. Langdon, Terence M. McMenamin, and Thomas J. Krolik, "U.S. Labor Market in 2001: the Economy Enters a Recession," *Monthly Labor Review*, February 2002, https://www.bls.gov/opub/mlr/2002/02/art1full.pdf.

[23] The unemployment rate increased from 5.0% to 9.5% between December 2007 and June 2009, and reached its peak at 10.0% in October 2009 (four months after the recession ended).

[24] An in-depth discussion of the labor market impacts of the Great Recession, including sector-level losses for each recession since 1945, is in Christopher J. Goodman and Steven M. Mance, "Employment Loss and the 2007–09 Recession: A Review," *Monthly Labor Review*, 2011, https://www.bls.gov/opub/mlr/2011/04/art1full.pdf.

[25] Discussion of labor market conditions in the period following the Great Recession is in CRS Report R45330, *Labor Market Patterns Since 2007*, by Sarah A. Donovan and Marc Labonte.

The most recent recession (February to April 2020) during the COVID-19 pandemic was accompanied by massive employment losses.[26] Payroll employment fell by more than 22 million jobs between February and April 2020. Despite considerable labor market recovery over the rest of the year, payroll employment in December 2020 remained more than 9 million jobs below December 2019 levels, representing the largest annual decline since BLS started collecting payroll data from establishments. Job loss was widespread, but some sectors were more affected than others. For example, whereas overall employment fell by nearly 15% between February and April 2020, employment in the Leisure and Hospitality sector was cut nearly in half (a 48.6% decline) and the Other Services sector (which includes private household workers, repair services, temporary parking, and other services) fell by 23.7%.

Figure 3 compares the average monthly growth rates for job openings and hires over the 12-month periods that followed the 2001 recession, the Great Recession (2007-2009), and the 2020 recession.[27] The figure also includes the average monthly growth rate for job openings and hires for all non-recessionary months in the JOLTS data series to serve as a benchmark for monthly growth in an average non-recessionary month.[28] A comparison of the 12-month average growth rate to the average growth rate over the full non-recessionary period can also be used to shed light on whether and how the growth rates evolved over a longer (non-recessionary) period.[29]

In the 12-month period following the 2001 recession, the average monthly growth rate for both job openings (-0.5%) and hires (-0.2%) was negative. For the 12-month period that followed the Great Recession, the average monthly growth rate for both job openings (1.2%) and hires (1.1%) was positive. The 12-month period after the 2020 recession had relatively high average monthly growth rates for both job openings (6.1%) and hires (6.8%). These patterns appear to reflect the relative severity of the three recessions and the speed of their labor market recoveries. That is, average monthly growth rates were lowest (and negative) for the 2001 recession, arguably the mildest recession of the three (with fewer job losses). The largest job losses occurred during the 2020 recession, but recovery has been relatively swift (although incomplete), and consequently growth rates were relatively high as laid-off workers retook their jobs and employers hired new workers.

As noted earlier, as a general pattern, job openings and hires tend to decline during recessions and rise during recoveries, but there are some differences in these patterns across the three recessions covered in the JOLTS series. Job openings continued to decline for about 20 months following the conclusion of the 2001 recession; thereafter, job openings recovered at a strong pace for about 30 months before stabilizing to a slower pace. In contrast, job openings grew at a positive rate soon after the end of the Great Recession, and thereafter had a step-like pattern in which job openings alternated between periods of relatively swift growth and periods of little growth. In short, this means that growth rates vary over non-recessionary periods; they differ from recession-

[26] See discussion in Ryan Ansell and John P. Mullins, "COVID-19 Ends Longest Employment Recovery and Expansion in CES History, Causing Unprecedented Job Losses in 2020," *Monthly Labor Review*, June 2021, https://www.bls.gov/opub/mlr/2021/article/covid-19-ends-longest-employment-expansion-in-ces-history.htm.

[27] The 2001 recession started in March 2001 and ended in November 2001. The Great Recession spanned December 2007 to June 2009. The 2020 recession began in February 2020 and ended in April 2020. Recovery and expansionary periods following each recession varied as well. Analysis of average monthly growth rates is confined to the 12-month period following each of the three recessions to avoid capturing economic conditions at different stages of a non-recessionary period.

[28] These non-recessionary periods include December 2000 to February 2001, December 2001 to November 2007, July 2009 to January 2020, and May 2020 to December 2021.

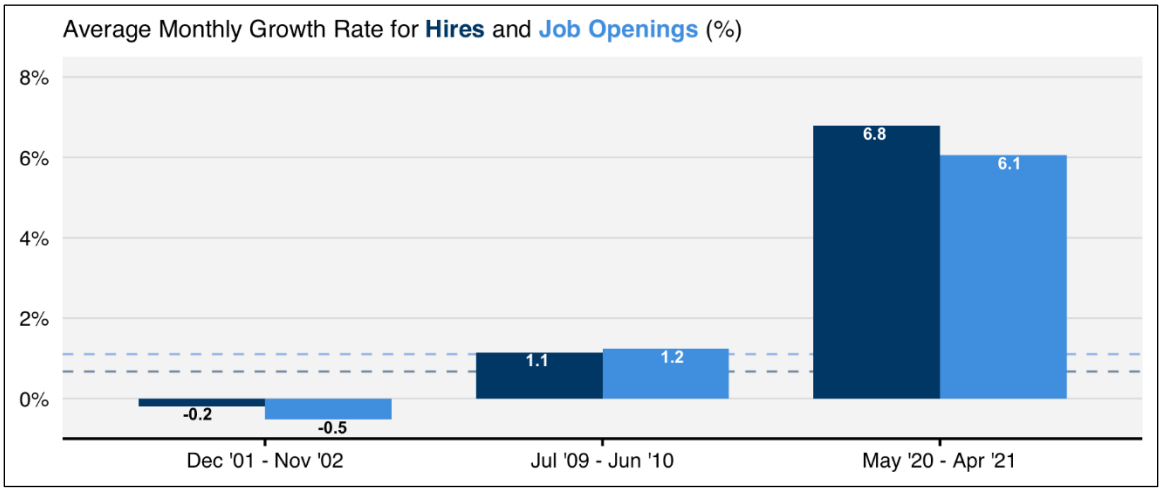
[29] The average over all non-recessionary periods is used as the comparison indicator instead of the average over the entire JOLTS data series because of the cyclicality of the JOLTS indicators. The procyclical indicators grow during non-recessionary periods, and decline during recessionary periods. (The opposite is the case for the countercyclical indicators.) Therefore, if recessionary months were included, the comparison indicator would measure the net effect of opposing forces and it would fail to capture average growth during periods of economic growth.

to-recession, and change over a given period of recovery. For this reason, average monthly growth rates across all non-recessionary periods in the JOLTS data series are not expected to align with rates during the 12-month period following each recession. Nonetheless, the average growth rate across all non-recessionary periods can be a useful yardstick (i.e., as a common reference point across a period of economic growth).

Across all non-recessionary periods in the JOLTS data series, the average monthly growth rate in job openings was 1.1% and in hires was 0.7%. Beginning with the 12-month period following the 2001 recession, the average monthly growth rate in both job openings (-0.5%) and hires (-0.2%) over this period was well below the series (non-recessionary) average for these indicators. This is especially the case for job openings, where the average monthly growth rate following the 2001 recession was 1.6 percentage points below its series average. In the 12-month period following the Great Recession, the average monthly growth rate for both job openings (1.2%) and hires (1.1%) was similar to their series averages. For the 12-month period following the 2020 recession, the average monthly growth rate for both job openings (6.1%) and hires (6.8%) exhibited the greatest deviations from their series averages.

Figure 3. Post-Recession Average Monthly Growth Rate in Hires and Job Openings

Average seasonally adjusted monthly data for the 12-month period following the last three recessions



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Series JTS000000000000000JOL and JTS000000000000000HIL extracted using the JOLTS data series at https://www.bls.gov/data/.

Note: The dashed lines show the average monthly growth rates in hires (0.7%, dark blue) and job openings (1.1%, light blue) in all non-recessionary periods included in the JOLTS data series.

Figure 4 displays the average monthly growth rate for quits and layoffs over the 12-month periods following the 2001 recession, the Great Recession, and the 2020 recession. The figure also includes the average monthly growth rate for quits and layoffs for all non-recessionary months in the JOLTS data series to capture the monthly growth rate in an average non-recessionary month. Quits declined, on average, during the 12-month period after the 2001 recession (i.e., a negative average monthly growth rate for quits, -0.4%); by contrast, there was a positive 0.8% growth rate observed across non-recessionary periods. This is likely due to both the smaller decrease in quits during the 2001 recession, compared to the Great Recession and the 2020 recession, and the continued decrease in quits following the end of the 2001 recession. The growth rate for layoffs in the 12-month period after the 2001 recession was -1.1%, a sharper decrease than the -0.6% rate observed across non-recessionary periods. As seen in **Figure 4**,

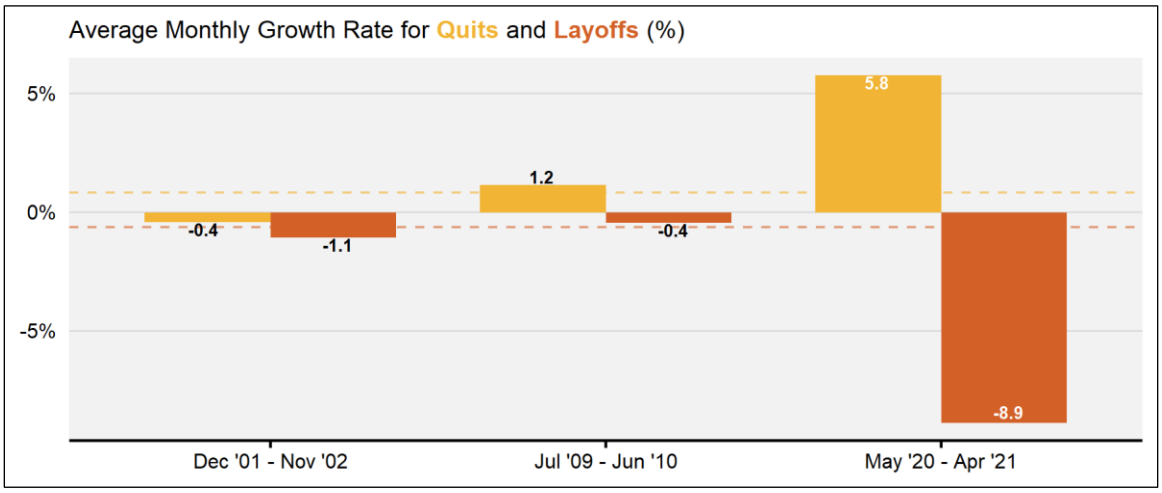
layoffs tend to decrease quickly in the months immediately after the end of a recession and then stay relatively stable during the rest of the non-recessionary period.

The 12-month period after the Great Recession had an average monthly growth rate for quits of 1.2%, which was larger than the growth rate observed across non-recessionary periods, and an average monthly growth rate for layoffs of -0.4%. Compared to the 2001 recession, the 12-month period following the Great Recession exhibited a larger increase in quits but a smaller decrease in layoffs. The greater decrease in the 2001 recession's layoff growth rate was due in large part to the -14.8% decline in layoffs in December 2001, the first month after the end of the recession. That was a greater (i.e., more negative) decrease than any month in the 12-month period following the Great Recession.

The 12-month period after the 2020 recession had a significantly greater increase in quits (5.8%) and decrease in layoffs (-8.9%) compared to the 2001 recession and the Great Recession. Both of these growth rates were also far greater than their respective rates observed across non-recessionary periods. In accordance with the trend in job openings and hires, the growth rates in quits and layoffs in the 12-month period after the 2020 recession showed a quicker, and larger, recovery compared to the prior two recessions.

Figure 4. Post-Recession Average Monthly Growth Rate in Quits and Layoffs

Average seasonally adjusted monthly data for the 12-month period following the last three recessions



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Series JTS000000000000000QUL and JTS000000000000000LDL extracted using the JOLTS data series at https://www.bls.gov/data/.

Note: The dashed lines show the average monthly growth rates in quits (0.8%, yellow) and layoffs (-0.6%, orange) in all non-recessionary periods included in the JOLTS data series.

Job Openings and Labor Turnover by Sector

Sector-level data on the number of job openings, hires, quits, and layoffs provide a more detailed examination of job openings and labor turnover in the U.S. labor market. This section presents analysis on long-term trends in job openings and labor turnover by sector. In addition, this section analyzes the proportion of job openings and labor turnover to total (sector-level) employment to control for differences in sector size (in terms of employment).

Long-Term Trends in the Number of Job Openings, Hires, and Separations by Sector

To aid in comparing patterns across sectors, the figures in this section present trends for relatively large employment sectors (*large sectors*) and relatively small employment sectors (*small sectors*) separately. Sectors are divided based on their overall employment levels in January 2020, which are displayed in the **Appendix**.[30] This is done solely to provide clarity that might be lost if the sectors were analyzed together in a single visual. Moreover, for certain quits and layoffs graphics, the Leisure and Hospitality sector is graphed separately from other sectors. The Leisure and Hospitality sector experienced a substantially larger number of layoffs during the 2020 recession and thus occasionally requires a separate scale in order to be meaningfully visualized.

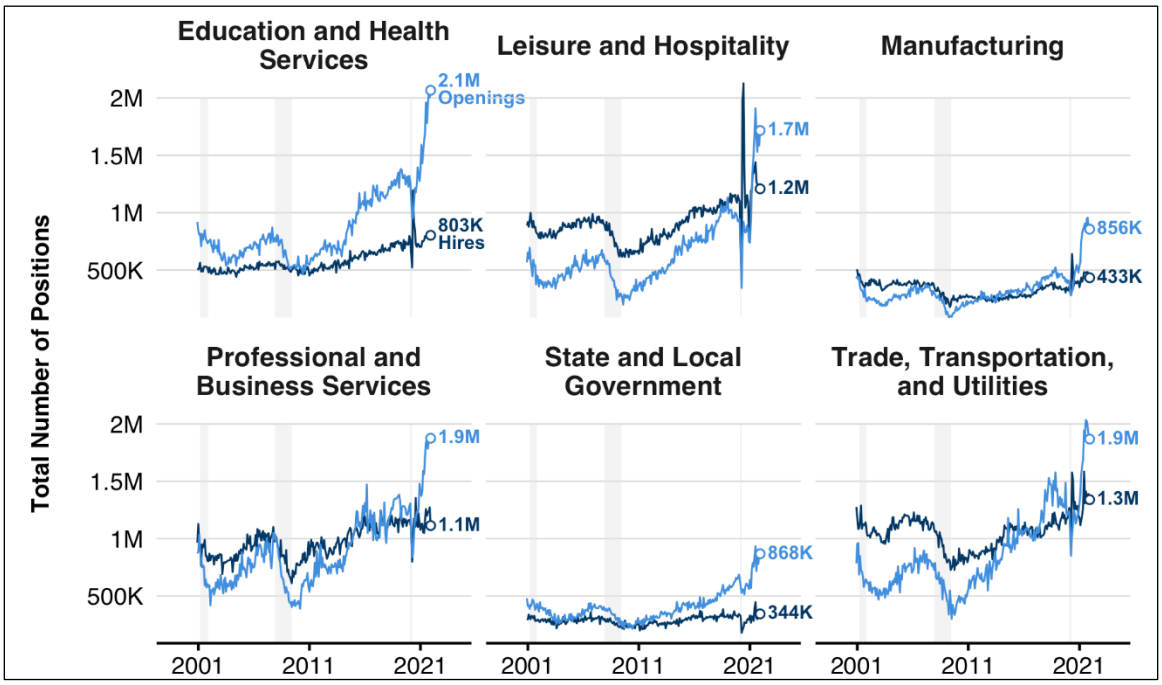
Figure 5 displays the number of job openings and hires between December 2000 and December 2021 for the six large sectors. In general, the large sector patterns for job openings and hires adhere to those established for the national-level data in **Figure 1**. Specifically, there was clear volatility in these estimates from month-to-month, the indicators were procyclical, and there was a general upward trend in job openings and hiring levels over time for each sector. The trends in **Figure 5** also reflect the national data in that the rate of growth in job openings was greater than the rate of growth in hires for almost every month in the time series across every sector. This does not mean that the number of job openings must have been greater than the number of hires. Therefore, for sectors like the Leisure and Hospitality sector, while the number of job openings was less than the number of hires for most of the time series, job openings were still growing at a quicker rate than hires over most of the period.

Two caveats apply to these sector-level data. First, there are limitations to comparing the number of job openings to the number of hires due to differences in reference period (i.e., job openings tends to be a cumulative measure, whereas hires is a distinctly monthly measure). Second, certain sectors are more likely to have a higher number of job openings and hires than others due to differences in employment size and the structure of labor demand in these sectors. This is addressed in more detail in the "Average Monthly Ratios of Job Openings and Labor Turnover to Employment" section.

[30] For the purposes of this report, a North American Industry Classification System (NAICS) supersector is considered to be large if it employed over 10 million individuals in January 2020. A supersector is considered to be small if it employed less than 10 million individuals in January 2020.

Figure 5. Large Sector Job Openings and Hires

Seasonally adjusted monthly data, December 2000 to December 2021



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Multiple data series extracted using the JOLTS data series at https://www.bls.gov/data/.

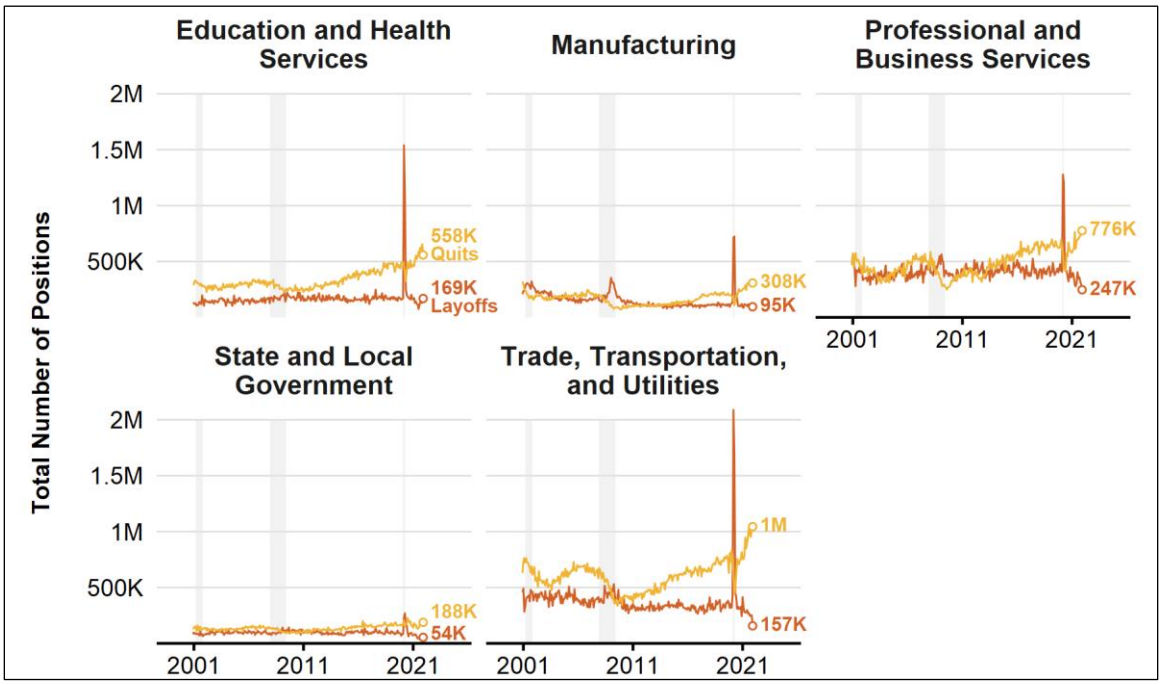
Notes: Shaded regions indicate recessionary periods as identified by the National Bureau of Economic Research. The 2001 recession started in March 2001 and ended in November 2001. The Great Recession started in December 2007 and ended in June 2009. The 2020 recession started in February 2020 and ended in April 2020.

Figure 6 displays the number of quits and layoffs between December 2000 and December 2021 for large sectors. The peak layoff level in the Leisure and Hospitality sector (5.2 million in March 2020) was an outlier compared to all other sectors. As such, the Leisure and Hospitality sector (a large sector) was graphed separately in **Figure 7**. Sector-level patterns in the levels of quits and layoffs illustrated in **Figure 6** are similar to those seen in the national-level data. In particular, there was significant month-over-month volatility in these estimates, and for each large sector the number of quits had a procyclical pattern and the number of layoffs had a countercyclical pattern. During the 2020 recession, all large sectors experienced a decrease in quits and an increase in layoffs. However, the magnitude of these changes varied by sector. After the 2020 recession, quits and layoffs in all large sectors quickly returned to near pre-recession levels. In December 2021, all large sectors had quit levels above their pre-recession levels and all large sectors except Education and Health Services[31] had layoff levels below their pre-recession levels. Recent trends in quits and layoffs are discussed at the end of this report.

[31] The Education and Health Services sector had 169,000 layoffs in December 2021, an increase of 5,000 from its pre-recession level in January 2020 (164,000).

Figure 6. Large Sector Quits and Layoffs

Seasonally adjusted monthly data, December 2000 to December 2021



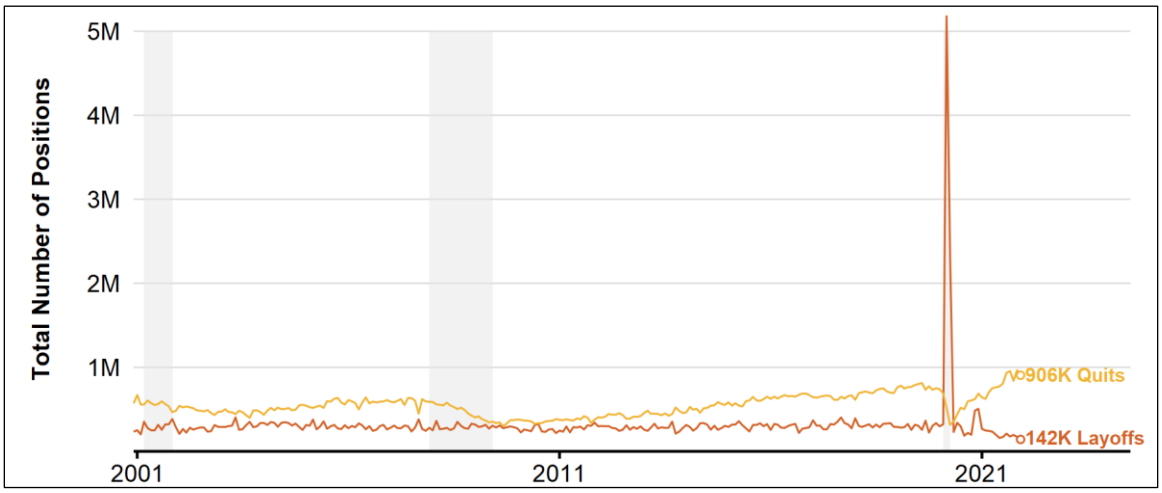
Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Multiple data series extracted using the JOLTS data series at https://www.bls.gov/data/.

Notes: Layoffs include layoffs and discharges. Shaded regions indicate recessionary periods as identified by the National Bureau of Economic Research. The 2001 recession started in March 2001 and ended in November 2001. The Great Recession started in December 2007 and ended in June 2009. The 2020 recession started in February 2020 and ended in April 2020.

Figure 7 displays the number of quits and layoffs in the Leisure and Hospitality sector between December 2000 and December 2021. Like the other large sectors, the Leisure and Hospitality sector exhibited month-to-month volatility in the number of quits and layoffs, and had a procyclical pattern for quits and a countercyclical pattern for layoffs. Layoffs in the Leisure and Hospitality sector peaked at 5.2 million in March 2020, and were substantially higher than all other sectors. Quits decreased from 739,000 in January 2020 to 316,000 in April 2020. After the 2020 recession, quits and layoffs in the sector quickly returned to near pre-recession levels. In December 2021, quits were higher than the pre-recession level and layoffs were lower than the pre-recession level.

Figure 7. Leisure and Hospitality Sector Quits and Layoffs

Seasonally adjusted monthly data, December 2000 to December 2021



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Series JTS700000000000000QUL and JTS700000000000000LDL extracted using the JOLTS data series at https://www.bls.gov/data/.

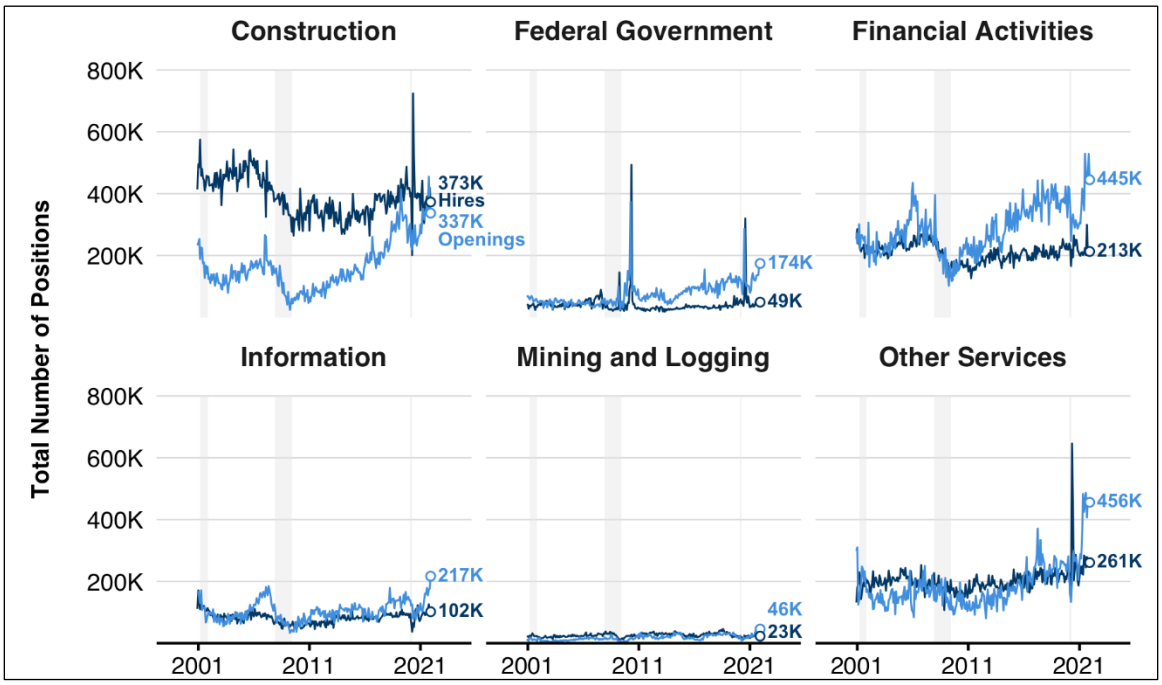
Notes: Layoffs include layoffs and discharges. Shaded regions indicate recessionary periods as identified by the National Bureau of Economic Research. The 2001 recession started in March 2001 and ended in November 2001. The Great Recession started in December 2007 and ended in June 2009. The 2020 recession started in February 2020 and ended in April 2020.

Figure 8 displays the number of job openings and hires between December 2000 and December 2021 for the small sectors. It shows that the trends for small sectors also adhered to the three patterns discussed for national-level data for job openings and hires (i.e., month-to-month volatility, procyclical patterns, and generally upward long-term trends). Despite those shared features, small sectors varied widely from each other in the numbers of job openings and hires, complicating cross-sector comparisons.[32] (For the Federal Government sector, the large spikes in job openings and hires in 2010 and again in 2020 can be attributed to the job openings and temporary hires associated with the Decennial Census conducted by the U.S. Census Bureau.)

[32] This is addressed in the "Average Monthly Ratios of Job Openings and Labor Turnover to Employment" section of this report.

Figure 8. Small Sector Job Openings and Hires

Seasonally adjusted monthly data, December 2000 to December 2021



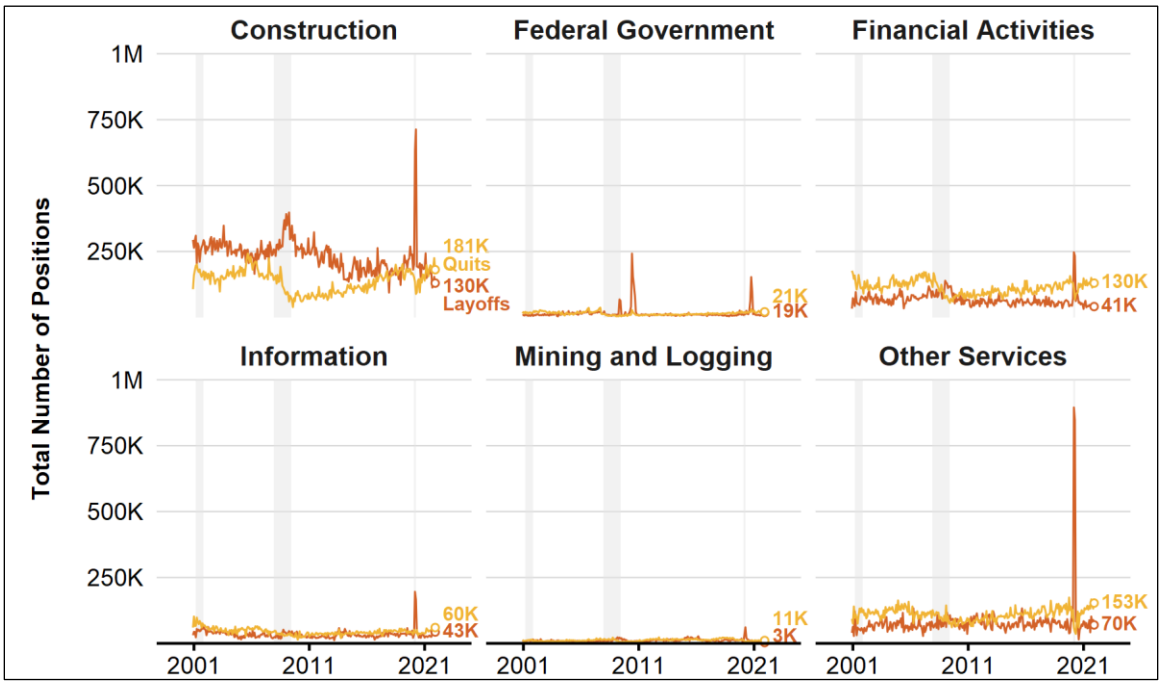
Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Multiple data series extracted using the JOLTS data series at https://www.bls.gov/data/.

Notes: Shaded regions indicate recessionary periods as identified by the National Bureau of Economic Research. The 2001 recession started in March 2001 and ended in November 2001. The Great Recession started in December 2007 and ended in June 2009. The 2020 recession started in February 2020 and ended in April 2020. For the Federal Government sector, the large spikes in job openings and hires in 2010 and again in 2020 can be attributed to the job openings and temporary hires associated with the Decennial Census conducted by the U.S. Census Bureau.

Figure 9 displays the number of quits and layoffs between December 2000 and December 2021 for the small sectors. These data adhere to the trends that were identified in the national-level data (i.e., month-to-month volatility, and cyclical patterns). There was also a significant amount of variation in the number of quits and layoffs across small sectors. As observed in the job openings and hiring data, this can make visual comparisons across the sectors difficult. (For the Federal Government sector, the spike in layoffs in 2010 and 2020 can be attributed to the expiration of temporary positions associated with the Decennial Census conducted by the U.S. Census Bureau.)

Figure 9. Small Sector Quits and Layoffs

Seasonally adjusted monthly data, December 2000 to December 2021



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Multiple data series extracted using the JOLTS data series at https://www.bls.gov/data/.

Notes: Layoffs include layoffs and discharges. Shaded regions indicate recessionary periods as identified by the National Bureau of Economic Research. The 2001 recession started in March 2001 and ended in November 2001. The Great Recession started in December 2007 and ended in June 2009. The 2020 recession started in February 2020 and ended in April 2020. For the Federal Government sector, the spikes in layoffs in 2010 and 2020 can be attributed to the expiration of temporary positions associated with the Decennial Census conducted by the U.S. Census Bureau.

The level of employment in each sector is one significant factor that affects these numbers—if a sector employs more workers, it will likely also have a greater number of job openings, hires, quits, and layoffs. In addition, certain sectors tend to have greater labor turnover than others.[33] The ratios of job openings to employment (see **Figure 10**) and labor turnover to employment (see **Figure 11**) can provide additional context to whether or not the variation in levels was purely a factor of sector employment levels.

Average Monthly Ratios of Job Openings and Labor Turnover to Employment

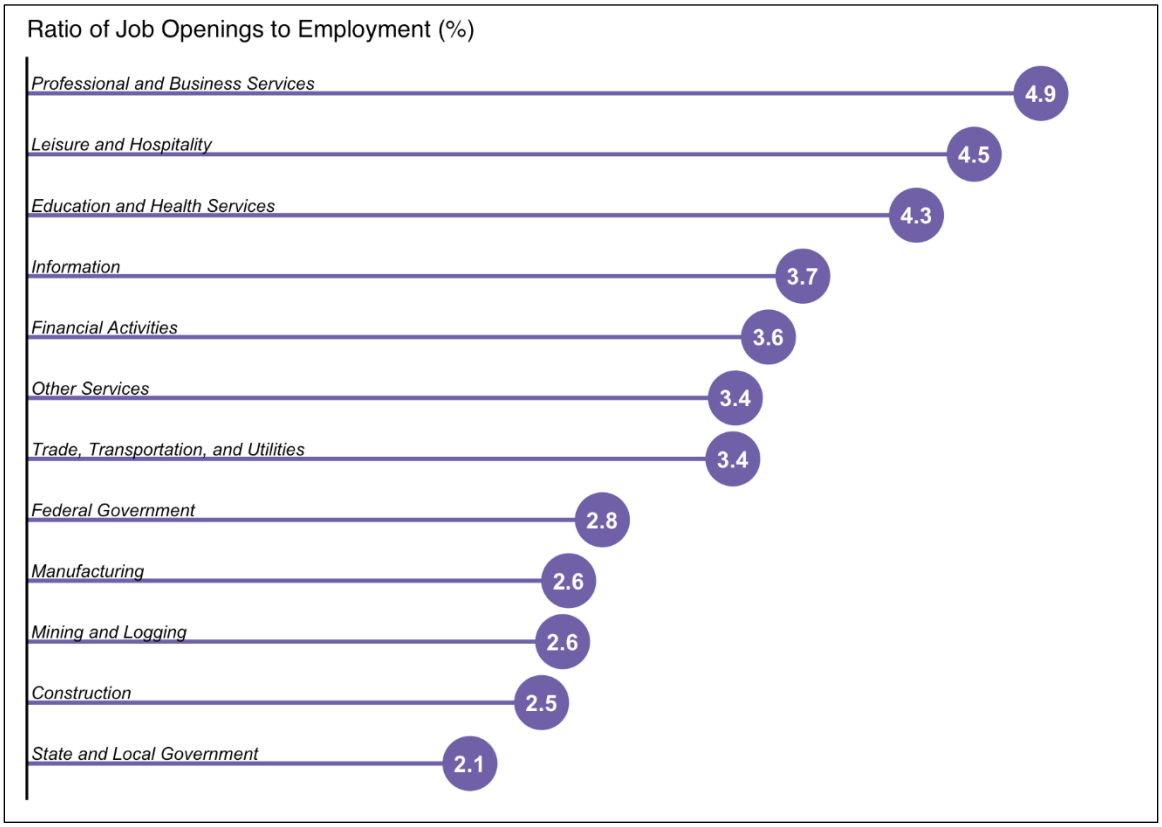
Figure 10 displays the average monthly ratio of job openings to employment across all non-recessionary months between December 2000 and December 2021 for both large and small sectors. By controlling for differences in employment levels, the figure highlights per-worker difference in the number of monthly job openings across sectors. For example, the State and Local Government sector, despite having the fourth-highest employment amongst the sectors, had

[33] See, for example, the discussion in BLS, "Which industries need workers? Exploring differences in labor market activity," *Monthly Labor Review*, January 2016, at https://www.bls.gov/opub/mlr/2016/article/which-industries-need-workers-exploring-differences-in-labor-market-activity.htm.

the lowest ratio of job openings to employment. This means that job openings made up a much smaller share of employment in this industry than they did in a sector like the Professional and Business Services sector. On the other hand, the Leisure and Hospitality sector had the second highest ratio of job openings to employment despite having the fifth highest level of employment. In short, the ratios in **Figure 10** emphasize that the number of individuals employed in a particular industry is not the only factor determining the number of job openings for that industry, and they highlight differences in the intensity of labor demand (as measured by job openings) across sectors.

Figure 10. Average Ratio of Job Openings to Employment, All Sectors

Average seasonally adjusted monthly data for all non-recessionary periods between December 2000 and December 2021



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Multiple data series extracted using the JOLTS and Current Employment Statistics data series at https://www.bls.gov/data/.

Notes: To determine the ratio of job openings to employment, the first step is to divide job openings by employment for each non-recessionary month between December 2000 and December 2021. The second step involves determining the average of these monthly ratios. The result is then multiplied by 100 to get the value displayed in the figure.

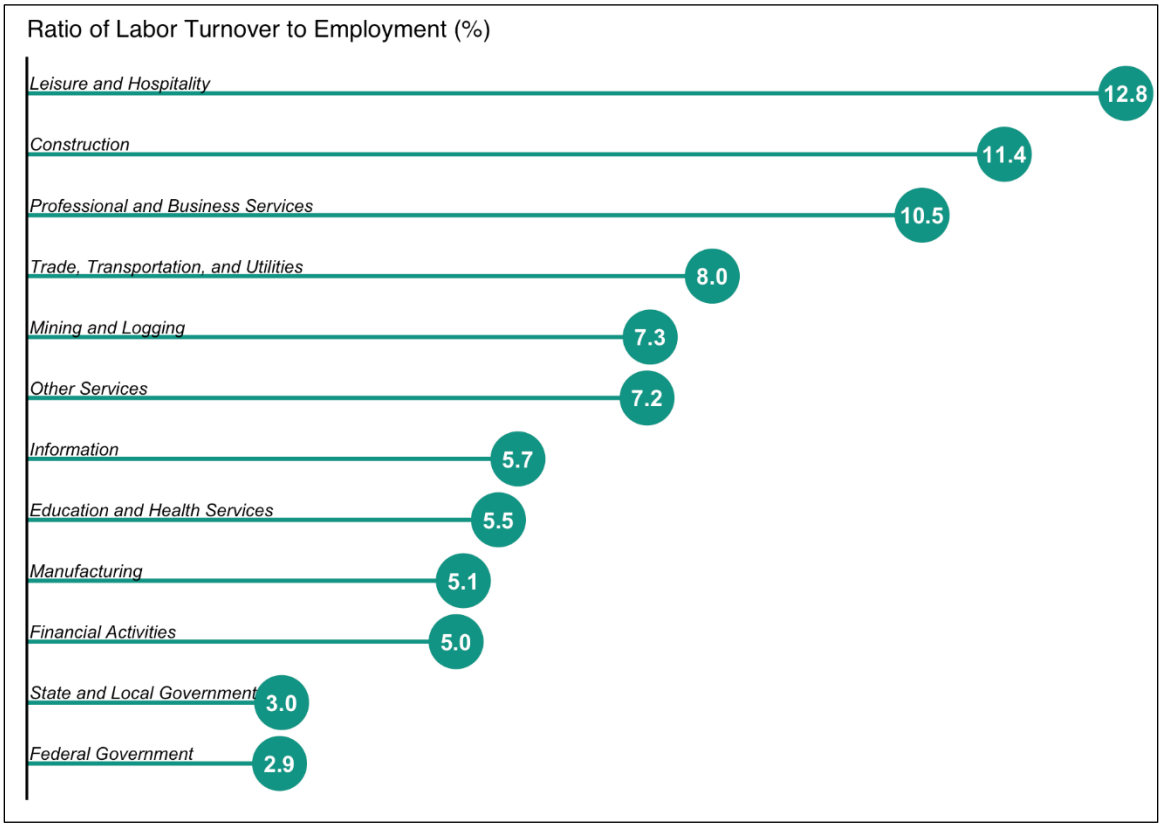
Figure 11 displays the average monthly ratio of labor turnover (i.e., the sum of hires and separations in a given month) to employment across all non-recessionary months between December 2000 and December 2021 for both large and small sectors.[34] Industry-level labor turnover gauges the movement of workers into (through hires) and out of (through separations) a

[34] The labor turnover figure is separate from **Figure 10** because hires and separations are measured over a specific period while the number of job openings accumulates over time.

particular industry, and reflects a range of industry characteristics such as workplace culture and employee satisfaction, career path structures, and industry growth. Similar to the ratio of job openings to employment (**Figure 10**), the ratio of labor turnover to employment provides a way to compare labor turnover across sectors of different sizes (in terms of employment). A higher (lower) ratio of labor turnover to employment indicates greater (less) movement into and out of jobs in a given sector, per employee. For example, the Leisure and Hospitality sector, while having moderate employment levels, had the greatest ratio of hires and separations to employment. On the other hand, the Education and Health Services sector, while having high employment levels, had a relatively low ratio of hires and separations to employment. This suggests that labor turnover is higher, as a share of employment. Both of the ratios in this section emphasize the importance of considering the relative prevalence of job openings and labor turnover in a particular sector when comparing JOLTS metrics across sectors.[35]

Figure 11. Average Ratio of Labor Turnover to Employment, All Sectors

Average seasonally adjusted monthly data for all non-recessionary periods between December 2000 and December 2021



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Multiple data series extracted using the JOLTS and Current Employment Statistics data series at https://www.bls.gov/data/.

[35] Industry rankings for labor turnover ratios (**Figure 11**) do not always mirror those for job opening ratios (**Figure 10**) during non-recessionary periods. For example, the construction industry has a relatively low job openings ratio and a relatively high turnover ratio. This pattern could perhaps indicate that workers' movement in and out of construction jobs is elevated in non-recessionary times (i.e., as construction projects begin and end, and workers change jobs in search of the most attractive project), and that construction firms may be particularly successful in filling openings during these periods (e.g., by offering competitive pay and benefits) and consequently relatively few openings remain at the end of the month.

Notes: To determine the ratio of labor turnover to employment, the first step is to divide the sum of hires and separations by employment for each month between December 2000 and December 2021. The second step involves determining the average of these monthly ratios. The result is then multiplied by 100 to get the value displayed in the figure.

Average Monthly Growth Rates Following a Recession, by Sector

Figure 12 displays the average monthly growth rate in job openings and hires, by sector, over the 12-month periods that followed each of the last three recessions. (A brief discussion of these recessions is in the "The 2001, 2007-2009, and 2020 Recessions" text box.) Similar to **Figure 3**, each sector's average post-recession monthly growth rate is included to gauge whether and how the 12-month post-recession average monthly growth rate in job openings and hires differed from the average post-recession monthly growth rate. The Federal Government sector is excluded from **Figure 12** because of the unique impact of the Decennial Census on the number of job openings and hires for both the July 2009 to June 2010 period and the May 2020 to April 2021 period (see **Figure A-2** for a stand-alone visual for the Federal Government sector).

Beginning with the 12-month period following the 2001 recession, there was some variation across sectors in both the direction and magnitude of the average monthly growth rates for job openings and hires over this period. For example, the Construction sector had a negative average monthly growth rate for job openings (-1.7%) and hires (-0.5%), whereas the Professional and Business Services sector had a positive growth rate for job openings (0.8%) and hires (0.4%). Almost every sector had an average monthly growth rate in both job openings and hires that was below their series average for non-recessionary periods, likely reflecting the well-documented slowness of the recovery from the 2001 recession.

Certain sectors experienced much lower job openings and hires growth rates than others during the 12-month recovery period following the Great Recession. For example, the Other Services sector had a negative average monthly growth rate in hires (-1.0%) and on average experienced no growth in job openings. Both of these values were below the average monthly growth rate in job openings (2.9%) and hires (2.1%) for all non-recessionary months in the JOLTS series for this sector. The Education and Health Services sector and the State and Local Government sector were also below their respective series average. By contrast, the Mining and Logging sector exhibited high average monthly growth rates for both hires (5.0%) and job openings (13.9%) in the wake of the Great Recession. Both metrics were well above the average monthly growth rates for these indicators for all non-recessionary months in the entire JOLTS series for this sector (2.0% and 5.3%, respectively). Other sectors with similar patterns were the Financial Activities sector, the Manufacturing sector, and the Professional and Business Services sector, all of which experienced large losses during the recession. In general, growth rates for sector-level job openings tended to exceed their respective hire rates.

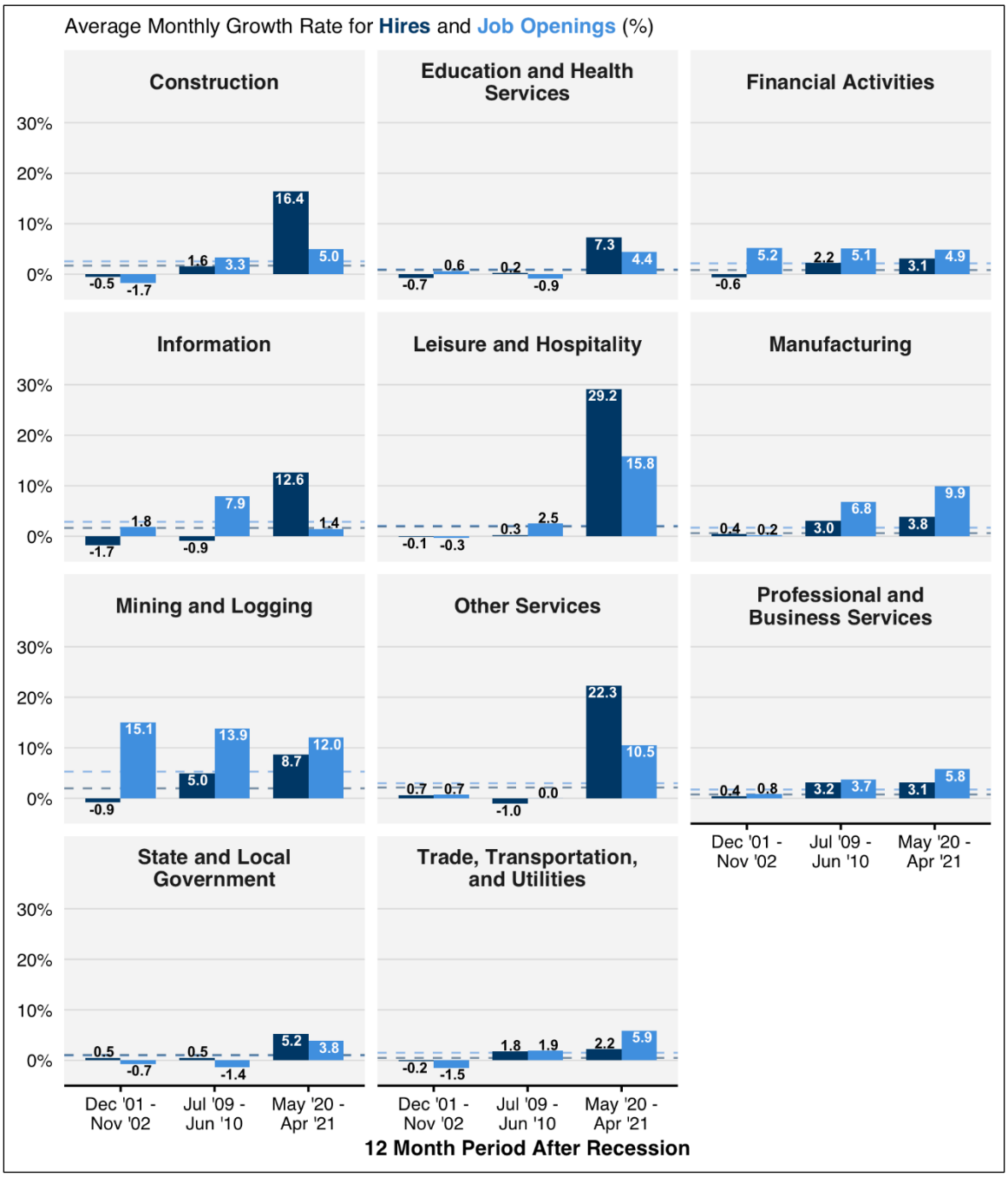
The sector-level average monthly growth rates in job openings and hires were more uniform in their direction and magnitude in the 12-month period following the 2020 recession as compared to the 12-months periods following the prior two recessions. Almost every sector had an average monthly growth rate in job openings and hires for the 12-month period that followed the 2020 recession that was above its respective average monthly growth rate for a non-recessionary period. The Leisure and Hospitality sector and the Other Services sector led the way with respective average monthly growth rates in hires at 29.2% and 22.3%, as well as respective average monthly growth rates in job openings at 15.8% and 10.5%. As noted earlier, these sectors

both endured heavy job losses during the brief 2020 recession.[36] The Information sector—the one sector with an average monthly growth rate for job openings that was below its average monthly growth rate for a non-recessionary period (1.4% versus 2.9%)—had a high average monthly growth rate in hires (12.6%), which was much higher than its average monthly growth rate for a non-recessionary period (1.7%).

[36] Between February and April 2020, employment in the Leisure and Hospitality sector declined by 48.6% and the Other Services sector (which includes private household workers, repair services, temporary parking, and other services) fell by 23.7%.

Figure 12. Average Monthly Growth Rate in Hires and Job Openings, All Sectors

Average seasonally adjusted monthly data for the 12-month periods following the last three recessions



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Multiple data series extracted using the JOLTs data series at https://www.bls.gov/data/.

Note: The dashed lines show the average monthly growth rates in hires (dark blue) and job openings (light blue) for each sector in all non-recessionary periods included in the JOLTS data series.

Figure 13 displays the average monthly growth rate for quits and layoffs, by sector, over the 12-month periods that followed each of the last three recessions. Each sector's average post-recession monthly growth rate is included to gauge whether and how the 12-month post-recession

average monthly growth rate in quits and layoffs differed from the average post-recession monthly growth rate. The Federal Government sector is excluded from the figure because of the unique impact of the Decennial Census on the number of quits and layoffs for both the July 2009 to June 2010 period and the May 2020 to April 2021 period (see Figure A-2 for a stand-alone visual for the Federal Government sector).

There was considerable variability among sectors in the average monthly growth rates for quits and layoffs in the 12-month period following the 2001 recession. Certain sectors (such as Mining and Logging and Financial Activities) had a positive average monthly growth rate for quits, while others (such as Construction and Leisure and Hospitality) had negative growth rates. All sectors except Mining and Logging and Professional and Business Services had a growth rate for quits that was below the average rate across all non-recessionary periods between December 2000 and December 2021, indicating a slower recovery of quits. Similarly, some sectors experienced negative growth rates for layoffs (see Manufacturing and Professional and Business Services), while others had positive growth rates for layoffs (see Other Services and State and Local Government). All sectors except State and Local Government had a lower growth rate in layoffs compared to the growth rate observed across non-recessionary periods. This is consistent with the earlier observation that layoffs tend to decrease in the immediate months after the end of a recession and then stay relatively stable during the rest of the non-recessionary period.

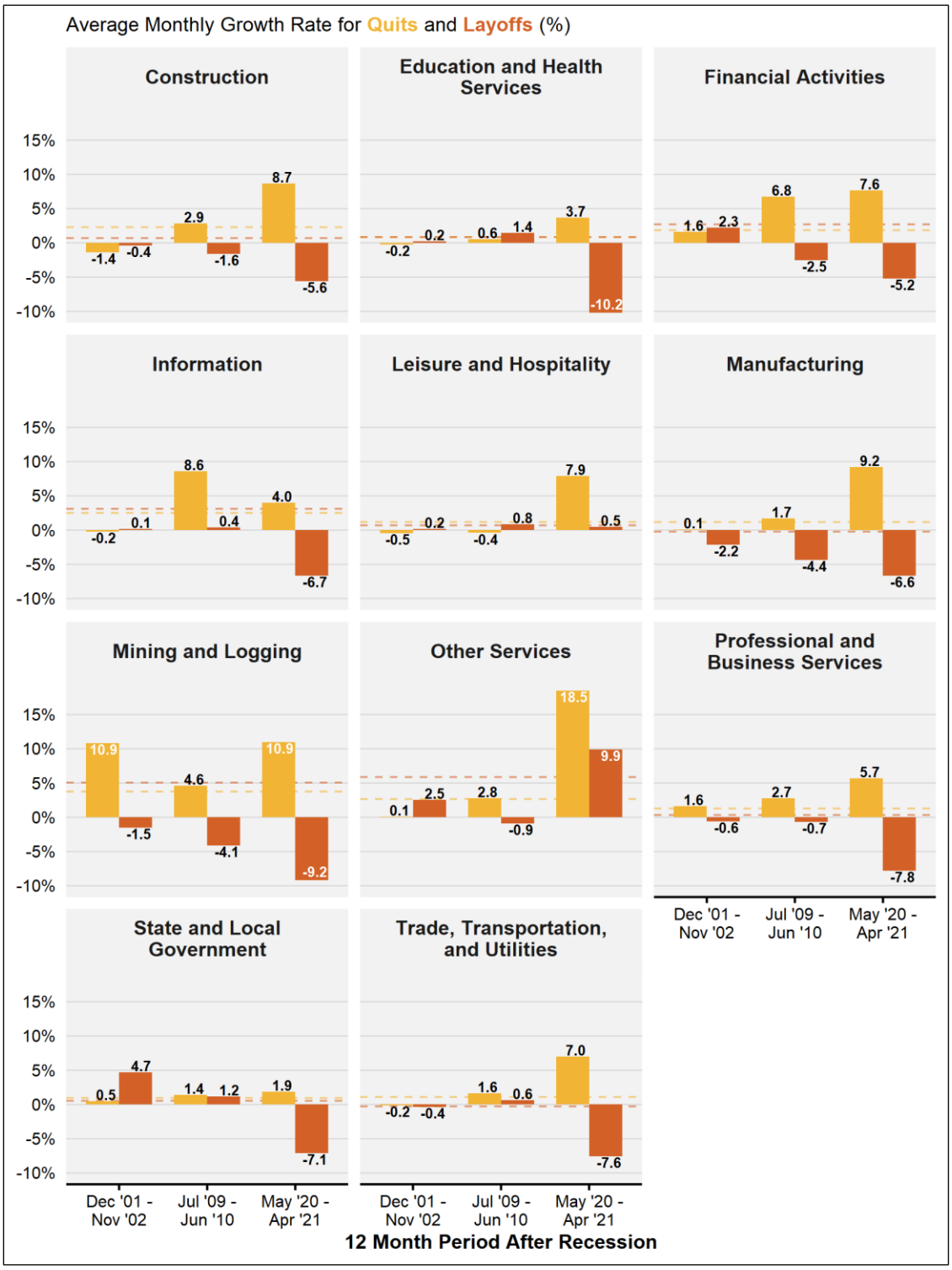
A common pattern across sectors did not emerge for the average monthly growth rates for quits and layoffs during the 12-month period following the Great Recession. Each sector except Leisure and Hospitality had a positive growth rate for quits but the magnitude ranged from 0.6% (Education and Health Services) to 8.6% (Information). Unlike the 2001 recession, all sectors except Leisure and Hospitality and Education and Health Services had a higher growth rate for quits compared to the average rate across all non-recessionary periods. Six sectors had negative growth rates for layoffs and five sectors had positive growth rates. Seven sectors had a lower growth rate in layoffs than the growth rate observed across non-recessionary periods and four sectors had higher growth rates.

The 12-month period following the 2020 recession showed a quicker and more uniform average growth in quits and layoffs across sectors. Each sector had a high average monthly growth rate for quits that was larger than the growth rate observed across all non-recessionary periods. Every sector also had a growth rate for quits in the 12-month period following the 2020 recession that was greater than the 12-month periods following the two prior recessions.[37] Every sector except for Other Services had a growth rate for layoffs that was below the growth rate observed across non-recessionary periods. With the exception of Leisure and Hospitality and Other Services, layoff growth rates in each sector were negative and lower than the 12-month averages for the periods following the prior two recessions. The Leisure and Hospitality sector had a positive growth rate for layoffs (0.5%); growth was slightly above the rate in the 12-month period following the 2001 recession (0.2%). The Other Services sector had a notably high growth rate for layoffs (9.9%). However, this rate was driven by an outlier observation in September 2020 when layoffs in the Other Services sectors increased from 15,000 to 52,000, a 247% increase. If September 2020 were to be excluded from analysis, the Other Services sector would have had a -11.6% average growth rate for layoffs in the 12-month period following the 2020 recession.

[37] The average monthly growth rate for quits in the Mining and Logging sector was 10.95% in the 12-month period following the 2020 recession, which was slightly above the 10.85% rate observed in the 12-month period following the 2001 recession. Values are rounded to the nearest tenth in **Figure 13**.

Figure 13. Average Monthly Growth Rate in Quits and Layoffs, All Sectors

Average seasonally adjusted monthly data for the 12-month periods following the last three recessions



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Multiple data series extracted using the JOLTS data series at https://www.bls.gov/data/.

Note: The dashed lines show the average monthly growth rates in quits (yellow) and layoffs (orange) for each sector in all non-recessionary periods included in the JOLTS data series.

Recent Job Openings and Labor Turnover Data

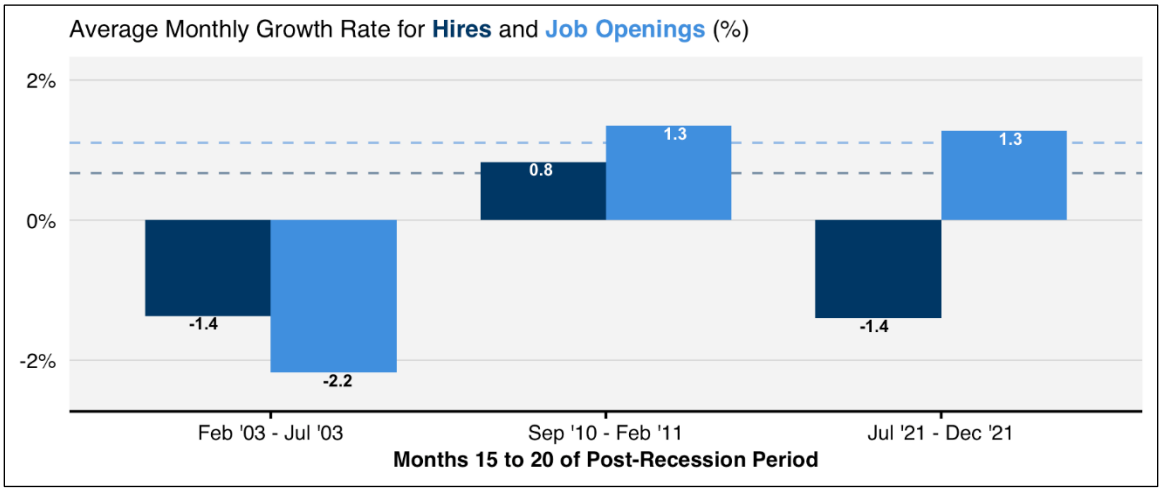
As labor demand recovers from the initial shock of the COVID-19 pandemic, more attention has been paid to job openings and labor turnover data. Reports of job openings reaching high levels (the highest that have been seen in the JOLTS data series) have bolstered concerns about labor shortages.[38] This section examines average monthly growth rates for job openings and labor turnover over the most recent six-month period for which data are available. As of the cover date of this report, the most current BLS JOLTS data are for December 2021, and the six-month period from July 2021 to December 2021 occurred 15-20 months after the 2020 recession concluded in April 2020. These rates are compared to similar six-month periods (occurring 15-20 months following the recession) for the 2001 and 2007-2009 recessions, as well as to the average post-recession monthly growth rate. This analysis is conducted at the national and sector levels.

Figure 14 displays the average monthly growth rate in job openings and hires for the 15th to 20th months of the most recent three non-recessionary periods, and the average monthly growth rate in job openings (1.1%) and hires (0.7%) across all non-recessionary periods in the JOLTS data series. Job openings increased at an average monthly rate of 1.3% and hires decreased at an average monthly rate of 1.4% over the most recent six-month period. The rate for job openings (1.3%) was very similar to the average monthly growth rate in job openings for all non-recessionary periods (1.1%) as well as the average monthly growth rate for the same six-month period following the 2007-2009 recession (1.3%). The rate for hires (-1.4%) was well below the average monthly growth rate across all non-recessionary periods for hires (0.7%), and very similar to the average monthly growth rate in hires for the same period following the 2001 recession (-1.4%).

[38] See, for example, U.S. Chamber of Commerce, "Businesses Struggle to Find and Keep Workers Amid Record-High Job Openings," September 2, 2021, https://www.uschamber.com/workforce/businesses-struggle-find-and-keep-workers-amid-record-high-job-openings; and Eli Rosenberg, Abha Bhattarai and Andrew Van Dam, "A record number of workers are quitting their jobs, empowered by new leverage," *The Washington Post*, October 12, 2021, https://www.washingtonpost.com/business/2021/10/12/jolts-workers-quitting-august-pandemic/.

Figure 14. Six-Month Average Monthly Growth Rate in Hires and Job Openings

Average seasonally adjusted data for the six-month period that occurred 15-20 months following the start of a non-recessionary period



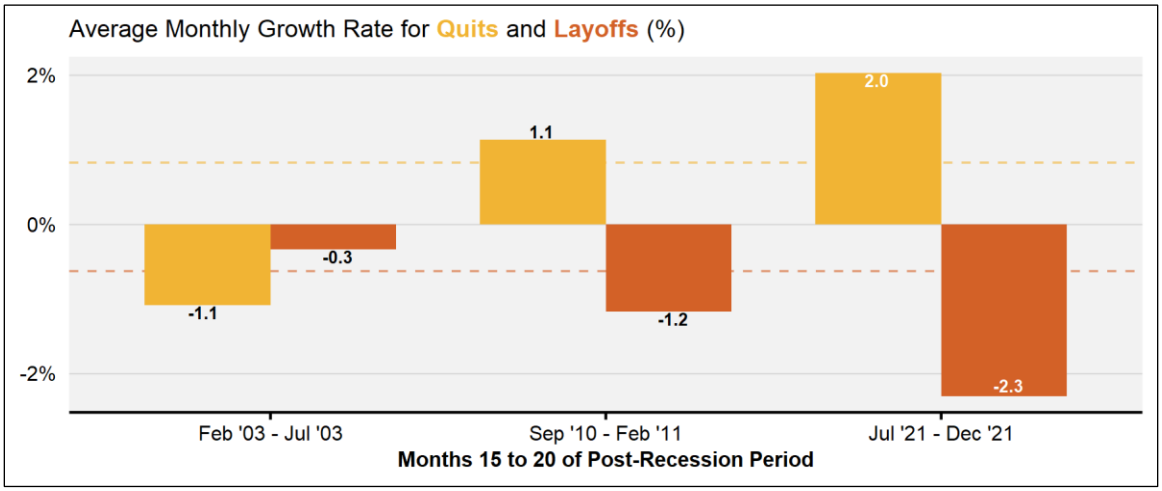
Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Series JTS000000000000000JOL and JTS000000000000000HIL extracted using the JOLTS data series at https://www.bls.gov/data/.

Note: The dashed lines show the average monthly growth rates in hires (0.7%, dark blue) and job openings (1.1%, light blue) in all non-recessionary periods included in the JOLTS data series.

Figure 15 displays the average monthly growth rate in quits and layoffs for the 15th to 20th months of the most recent three non-recessionary periods, and the average monthly growth rate in quits (0.8%) and layoffs (-0.6%) across all non-recessionary periods in the JOLTS data series. The most recent six-month period (July 2021 to December 2021) had a higher growth rate for quits (2.0%) and a more negative growth rate for layoffs (-2.3%) compared to the similar six-month periods in the prior two non-recessionary periods. Average growth rates in quits and layoffs over the July-December 2021 period were more pronounced than the average rates in non-recessionary periods.

Figure 15. Six-Month Average Monthly Growth Rate in Quits and Layoffs

Average seasonally adjusted data for the six-month period that occurred 15-20 months following the start of a non-recessionary period



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Series JTS000000000000000QUL and JTS000000000000000LDL extracted using the JOLTS data series at https://www.bls.gov/data/.

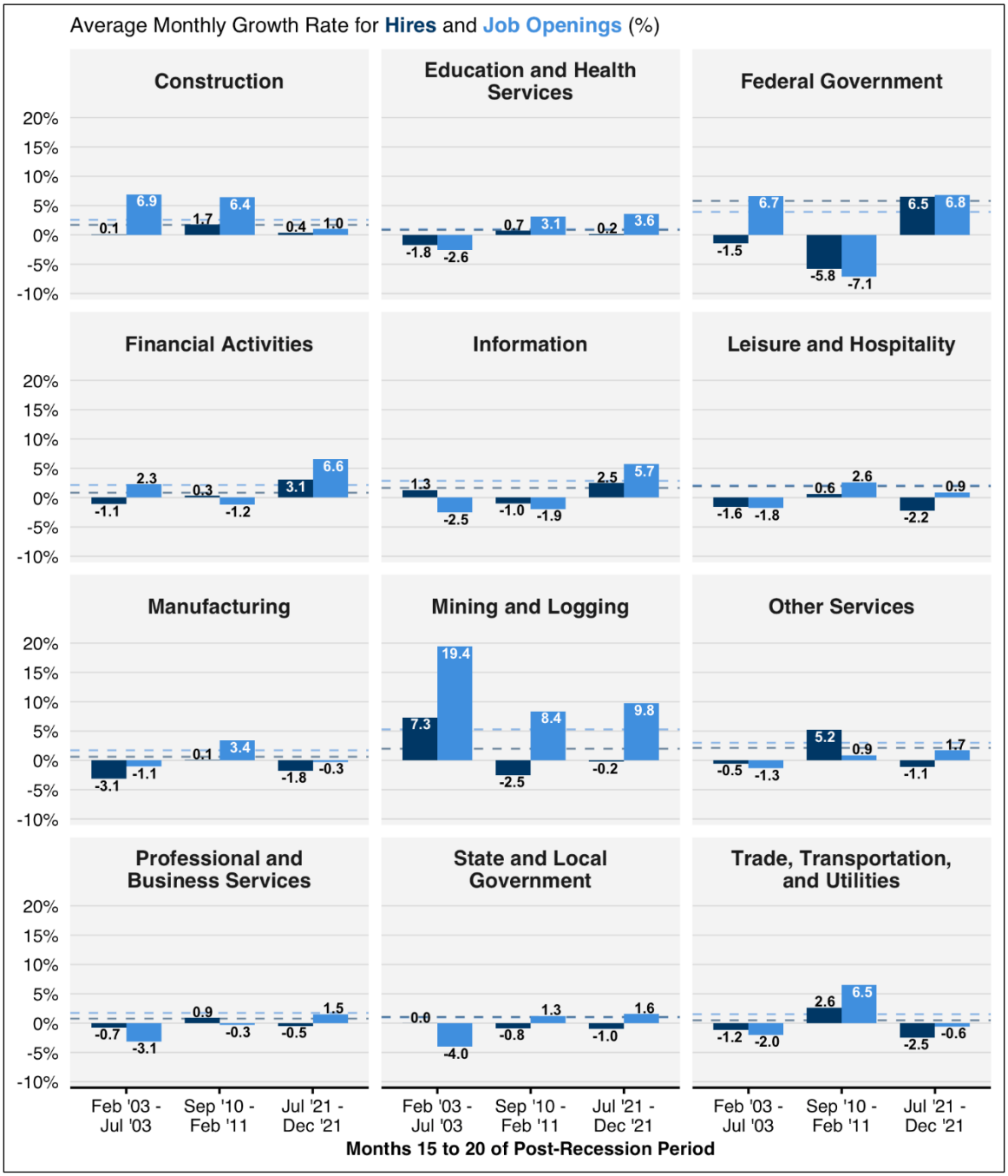
Note: The dashed lines show the average monthly growth rates in quits (0.8%, yellow) and layoffs (-0.6%, orange) in all non-recessionary periods included in the JOLTS data series.

Figure 16 shows the sector-level average monthly growth rates in job openings and hires for the 15th to 20th months of the three most recent non-recessionary periods, and the sector-level average monthly growth rate for these two indicators during non-recessionary periods. A few points of interest stand out. There are six sectors[39] for which the average monthly growth rate in job openings over the period of July 2021 to December 2021 was below the same value over all non-recessionary periods. These sectors reflect a trend in the national-level data of slowing growth in the number of job openings. The sectors for which the average monthly growth rate in job openings over the period of July 2021 to December 2021 was above its non-recessionary average were the Education and Health Services sector, Financial Activities sector, Information sector, Mining and Logging sector, State and Local Government sector, and Federal Government sector. On the hiring side, 9 of the 12 sectors had average monthly growth rates for the July 2021 to December 2021 period that were below their non-recessionary average. Three sectors—the Information sector, Financial Activities sector, and Federal Government sector—had above-average growth rates in hiring for this period.

[39] These six sectors include the Construction sector, Leisure and Hospitality sector, Manufacturing sector, Other Services sector, Professional and Business Services sector, and the Trade, Transportation, and Utilities sector.

Figure 16. Six-Month Average Monthly Growth Rate in Hires and Job Openings, All Sectors

Average seasonally adjusted data for the six-month period that occurred 15-20 months following the start of a non-recessionary period



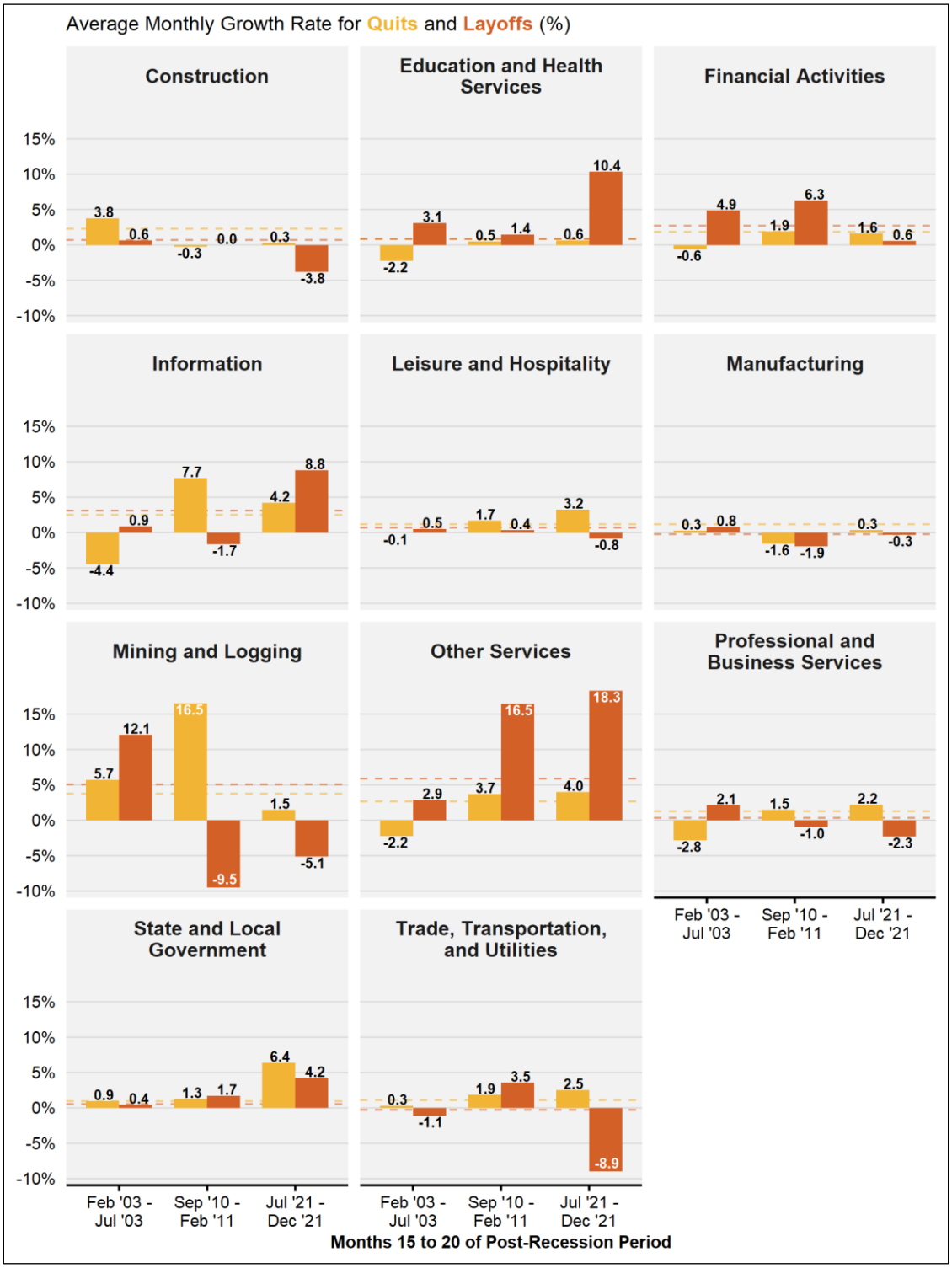
Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Multiple data series extracted using the JOLTS data series at https://www.bls.gov/data/.

Note: The dashed lines show the average monthly growth rates in hires (dark blue) and job openings (light blue) for each sector in all non-recessionary periods included in the JOLTS data series.

Figure 17 shows the sector-level average monthly growth rates in quits and layoffs for the 15th to 20th months of the three most recent non-recessionary periods, and the sector-level average monthly growth rate for these two indicators during non-recessionary periods. The growth rates in quits and layoffs showed considerable variability both within sectors and between sectors. In general, most sectors had a high growth rate in quits during the most recent six-month period (July 2021 to December 2021). All sectors had a positive growth rate in quits and 6 of the 11 sectors had a growth rate in quits that was above the rate for all non-recessionary periods between December 2000 and December 2021. Seven of the eleven sectors had growth rates in layoffs that were below the average rate for non-recessionary periods. Six sectors had negative growth rates in layoffs and five sectors had positive growth rates. Of the sectors with negative growth in layoffs during the most recent six-month period, all except for Manufacturing and Mining and Logging had a growth rate in layoffs that was lower than both the similar six-month periods of the prior two non-recessionary periods. The Federal Government sector is excluded from the figure because of the unique impact of the Decennial Census on the number of quits and layoffs for both the September 2010 to February 2011 period and the July 2021 to December 2021 period (see **Figure A-4** for a stand-alone visual for the Federal Government sector).

Figure 17. Six-Month Average Monthly Growth Rate in Quits and Layoffs, All Sectors

Average seasonally adjusted data for the six-month period that occurred 15-20 months following the start of a non-recessionary period



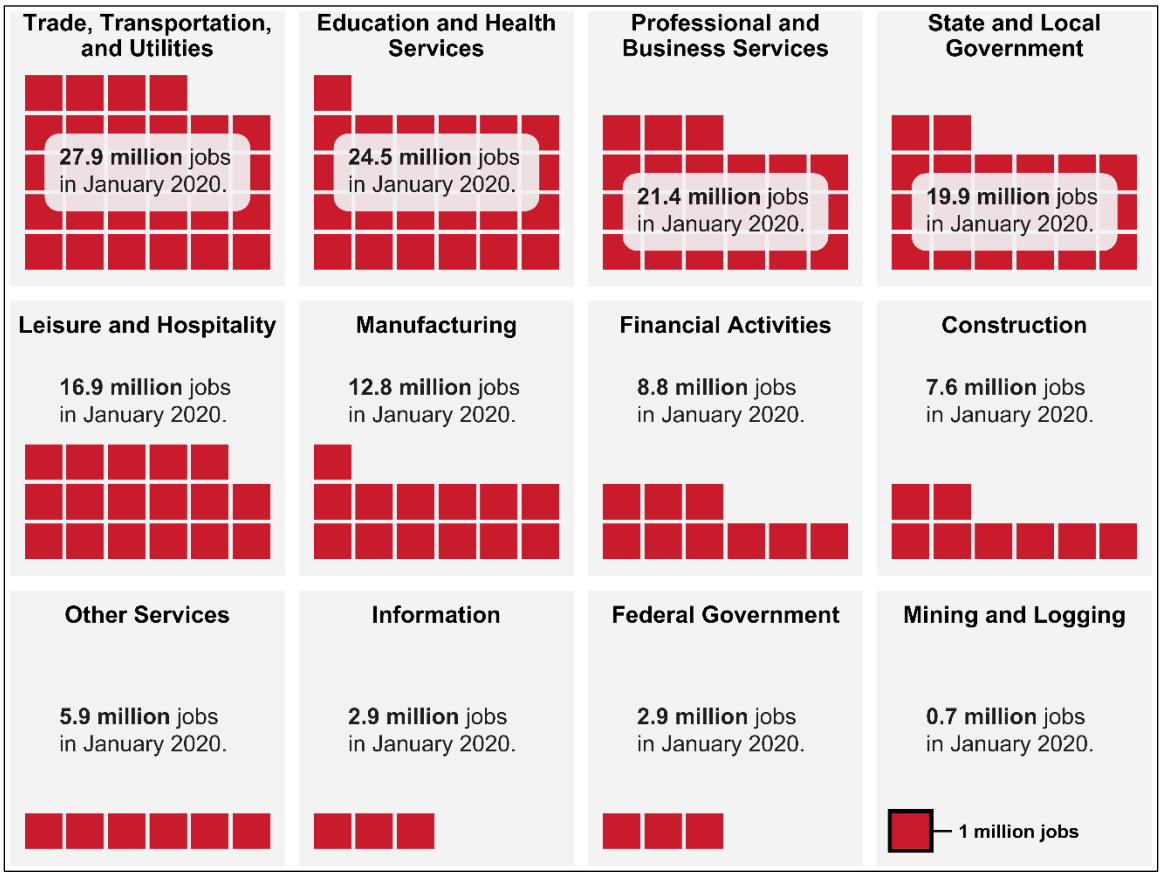
Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Multiple data series extracted using the JOLTS data series at https://www.bls.gov/data/.

Note: The dashed lines show the average monthly growth rates in quits (yellow) and layoffs (orange), for each sector in all non-recessionary periods included in the JOLTS data series.

Appendix. Supplementary Figures

Figure A-1. January 2020 Employment by Sector

Seasonally adjusted data

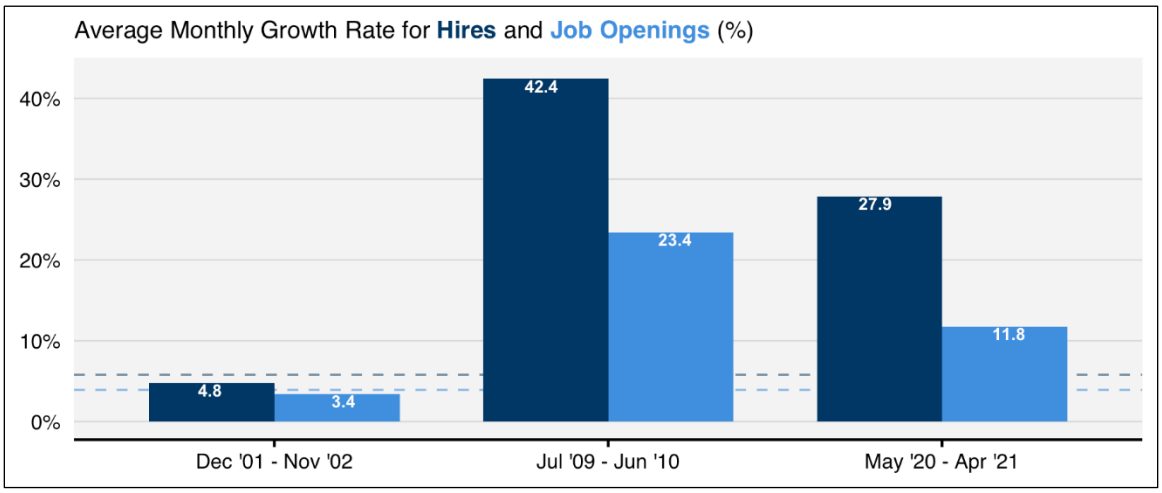


Source: Created by CRS using data from the Bureau of Labor Statistics (BLS).

Notes: One red square equals 1 million jobs. The squares reflect employment levels that are rounded up; therefore, the Mining and Logging sector has one red square while only having an employment level of 700,000.

Figure A-2. Average Monthly Growth Rate in Hires and Job Openings, Federal Government

Average seasonally adjusted monthly data for the 12-month periods following the last three recessions

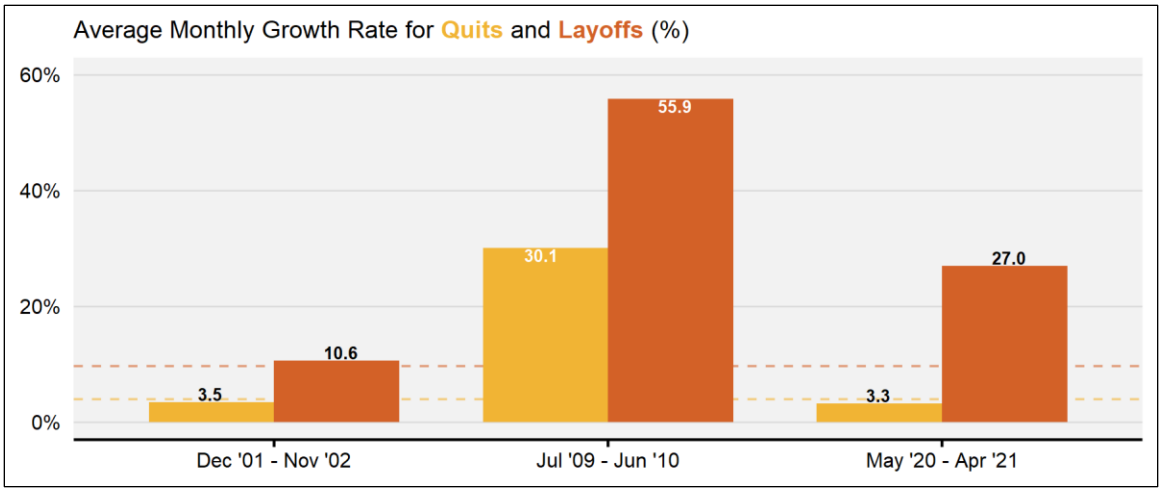


Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Series JTS910000000000000JOL and JTS910000000000000HIL extracted using the JOLTS data series at https://www.bls.gov/data/.

Note: The dashed lines show the average monthly growth rates in hires (5.8%, dark blue) and job openings (3.9%, light blue) for the Federal Government sector in all non-recessionary periods included in the JOLTS data series.

Figure A-3. Average Monthly Growth Rate in Quits and Layoffs, Federal Government

Average seasonally adjusted monthly data for the 12-month periods following the last three recessions

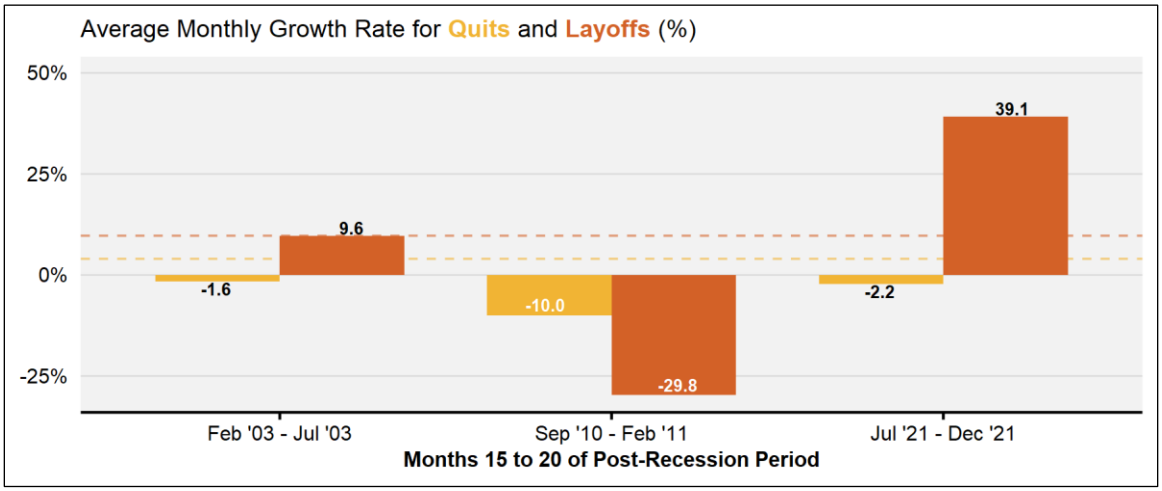


Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Series JTS910000000000000QUL and JTS910000000000000LDL extracted using the JOLTS data series at https://www.bls.gov/data/.

Note: The dashed lines show the average monthly growth rates in quits (4.0%, yellow) and layoffs (9.7%, orange) for the Federal Government sector in all non-recessionary periods included in the JOLTS data series.

Figure A-4. Six-Month Average Monthly Growth Rate in Quits and Layoffs, Federal Government

Average seasonally adjusted data for the six-month period that occurred 11-16 months following the start of a non-recessionary period



Source: Created by CRS using data from the Bureau of Labor Statistics (BLS). Series JTS910000000000000QUL and JTS910000000000000LDL extracted using the JOLTS data series at https://www.bls.gov/data/.

Note: The dashed lines show the average monthly growth rates in quits (4.0%, yellow) and layoffs (9.7%, orange) for the Federal Government sector in all non-recessionary periods included in the JOLTS data series.

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