

Research Briefing | US

Why the Covid-induced productivity gains will stick

Economist

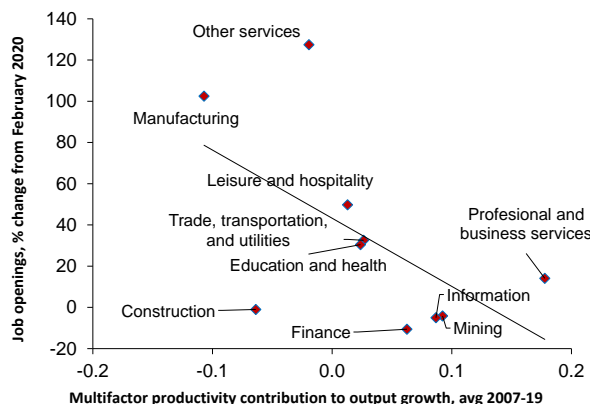
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- The Covid crisis has accelerated the US economy's automation in a way that we think will outlast the pandemic, leading to a sustained acceleration in productivity growth. Industries with traditionally weak productivity and considerable scope to accelerate digitalization stand to benefit the most, but others could also experience reduced labor demand from automation.
- Most industries have responded to the pandemic by urgently adopting productivity-enhancing technologies, and we don't expect firms to abandon these labor-saving tools. We see the shift continuing to leaner and more efficient operations in retail (self-checkouts), healthcare (telemedicine), warehousing (robots), and leisure and hospitality (digitalization).
- Acute labor supply constraints could entice companies to invest more in labor-saving technologies, especially in low-paid and labor-intensive industries. Our labor mismatch scorecard confirms that industries hit hard by the pandemic, such as leisure and hospitality and manufacturing, are seeing the most severe shortages.
- In the medium term, the adoption of labor-saving innovations could adversely affect employment in specific industries. We estimate that 45% of the 7mn missing jobs (relative to pre-pandemic) are vulnerable to automation, particularly in high-contact industries involving routine tasks that can easily be automated, such as food preparation and serving, retail sales, and manufacturing.
- While automation is likely to disrupt existing business models and eliminate jobs, the productivity boost will also lead to the creation of new jobs in a process of creative destruction.

Figure 1: Labor shortages could spur more automation in low-productivity industries

US: Labor shortages in low-productivity industries



Source: Oxford Economics

Severe labor supply constraints will entice companies to invest in labor-saving technologies such as automation, especially in low-productivity industries hardest-hit by the pandemic.

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Accelerated technology adoption

Strict social distancing measures, acute labor shortages, and a massive shift to remote work have spurred companies to urgently invest in new technologies and automation during the Covid crisis. A McKinsey Global Institute [survey](#) conducted in October 2020 found that companies digitized many activities 20 to 25 times faster than they had previously even thought possible.

Illustrating the acceleration in digital adoption, capital spending on information processing equipment – such as computers – rose 5.7% in 2020, almost double its post-crisis average (**Figure 2**). At the same time, companies forewent traditional investments in other equipment and structures, which fell 12.8% and 11.1% last year, respectively.

The surge in digital spending has led to stronger productivity growth, as it has allowed companies to achieve greater output with fewer workers. And early evidence suggests that some aspects of the digital transformation are likely to outlast the pandemic. A survey conducted by the [World Economic Forum](#) in October 2020 found that more than 80% of business executives are accelerating plans to digitize work processes and deploy new technologies; and 50% of employers are expecting to accelerate the automation of some roles in their companies.

Productivity laggards catching up

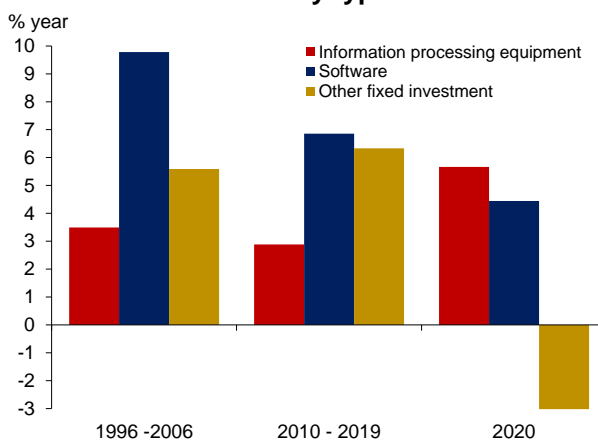
We believe the digital transformation could provide the impetus for a sustained acceleration in productivity growth in industries with traditionally weak productivity (**Figure 3**) and where there is considerable scope to accelerate digitalization, such as healthcare, retail, and warehousing.

Before the pandemic, the healthcare sector lagged many other industries in the adoption of digital technologies (**Figure 4**). However, in response to the pandemic, the healthcare sector rapidly implemented new technological tools to allow healthcare to be delivered remotely. The pandemic-induced increased use of telemedicine is likely to outlast the crisis. In the US, 76% of patients expressed [interest](#) in using telehealth in the future, which should boost productivity as health professionals are able to see more patients a day.

In addition, the jump in e-commerce as a share of retail sales during the pandemic (**Figure 5**) has forced the retail sector to ramp up the digital provision of goods and services. While we do not have 2020 productivity data for the US retail

Figure 2: Investment in digital goods and services rose sharply during the pandemic

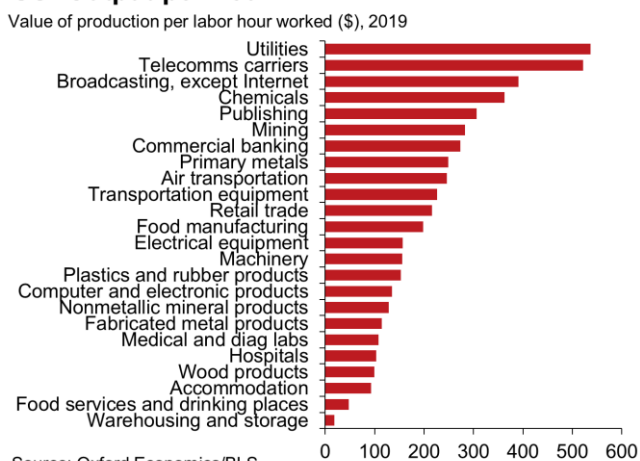
US: Fixed investment by type



Source: Oxford Economics/BEA

Figure 3: Digitization could lead to a productivity catch-up

US: Output per hour



Source: Oxford Economics/BLS

Figure 4: Healthcare has lagged other sectors in the adoption of digital technology

OECD measure of global digital intensity	
	Quartile of digital intensity
Transport equipment	High
Finance and insurance	High
ICT services	High
Electronics and electrical equipment	Medium-high
Industrial machinery	Medium-high
Wood and wood products	Medium-high
Wholesale and retail	Medium-high
Basic metals and metal products	Medium-low
Chemicals	Medium-low
Textiles, wearing apparel, leather	Medium-low
Human health activities	Medium-low
Agriculture	Low
Mining and quarrying	Low
Food products	Low
Construction	Low
Accommodation and food services	Low
Transport and warehousing	Low

Note: This taxonomy looks at several factors relating to technology, market and human capital-related features. 'High' identifies sectors in the top quartile of the distribution of values underpinning the global digital taxonomy, 'medium-high' the second highest quartile, 'medium-low' the second lowest, and 'low' the bottom quartile.

Source: OECD using data from 2013 - 2015.

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sector yet, in the UK – which has seen a similar sharp rise in online shopping during the pandemic – labor productivity in the retail sector increased almost 10% in 2020 compared with 0.4% for the whole economy. In the US, even as the economy re-opens, online sales in Q1 2021 remain above the pre-pandemic growth trajectory, indicated by the dashed line in **Figure 5**. This suggests the boost to productivity from e-commerce may persist. Increased automation and new technologies in warehouses also have the potential to accelerate productivity in warehouse units supporting the retail sector.

Labor shortages could spur more automation

The Covid crisis and the complex reopening dynamics it has produced have given way to an unprecedented mismatch between jobseekers and vacancies in the US labor market. In recent months the number of job openings has surged well past pre-pandemic levels to a record of 9.21mn, with only one unemployed individual (supply) per job opening (demand). But many industries have even far less than one unemployed worker available for each opening (**Figure 6**).

Our labor mismatch [scorecard](#) – which ranks industries based on indicators of labor shortages – suggests that industries hardest-hit by the pandemic, such as leisure and hospitality and manufacturing, are seeing the most severe labor imbalances (**Figure 7**). In the coming months, we expect labor supply constraints to ease as the reopening of schools, easing virus fears, and the expiration of supplemental jobless benefits draw people back into the workforce. Still, some constraints are likely to persist.

These hiring strains are enticing companies to invest more in labor-saving technologies such as automation, especially in low-paid and labor-intensive industries where work tends to be repetitive. Case in point: the latest [FOMC minutes](#) from the Federal Reserve noted that some business contacts reported that they were responding to labor shortages by increasing productivity, particularly through automation.

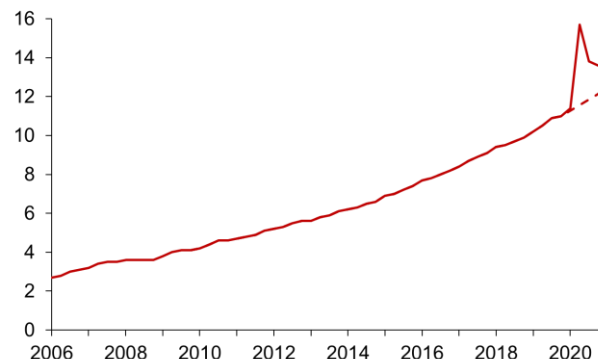
Low-skill jobs at risk of displacement

Companies' adoption of labor-saving innovations could adversely affect employment in the medium term (next five years) as robots and other technologies perform tasks formerly done by workers. This displacement effect is more likely to impact lower- and middle-class workers who tend to perform more routine and manual jobs. For instance,

Figure 5: E-commerce sales rocketed in 2020 and remain above pre-pandemic trends

US: E-commerce sales

Share of total retail sales

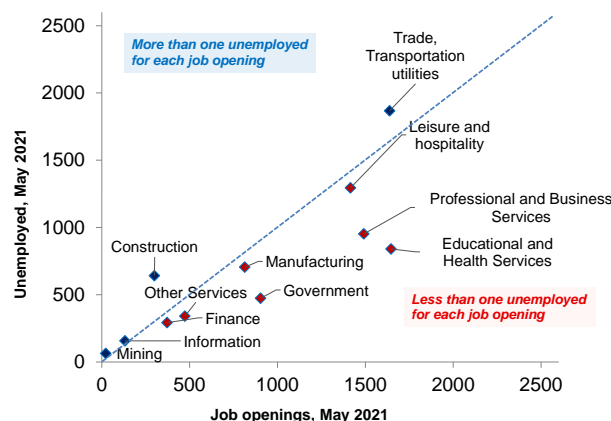


Note: Dashed line represents the growth trajectory since 2020 based on the average growth between 2015 and 2019

Source : Oxford Economics/Federal Reserve Economic Data

Figure 6: Many industries have too few unemployed workers per job opening

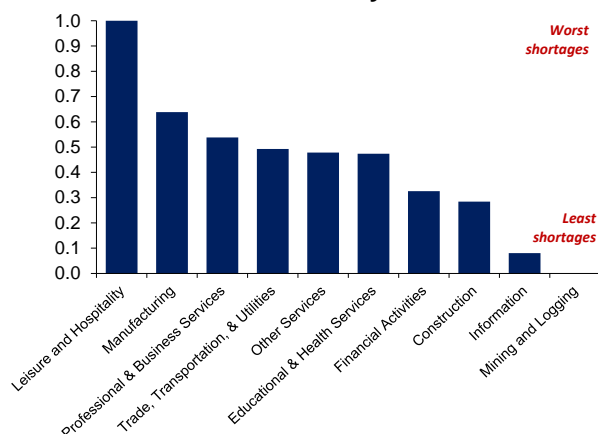
US: Job openings and unemployed



Source : Oxford Economics/Haver Analytics

Figure 7: Labor shortages are most acute in leisure and hospitality, and manufacturing

US: Labor mismatch industry scorecard



Source: Oxford Economics

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self-checkouts at supermarkets have reduced the need for employees, and the use of robots in industries such as autos have displaced certain labor-intensive tasks of factory workers. Our prior research on the [rise of the robots](#) found that each new industrial robot eliminates 1.6 manufacturing jobs on average, with the toll falling disproportionately on lower-skilled workers.

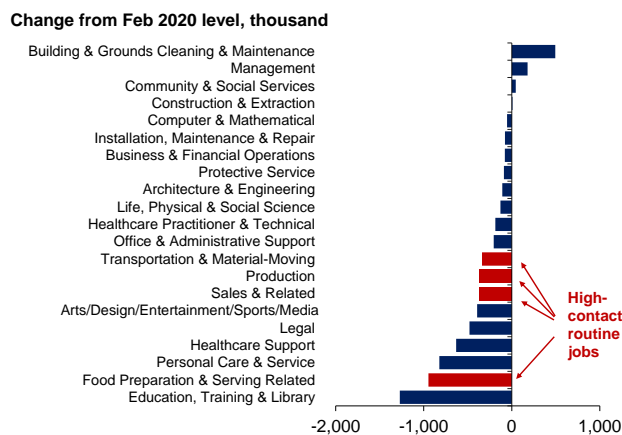
Decomposing the change in employment from pre-pandemic level (February 2020) by routine and non-routine occupations, we estimate that nearly half (45%) of the jobs that are yet to be recovered from the crisis are vulnerable to automation (Figure 9). These occupations are concentrated in high-contact industries and require performing routine or repetitive tasks that can be automated, such as food preparation and serving, retail sales, manufacturing, and material moving (Figure 8).

Amid acute labor shortages, this could lead to a permanent labor demand shortfall over the next 3-5 years. While we expect employment to be back to its pre-pandemic level by the middle of next year, we do not foresee it rising back to its pre-covid trend. We believe it's unlikely the economy will make up for the thousands of jobs that would have been added each month over the last year and a half without the pandemic. At the same time, the Covid crisis should lead to the creation of new jobs in more innovative, higher-productivity industries in a process of 'creative destruction'.

The pandemic effect will stick

We expect some of the pandemic-driven efficiencies will stick even after the pandemic is over, and companies will continue to invest in labor-saving technologies amid acute labor shortages. This should boost productivity and economic growth, notably in lower-productivity sectors such as retail and healthcare, and lead to the creation of new jobs in more productive and innovative. But existing business models across many sectors will be disrupted, putting workers at risk of being replaced. We think preparing for and responding to the social impact of productivity-enhancing technology will be a defining policy challenge for the next several years, as we have highlighted in our previous research on the rise of the robots.

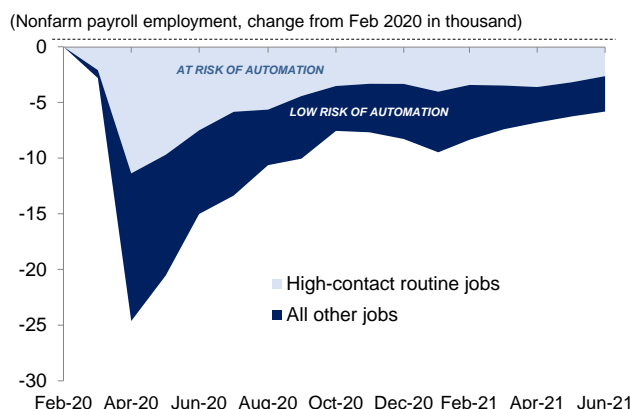
Figure 8: High-contact routine occupations were hit hard by the pandemic
US: Jobs shortfall by occupation



Source: Oxford Economics/Haver Analytics

Figure 9: Of missing jobs, 45% are high-contact, routine occupations exposed to automation

US: Missing jobs vulnerable to automation



Source : Oxford Economics/Haver Analytics