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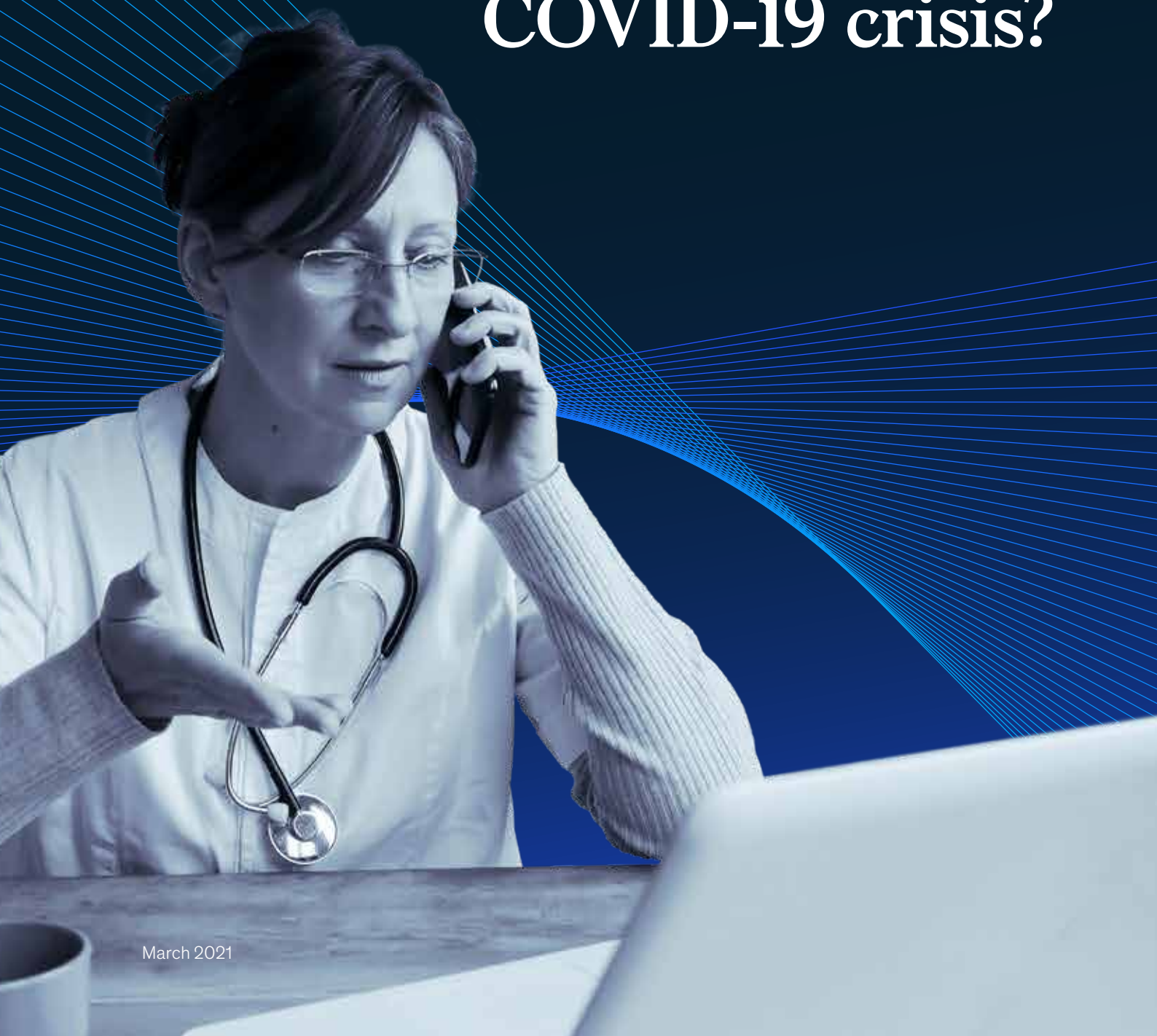
The postpandemic economy

Will productivity and growth return after the COVID-19 crisis?



March 2021

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MGI is led by three McKinsey & Company senior partners: co-chairs James Manyika and Sven Smit and director Jonathan Woetzel. Michael Chui, Mekala Krishnan, Susan Lund, Anu Madgavkar, Jan Mischke, Jaana Remes, Jeongmin Seong, and Tilman Tacke are MGI partners. Project teams are led by the MGI partners and include consultants from McKinsey offices around the world. These teams draw on McKinsey's global network of partners and industry and management experts.

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Authors
Jan Mischke, Zurich
Jonathan Woetzel, Los Angeles and Shanghai
Sven Smit, Amsterdam
James Manyika, San Francisco
Sree Ramaswamy (alumnus)
Michael Birshan, London
Eckart Windhagen, Frankfurt
Jörg Schubert, Dubai
Solveigh Hieronimus, Munich
Guillaume Dagorret, Paris
Marc Canal Noguer, London

Preface

The COVID-19 pandemic has been a health and humanitarian crisis, but also the most challenging global economic disruption since World War II, and the path out of the pandemic into recovery and beyond is extremely uncertain. Early signs indicate that the economic disruption caused by COVID-19 has driven leading companies in large sectors of the economy to innovate and digitize in exciting ways, but it is not yet clear whether these actions will translate into a broad-based productivity dividend. Moreover, stubborn structural drags on demand long left neglected may now be even worse.

Can pandemic-induced changes in action by firms like innovation and digitization lead to—sufficiently widespread—productivity gains? And will we finally tackle the demand deadlock to unleash strong growth? Decision makers in businesses and governments reacted boldly, imaginatively, and with speed in response to COVID-19. How can they bring those characteristics now to crafting a healthy recovery?

This new McKinsey Global Institute (MGI) report is the third in a series on economies after the COVID-19 crisis. The first examined the long-term changes that COVID-19 may impose on work in the years ahead. The second focused on understanding how the pandemic has affected consumer demand, and what that means for the recovery. This research focuses on potential paths for productivity in eight sectors in the United States and six large European economies (France, Germany, Italy, Spain, Sweden, and the United Kingdom) representing 40 percent of global GDP. The eight sectors we examined in-depth in our focus countries account for nearly 60 percent of the non-farm business economy.

The research was led by Jan Mischke, MGI partner in Zurich; Jonathan Woetzel, MGI senior partner and MGI director in Los Angeles and Shanghai; Sven Smit, McKinsey senior partner and MGI co-chair in Amsterdam; James Manyika, McKinsey senior partner and MGI co-chair in San Francisco; Michael Birshan, McKinsey senior partner in London; Eckart Windhagen, McKinsey senior partner in Frankfurt; Jörg Schubert, McKinsey senior partner in Dubai; and Solveigh Hieronimus, McKinsey senior partner in Munich. We would like to thank our colleague Sree Ramaswamy, an alumnus of the Washington, DC office, who co-led this research while he was a partner at MGI. The work was guided by Mike Kerlin, McKinsey partner in Philadelphia; Jeongmin Seong, MGI partner in Shanghai; and Yassir Zouaoui, McKinsey partner in Dubai. Guillaume Dagorret, a McKinsey consultant in Paris, and Marc Canal Noguer, a consultant in London, led the project team, which comprised Corentin Duvert, Samuel Cudre, Marcel Hechler, Nikita Kolibanov, Kimberley Moran, Aditi Ramdorai, and Quentin Richard. We thank Jaana Remes, MGI partner in San Francisco, for her insights on consumers post-pandemic; Susan Lund, MGI partner in Washington, DC, for her input on the future of work; Michael Chui, MGI partner in Washington, DC, for his input on technological advances; and Alan FitzGerald, McKinsey director of client capabilities, and Ezra Greenberg, McKinsey expert associate partner, for their advice on economic modelling.

We thank our academic advisors, who challenged our thinking and provided valuable guidance. They are Martin Baily, Senior Fellow, Economic Studies, Brookings Institution, and Bernard L. Schwartz Chair in Economic Policy Development; Hans-Helmut Kotz, Visiting Professor, Harvard University, Senior Fellow of the Center for Financial Studies, and Program Director of the SAFE Policy Center, Goethe University; Michael Spence, Dean of the Stanford Graduate School of Business and Professor of Economics emeritus Senior Fellow, Hoover Institution at Stanford, Adjunct Professor at SDA Bocconi, and Nobel Laureate in Economics, 2001; and Laura Tyson, Haas School of Business, University of California, Berkeley, and Distinguished Professor of the Graduate School. For their advice and guidance, we also thank

Oliver Adler, Chief Economist, Credit Suisse, Switzerland; Robert D. Atkinson, President of the Information Technology and Innovation Foundation, Washington, DC; Robert J. Gordon, Stanley G. Harris Professor of the Social Sciences at Northwestern University; Catherine L. Mann, Global Chief Economist at Citi; Bart van Ark, Professor of Productivity Studies at the Alliance Manchester Business School (AMBS) at the University of Manchester; and Guntram B. Wolff, Director of Bruegel, together with Maria Demertzis, Deputy Director of Bruegel, and Gregory Claeys, Bruegel Senior Fellow.

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This report was edited by MGI senior editor Janet Bush. For their support, we thank members of MGI's operations team: executive editor Lisa Renaud; graphic designers Laura Brown, Marisa Carder, and Patrick White; Dennis Alexander, Nienke Beuwer, Cathy Gui, and Rebeca Robboy in MGI's external relations team; digital editor Lauren Meling; and research specialist Tim Beacom.

While we are grateful for all the input we have received, the report and views expressed here are ours alone. We welcome your comments on this research at MGI@mckinsey.com.

James Manyika
Director and Co-chair, McKinsey Global Institute
Senior Partner, McKinsey & Company
San Francisco

Sven Smit
Director and Co-chair, McKinsey Global Institute
Senior Partner, McKinsey & Company
Amsterdam

Jonathan Woetzel
Director, McKinsey Global Institute
Senior Partner, McKinsey & Company
Los Angeles and Shanghai

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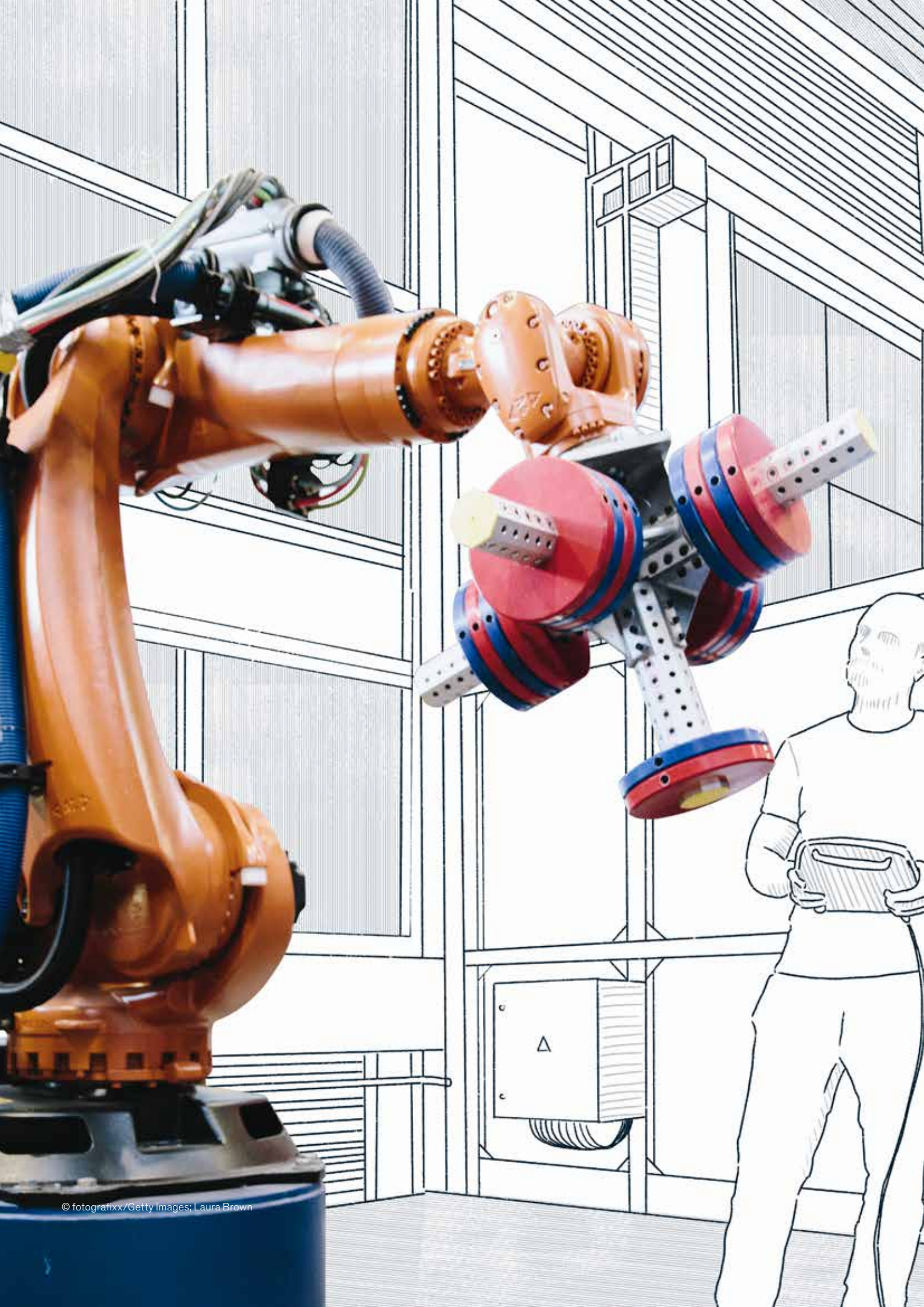

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Contents

In brief

Will productivity and growth return after the COVID-19 crisis?

The pandemic caused the deepest economic crisis since World War II, disrupting both supply and demand. In 2020, GDP fell by 3.5 percent in the United States, 9.9 percent in the United Kingdom, and 11.0 percent in Spain. The way ahead is extremely uncertain. Will the stars align for economies after the COVID-19 crisis? History tells us that deep economic crises have been followed by anything from stagnation or sluggish growth (for instance, after the global financial crisis) to rapid economic renewal (as after World War II), depending on whether demand is strong enough to lift the economy and whether firms broadly take productivity-enhancing action, particularly in sectors large enough to affect national productivity. In this research we examine firm and sector evidence in the United States and six large European economies. Key findings include the following:

Despite uncertainty, some firms responded boldly to COVID-19, acting in ways that have the potential to increase productivity. Some firms shifted rapidly to online channels, automated production tasks, increased operational efficiency, and sped up decision making. Companies digitized many activities 20 to 25 times faster than they had previously thought possible. One European retailer achieved three years' worth of prepandemic rates of growth in e-commerce in eight weeks.

Measurable firm advances so far appear concentrated, particularly in the United States. In the third quarter of 2020, acceleration on a range of imperfect firm-level proxy indicators like R&D spending, investment, and M&A appeared concentrated in sectors (including information technology and professional services) that were already ahead on those dimensions before the pandemic and among large, so-called superstar firms, particularly in the United States. Of our set of about 5,500 US and European firms, for instance, only about half increased R&D spending, and one-third increased investment in the third quarter of 2020 from a year earlier. That is down from more than two-thirds and more than half, respectively, before the pandemic. In the United States, declines in the revenue and capital expenditure of large leading firms were small and growth in R&D investment large in comparison with those of other firms.

If corporate action broadens, particularly in large sectors, and demand is robust, there is potential to accelerate annual productivity growth by about one percentage point in the period to 2024. Such an acceleration would more than double the rate of productivity growth experienced in our sample countries after the global financial crisis. Surveys suggest strong intent to continue advances. For instance, about 75 percent of respondents to our December 2020 survey expected investment in new technologies to accelerate in 2020–24, up from about 55 percent who increased such investment in 2014–19. The largest potential, at about two percentage points, could be in healthcare (such as spreading telemedicine), construction (for instance, accelerated adoption of digital and industrialized methods), ICT (including increased demand for digital tools and services), and retail (notably growing e-commerce).

The economic shock of the pandemic and the response of companies could exacerbate long-run structural demand drags. Our sector-level evidence suggests that 60 percent of the productivity potential prioritizes efficiency over output growth. Accelerated digitization and automation by firms, added to superstar effects, could hasten income polarization and declines in labor share, leading to a "great divide" among both firms and workers. Prepandemic demand, specifically consumption and investment, was structurally weak, and efficiency-focused actions could now weaken it further. After a potential initial consumer-led bounce-back, pressures on employment and income could hold back consumption, which, coupled with uncertainty, could hold back investment. In the third quarter of 2020, investment was down by up to 11 percent in some countries compared with prepandemic levels in our sample countries. Productivity growth could remain low if most firms do not invest and those that do struggle to grow.

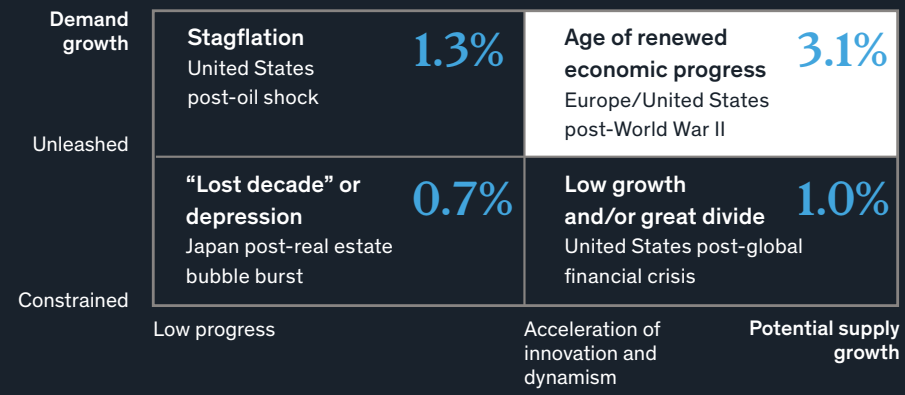
Firms and policy makers should address three interlocking challenges. The approaches taken by businesses as the economic disruption of the pandemic starts to ease will be critical—through the new products and services they offer, the investments they make, and the wages they pay. Collective action will be important, and policy makers have a range of interventions at their disposal to engage with businesses to steer to the right outcomes. Broadly, we see three interlocking priorities: how can innovation and other advances that can increase productivity growth be sustained and spread?; how can action by firms also support employment, median wages, and demand?; and how can investment be increased—and directed to the right places?

Productivity and growth after the COVID-19 crisis

The great uncertainty

Will economies stagnate or enjoy broad-based growth?

x% Per capita GDP growth per year in the years following the crisis



During the pandemic

Some firms responded boldly to COVID-19

- Digitizing and automating
- Shifting online
- Reorganizing and becoming agile
- Adopting new business models

But advances were concentrated in large superstar firms

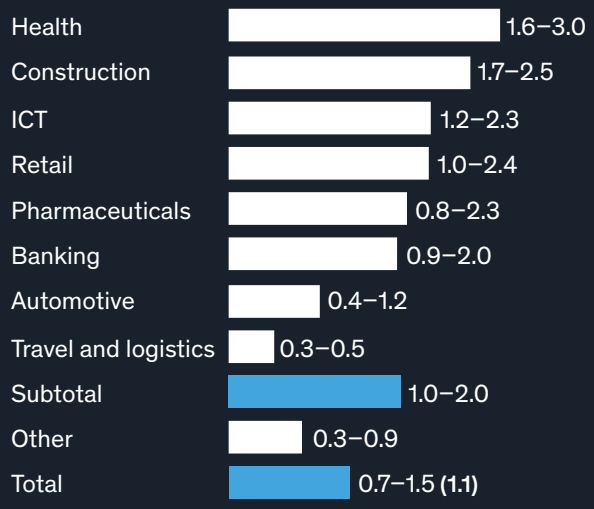
6/7 drivers' acceleration less widespread than before the pandemic

66% of US R&D investment growth Q3 2019–Q3 2020 from large superstars

0% revenue decline in US large superstars vs 11% decline for others

After the pandemic

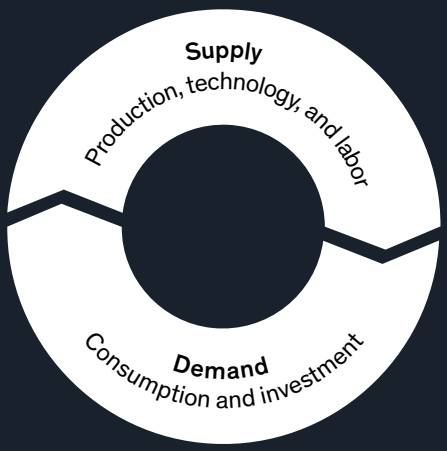
Pandemic-related potential productivity acceleration, 2019–24, CAGR



But capturing the potential requires action to diffuse and demand to be robust: a virtuous cycle

~60% of productivity potential prioritizes efficiency over output growth

Up to 6pp gap between potential productivity and baseline demand growth by 2024



Three interlocking priorities

1. Sustaining and spreading innovation and other advances that can potentially increase productivity
2. Ensuring that productivity-accelerating action also supports employment, median wages, and demand
3. Increasing investment, and directing it to the right places

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Note: United States and six large European economies

Executive summary

The COVID-19 pandemic has first and foremost been a health crisis but has also caused deep disruption to economies. In 2020, the United States and Europe, the focus of this research, experienced the deepest recession since World War II. COVID-19 has been a double-barreled crisis, with demand and supply severely affected; both will need to be addressed.

In 2020, GDP fell by 3.5 percent in the United States, 9.9 percent in the United Kingdom, and 11.0 percent in Spain. Consumption and investment were still 3 percent below prepandemic levels in the United States in the third quarter of 2020, and by 7 and 5 percent, respectively, in the six large European economies we analyze combined. In December 2020, US employment was 10 million less than the prepandemic level, while in Europe millions of workers were still either on short time or furloughed. Businesses were forced to close for long periods. In September 2020, about 25 percent of small businesses in the United States were closed, and how many would reopen was uncertain.[1] As firms adjusted staff levels rapidly and lower-productivity workers in particular lost their jobs, labor productivity (measured as gross value added per hour worked) actually grew by 2.6 percent in the United States in 2020 compared with 2019. In France, productivity was flat. In Germany and Spain, productivity fell by 0.2 and 0.6 percent, respectively (in European economies, labor hoarding is more common). However, these short-term crisis-related effects have limited bearing on the medium- to long-term outlook.

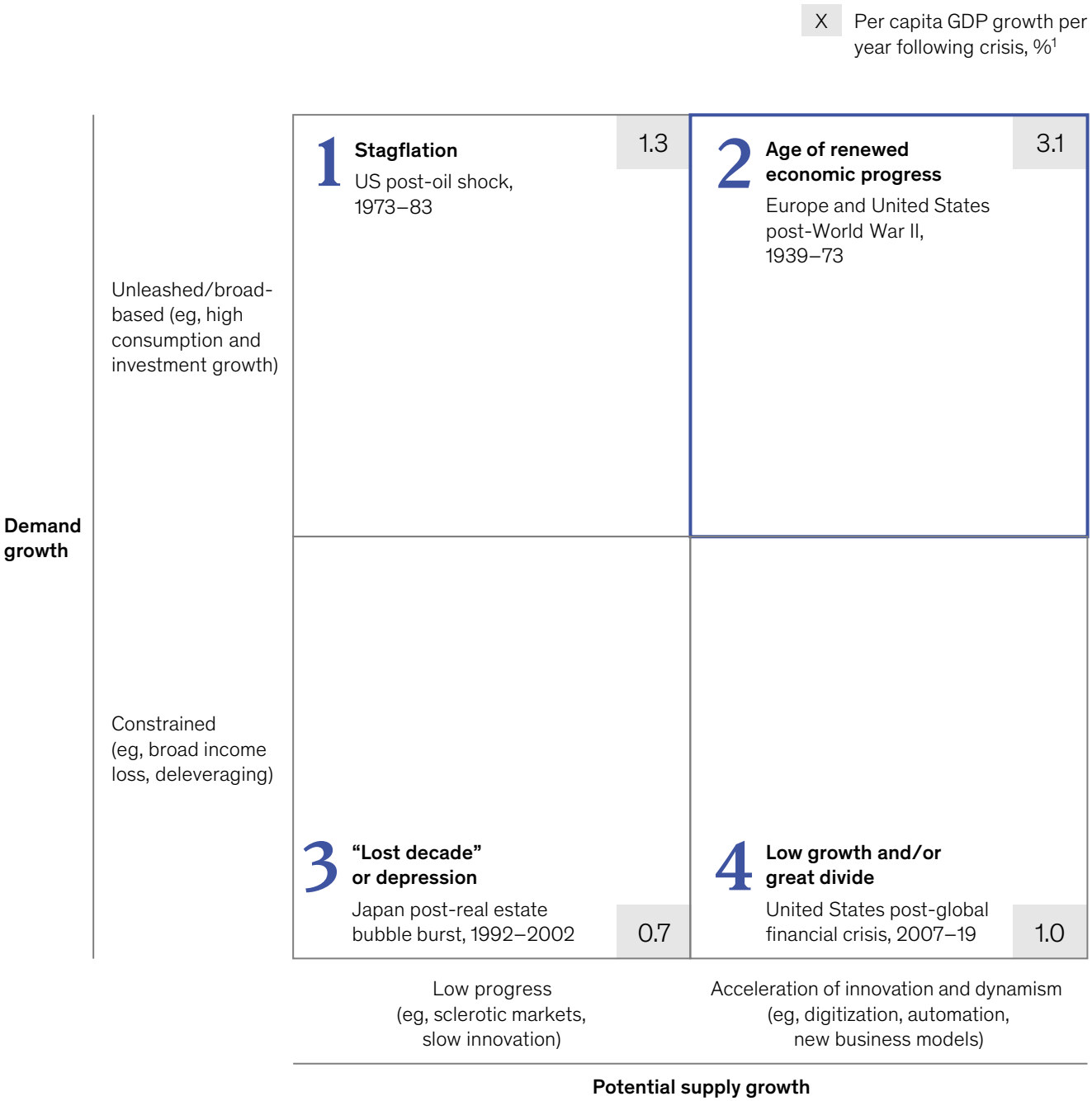
Will the stars align for economies after the COVID-19 crisis? Looking ahead, we assume that a combination of safety measures, vaccines, and immunization will remove pandemic-related restrictions on economic activity in the course of 2021 and 2022. Still, the way ahead—out of the crisis and beyond—is extremely uncertain. We envisage four long-term scenarios (Exhibit E1). Which one will play out? Could we move into an age of renewal as North America and Europe did after World War II on the back of broad-based action on the supply side and resulting productivity gains translating into strong demand? Will we see sluggish growth and increasing inequality, as in the aftermath of the global financial crisis that began in 2008? Will we experience a lost decade? Could we even see a spike in inflation as pent-up demand and government stimulus are unleashed once the health crisis recedes? The jury is out.

While the direct impact on economies was considerable and remained so in early 2021, this research explores the potential path ahead for productivity growth to 2024 in the United States and six large European economies—France, Germany, Italy, Spain, Sweden, and the United Kingdom; together, these seven economies account for 40 percent of global GDP.[2] We examine eight sectors in depth (healthcare, construction, information and communication technologies (ICT), retail, pharma, banking, automotive, and travel and logistics) that account, on average, for about 60 percent of the nonfarm business economy, as well as five sectors that represent 40 percent of the nonfarm business economy by extrapolating relevant trends to these sectors based on our eight focus sectors (see Box E1, “Gauging and assessing productivity: Our approach”).

1 *Global Economics Intelligence executive summary, October 2020*, November 2020, McKinsey.com.
2 We do not analyze emerging markets, which have a different productivity-growth dynamic than mature markets.

Exhibit E1

Could productivity growth accelerate after the COVID-19 crisis?



1 Stimulus meets weak productive capacity growth to result in low real output growth and possibly high inflation

2 Acceleration in supply growth translates into broad-based income and demand growth and robust economic growth

3 Failure to increase demand and weak innovation and supply growth lead to economic stagnation or even depression

4 Innovation and progress by only leading firms in the absence of demand leads to sustained output gaps, high unemployment and/or inequality, and slow economy-wide growth

1. Quadrant 1: US per capita GDP growth, 1973–83; Quadrant 2: weighted average of sample countries, 1939–73; Quadrant 3: Japan, 1992–2002; Quadrant 4: United States, 2007–19.

Source: Bergeaud, Cette, and Lecat, 2016; McKinsey Global Institute analysis

To establish a virtuous cycle after COVID-19, as happened in North America and Europe after World War II, requires productivity growth to be broad-based and comprehensively diffused among companies and large sectors to move the needle for the whole economy, and to be accompanied by strong growth in income and demand once public support programs and pent-up demand run out. Starting at US 2019 per capita GDP, the difference between having, during ten years, a per capita growth rate like that after the end of World War II and the one experienced after the global financial crisis, for instance, amounts to 27 percentage points, or about $17,000. A relevant episode much more recent than the aftermath of World War II—albeit not the result of a deep economic crisis—is the spike in productivity growth of the 1990s and early 2000s in the United States, which was, in large part, the result of a boom in ICT investment, adoption, and integration into business processes and systems.[3]

There is early evidence of dynamic changes—including accelerated digitization and investment in other technologies, and reorganization—by some businesses in response to the extraordinary pressures of the pandemic. Those changes could, in the right conditions, accelerate productivity growth. This would be a welcome boost emerging from the deep disruption of the pandemic. The key conditions are that action actually matters for productivity, that the diffusion of action is broad-based, particularly in sectors that are large enough for diffusion to have an impact on economy-wide productivity, and that demand is robust. Thus far, sector reviews show real productivity potential from actions taken, yet early firm-level evidence suggests that advances have been relatively concentrated in leading sectors and so-called superstar firms.[4] If this concentration is confirmed and persists, any acceleration in productivity growth could fall short of potential, the gap between superstars and a long tail of lagging or zombie companies could widen, and income inequality or unemployment could increase. In summary, we could observe a widening "great divide" in which, at best, only a minority of companies, households, and regions enjoy productivity and income growth, as we saw in the aftermath of the global financial crisis (Exhibit E1, Quadrant 4).[5]

Then, any potential acceleration in productivity growth requires robust long-term aggregate demand, and, absent policy action, here there are concerns, too. While a sharp bounce-back in consumption is possible once the health crisis eases as pent-up spending is unleashed, it is far from clear that such momentum will be sustained. The fact that the pandemic has wreaked most damage on those with on low incomes could continue to increase inequality and undermine consumption.[6] Scarring effects from long-term unemployment, the destruction of human, physical, and organizational capital, and high debt accumulation, among other factors, could have a prolonged impact on consumption and investment. On the other hand, strong action by policy makers of the kind being discussed in early 2021 (for instance, a large infrastructure package in the United States) could mitigate or reverse demand risks.

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3 *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018. Also see Robert J. Gordon and Hassan Sayed, *Transatlantic technologies: Why did the ICT revolution fail to boost European productivity growth?*, VoxEU, August 2020.

4 We define large as the top 10 percent of firms by 2019 revenue and superstars as firms with substantially greater share of income than peers and that are pulling further away from those peers over time. See *Superstars: The dynamics of firms, sectors, and cities leading the global economy*, McKinsey Global Institute, October 2018; "What every CEO needs to know about 'superstar' companies," McKinsey Global Institute, April 2019; and David Autor et al., *The fall of the labor share and the rise of superstar firms*, National Bureau of Economic Research (NBER) working paper number 23396, May 2017. On productivity dispersion, see, for instance, John van Reenen, *Increasing differences between firms: Market power and the macroeconomy*, Federal Reserve Bank of Kansas City economic policy symposium, August 2018; and Dan Andrews, Chiara Criscuolo, and Peter N. Gal, *Frontier firms, technology diffusion and public policy: Micro evidence from OECD countries*, The Future of Productivity Background Papers, Organisation for Economic Co-operation and Development (OECD), 2015.

5 The OECD defines zombie companies as "old firms that have persistent problems meeting their interest payments." See Müge Adalet McGowan, Dan Andrews, and Valentine Millot, *The walking dead? Zombie firms and productivity performance in OECD countries*, OECD Economics Department working paper number 1372, January 2017. On superstars, see *Superstars: The dynamics of firms, sectors, and cities leading the global economy*, McKinsey Global Institute, October 2018; "What every CEO needs to know about 'superstar' companies," McKinsey Global Institute, April 2019; and David Autor et al., *The fall of the labor share and the rise of superstar firms*, NBER working paper number 23396, May 2017. On productivity dispersion, see, for instance, John van Reenen, *Increasing differences between firms: Market power and the macroeconomy*, Federal Reserve Bank of Kansas City economic policy symposium, August 2018; and Dan Andrews, Chiara Criscuolo, and Peter N. Gal, *Frontier firms, technology diffusion and public policy: Micro evidence from OECD countries*, The Future of Productivity Background Papers, OECD, 2015.

6 In the United States, McKinsey & Company research has found that Black Americans are almost twice as likely to live in the counties at highest risk of health and economic disruption. See Aria Florant, Nick Noel, Shelley Stewart, and Jason Wright, "COVID-19: Investing in Black lives and livelihoods," April 2020, McKinsey.com.

Box E1

Gauging and assessing productivity: Our approach

Productivity is one of the central concepts in economics and is key to raising long-term living standards and driving growth. In this report we use "productivity" as shorthand for what is often called labor productivity, a measure of output per unit of labor input. More specifically, labor productivity is measured as gross value added divided by total hours worked, so it expresses the average value created for each hour devoted to the production of goods and services. Gross value added is the monetary value of all goods and services produced in an economy in a particular period, a metric that is adjusted (imperfectly) year-over-year for changes in the price and the quality of products and services offered. Labor productivity should not be confused with total factor productivity, which excludes the impact of human and physical capital accumulation to focus only on the contribution of technical change and new business methods. In our research, we look at the impact the crisis and how firms reacted to it could potentially have on productivity growth to 2024. We use two lenses: first, medium-term supply potential from changes in firm behavior and the economic fabric; and second, demand and the impact it can have on productivity.

Medium-term supply potential. We decompose productivity growth potential into primary factors: (1) reducing the number of hours needed to produce a good or service; or (2) improving its quality and value. We look at several drivers that often have resulted in productivity growth in the past, and from which we expect to observe impact from the crisis. Notably, they include digitization, automation, and a shift to online channels; operational efficiency and asset utilization; innovation, including in business and operating models; investment in human and physical capital; reorganization and agility; and a dynamic business environment in which the most productive firms can grow and capture market share.[1] At the same time, not all corporate action translates into productivity growth and, as famously described by Robert Solow, even productivity-accelerating action can take time to materialize in observed faster productivity growth.[2] In this research, we thus pursue a micro-to-macro approach. We look at measures that firms are taking in response to the pandemic, using interviews and external as well as McKinsey surveys, and assess whether those measures may be positive or negative for productivity and in what way, given that both numerator- and denominator-based actions can each improve productivity, with different effects. We then apply in-depth sector reviews to assess and size opportunities for an acceleration in productivity growth. We include the potential for accelerated productivity growth in sectors where measuring it is challenging, including, notably, healthcare. There is concern that many companies, especially small companies, are not able to use best practices and their productivity will lag as a result, so we also look into whether action taken by firms during the pandemic is concentrated among sectors and firms that were already ahead of their peers. For that purpose, we use (albeit imperfect) firm-level indicators from S&P Global Market Intelligence up to the third quarter of 2020, as well as forward-looking surveys.

1 Philippe Aghion, Céline Antonin, and Simon Bunel, *Le pouvoir de la destruction créatrice: Innovation, croissance et avenir du capitalisme (The power of creative destruction: Innovation, growth and the future of capitalism)*, Éditions Odile Jacob, October 2020.

2 Mekala Krishnan, Jan Mischke, and Jaana Remes, "Is the Solow Paradox back?," *McKinsey Quarterly*, June 2018.

Demand in the short and medium term. Past MGI research has shown that short- and medium-term demand matters for productivity and growth.[3] Effective aggregate spending or final demand is captured in the numerator of the productivity ratio. A short-term drop in demand as, for instance, consumption or investment plummets, will be reflected in declining value added and can lead to unemployment and underutilization of capacity, or output gaps. In the medium to long run, in a low-pressure economy with sustained output gaps and high uncertainty, firms are much less inclined to commit resources and invest in new capacity and technology, as we saw in the years following the global financial crisis. Waiting for more clarity becomes attractive.[4] In the end, everybody invests less, mutually reinforcing the drag. In a high-pressure economy, in turn, in which consumption, investment, exports, and public demand are at or above capacity to supply, waiting implies lost opportunities, so firms tend to innovate and invest in higher capacity and the latest technology, and the most agile and productive firms can outgrow their peers. Additionally, there is more fertile ground for wages to rise as a result of productivity-enhancing investment and of an economy with low unemployment, improving the business case for investment and automation further. Finally, we have seen that both mix and scale of demand can have a direct impact on productivity, for instance in network-based industries like telecommunications or sectors with high intangibles investments like internet services.[5] This is why we consider it important to focus on both supply and demand in order to foster high medium- and long-term productivity growth.

We look at demand perspectives to 2024 to assess whether there is a risk of persistent output gaps (potential supply continuously above effective demand) beyond the short-term crisis and its immediate aftermath. For a rough initial sizing of the gap between potential supply and demand, we use GDP forecasts from Oxford Economics and IHS Markit Comparative Industry (December 2020) as baseline demand and compare them with our estimated productivity-acceleration potential.[6] We then analyze the channels through which the economic impact of the pandemic and action by firms could impose drags on demand relative to the higher potential income. We do not model or quantify those channels because typical general equilibrium models are by construction supply driven, and therefore not best suited for such analysis.

[3] MGI found that weak demand and an uncertain demand outlook weighed on productivity in many sectors and via multiple channels, including from less investment; capital deepening and investment-embodied technological change; fewer big-box retail stores replacing smaller ones; automated checkouts not being installed because uncertainty was high and wages of cashiers low; a lack of new automotive plants with the latest technology and underutilization of existing technology; less scale effects on fixed-cost businesses, as in lower use of electricity networks; and less upgrading to higher-value products—in automotive, for instance, the saturation of the SUV boom and a slowdown in the shift to premium cars—that can be supplied at higher productivity levels. See *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.

[4] Robert K. Dixit and Robert S. Pindyck, *Investment under uncertainty*, Princeton University Press, 1994.

[5] *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.

[6] McKinsey & Company and Oxford Economics, November 2020; IHS Markit Comparative Industry (December 2020).

On top of this, actions by businesses could further exacerbate long-standing weaknesses in demand, leading to sustained output gaps. If accelerated productivity growth is the result of businesses largely pursuing measures to boost efficiency (for instance, through automation), unemployment or pressure on wages could rise, weakening incomes and demand if efficiency gains are not reinvested and worker transitions to higher-skill occupations do not occur fast enough. MGI has found that weak demand after the global financial crisis adversely affected productivity growth in sectors such as automotive, financial services, and retail.[7] In automotive, weak demand created excess capacity, low profits, and slowed investment in equipment and structures, while hours worked increased. Financial services experienced weak demand for credit and limited capacity to streamline labor requirements. In retail, weak demand contributed to a three percentage point decline in sales growth on average in the period from 2010 to 2014, compared with 2000 to 2004, while cash-strapped consumers shifted to lower value-per-unit goods during the financial crisis. In the near term, demand may continue to be shored up by policy support for economic activity that during the pandemic, and possibly for some time, could be larger than in the past; the Biden administration's $1.9 trillion package announced in January 2021 gives us an indication that fiscal support will continue for a while.[8] The medium- and long-term outlooks for demand are more uncertain.

In light of this combination of promise, in the form of advances on drivers of productivity, and distinct risks of concentration in diffusion of those advances and weakness on the demand side, policy makers and businesses have important choices ahead. The stakes are high.

Despite uncertainty, some firms responded boldly to COVID-19, acting in ways that have the potential to increase productivity

25x

faster digitization during pandemic than expected

As economic activity plunged during the pandemic, many firms took bold steps that could transform their business over the long term. Some companies' pace of digitization and other technologies quickened, firms became more efficient and agile, remote working became the norm, and many businesses—and people—went online for the first time. However, positive action appeared to be concentrated in large leading firms.

Firms have acted upon several drivers that offer the potential to boost productivity growth

The response of many businesses to the pandemic shows that organizations can transform quickly when they have to. A McKinsey survey conducted in October 2020 found that companies digitized many activities 20 to 25 times faster than they had previously thought possible.[9] The advances on a range of drivers that have boosted productivity in the past may offer the potential to raise the economy-wide pace of productivity growth considerably (Exhibit E2).

[7] *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.
[8] Andrew Duehren and Kristina Peterson, "House passes $1.9 trillion COVID-19 stimulus bill; Biden to sign Friday," *Wall Street Journal*, March 10, 2021.
[9] "How COVID-19 has pushed companies over the technology tipping point—and transformed business forever," McKinsey & Company, October 5, 2020.

Exhibit E2

The business response to the COVID-19 disruption could have a positive impact on productivity growth potential through several drivers.

■ Focus of this work

Effect of the pandemic shock

▲ Increase

● Mixed

▼ Decrease

Category	Potentially productivity-enhancing drivers	Short term	Long term	Long-term rationale
Firms' response to macro changes	Automation and technology	●	▲	Increasing and better use of technology
	Operational efficiency	▼	▲	Cost-cutting takes effect, pandemic measures lifted
	Product, business, and operating model disruption	●	▲	Scaling up of disruption initiated during the pandemic
	Investment in human and physical capital	▼	●	Recovery in line with market growth
	Reorganization and agility	▲	▲	New way of operating partially sustained and improved
	Shift to digital channels	▲	▲	Channel shift largely sustained
	Shifts in consumption and sector mix	●	▲	Consumption shift toward higher-value-added products; sector mix shift only slightly negative over long term
	Business dynamism (incl M&A)	▼	●	Unclear path of rising M&A and/or business entry and exit (more dynamism vs zombification)
Macroeconomic environment	Access to and cost of capital	▲	●	Lower rates for longer, but some scars in balance sheets
	Utilization and demand	▼	●	Capacity adjustments and rising use of digital networks, but also stranded assets
	Changes in regulation and taxation	●	●	Unclear whether boldness of decision making persists
	Global flows of goods, services, ideas, people	▼	●	Some sustained regionalization possible, but idea flows matter more for productivity

Source: McKinsey Global Institute analysis

The use of technologies such as digitization and automation appears to have accelerated in some companies during the pandemic, and with the right conditions in place, could raise productivity by substituting employees or contributing to boosting output per worker. In a December 2020 McKinsey Global Economic Conditions survey of executives, 51 percent of respondents in North America and Europe said that they had increased investment in new technologies (excluding remote work technologies) during 2020. One pharmaceutical company put in place robotic process automation when the pandemic broke and cut the time it took to recruit patients to a clinical trial for a COVID-19 treatment from weeks to days. In construction, half of respondents to a May 2020 McKinsey survey said that they had already increased investment, including in digitization.[10]

A broad shift toward online channels occurred during 2020. In a McKinsey Digital survey, 59 percent and 60 percent of firms in North America and Europe, respectively, said that they were experiencing a significant increase in customer demand for online purchasing, services, or both as a result of COVID-19. One retailer achieved three years' worth of prepandemic rates of growth in e-commerce in eight weeks.[11]

The pressures of the pandemic also forced many businesses to become more efficient, to rethink their product, business, and operating models, and to become more agile, all of which could potentially drive faster productivity growth. According to our executive survey, 42 to 45 percent of respondents in Europe and North America expected to reduce their operating expenditure as a share of revenue between December 2019 and December 2020. In the face of lockdowns, US hotelier Red Roof turned its hotel suites into remote working offices with day rates. One large retailer put in place a curbside-delivery business in two days; its prepandemic plan called for an 18-month rollout. A leading global bank set up a decision-making daily working group of key leaders from across the company to coordinate its COVID-19 response, which accelerated procurement cycles to days rather than months.

Human and physical capital accumulation are two crucial elements that typically drive growth in productivity, too, but here the evidence was more mixed. On human capital, a recent McKinsey report found that "COVID-19 has accelerated the adoption of fully digitized approaches to re-create the best of in-person learning through live video and social sharing."[12] Seventy-two percent of respondents to a KPMG survey ranked reskilling as one of the most important paths to shaping the workforce, yet only 33 percent characterized it as easy to implement.[13] The temporary closure of educational institutions and the fact that many workers were outside the labor force for a relatively long period due to lockdowns could have a negative impact on skills.[14] The pandemic had a generally negative impact on short-term accumulation of physical capital. In the United States, total investment (gross fixed capital formation) remained flat between the third quarters of 2019 and 2020, having risen 4 percent between 2018 and 2019 and an average of 5 percent annually between 2015 and 2019.[15] Europe experienced a much steeper drop in overall investment. Additionally, an October 2020 McKinsey report found that 23 to 37 percent of European and UK small and medium-size enterprises were concerned about having to postpone growth projects.[16]

Another potential driver of productivity growth is business dynamism, but here the situation is uncertain. Higher rates of entry and exit by firms, which fosters increased competition, can help the most productive firms to grow and move ahead of competitors, as can M&A activity that promotes resource reallocation and consolidation. Total global M&A volume decreased by 21 percent in the first three quarters of 2020 compared with the first three quarters of

[10] "The next normal in construction: How disruption is reshaping the world's largest ecosystem," June 2020, McKinsey.com.
[11] See also *The future of work after COVID-19*, McKinsey Global Institute, February 2021.
[12] Sapana Agrawal, Aaron De Smet, Sébastien Lacroix, and Angelika Reich, "To emerge stronger from the COVID-19 crisis, companies should start reskilling their workforces now," May 2020, McKinsey.com.
[13] *The 2020 lesson for HR: Think big and play the long game: Findings from global HR executives in a KPMG survey conducted July 21–August 7, 2020*, KPMG, 2020.
[14] *Bruegel blog*, "The scarring effect of COVID-19: Youth unemployment in Europe," blog entry by Monica Grzegorczyk and Guntram B. Wolff, November 28, 2020; and Natalia Martín Fuentes and Isabella Moder, *The scarring effects of COVID-19 on the global economy*, VoxEU, February 2021.
[15] OECD.
[16] Jonathan Dimson, Zdravko Mladenov, Ruchi Sharma, and Karim Tadjeddin, "COVID-19 and European small and medium-size enterprises: How they are weathering the storm," October 2020, McKinsey.com.

2019. The volume of M&A transactions in the United States demonstrated a particularly steep slump of 43 percent in the same period.[17] Firm entry and exit rates also fell during the pandemic, but this reflected deliberate government policies to avoid mass bankruptcies. From January to September 2020, compared with the same period in 2019, bankruptcies dropped by close to 25 percent, on average, across our sample countries, including in the worst-affected sectors like accommodation and restaurants. The creation of new firms declined in most countries, but there were exceptions. The rate of new business creation rose 12 percent in Sweden and 18 percent in the United States. When direct governmental support tapers off, whether we will see renewed business dynamism or the declining dynamism observed in some countries for years before the pandemic remains uncertain.[18]

Measurable firm advances so far appear concentrated, particularly in the United States

Our analyses used a number of metrics that are available at the firm level, such as R&D spending, investment, and M&A, as short-term proxies for our range of potential drivers that could accelerate productivity. These are imperfect, but we need to look at large sets of firm-level data to get an indication of the breadth of advances.

66%

of US R&D investment growth from Q3 2019 to Q3 2020 from large superstars

We find that, as of the third quarter of 2020, acceleration was not broad-based among firms or sectors. This is understandable given that the pandemic disruption was still severe. Even with the right diffusion and demand conditions in place, any measurable impact and actual productivity acceleration will take some time to appear. Advances on the metrics we apply appeared greater in sectors that were already ahead of their peers as measured by the same metrics before the pandemic in both Europe and the United States. The sectors that had the largest share of firms improving across metrics in the third quarter of 2020 had also been advancing on them before the pandemic, namely professional, scientific, and technical services; IT; healthcare; and communication services. These are large sectors, and if they achieve higher productivity growth, they could have a positive impact on productivity growth in the total economy. However, some other large sectors such as travel, transport, and logistics, as well as some subsectors of manufacturing, experienced less progress on the same measures. At the firm level, on almost all metrics, acceleration was less widespread during the pandemic than before it (Exhibit E3). The share of firms that accelerated on different metrics was very similar in the United States and Europe both before and during the pandemic. For example, 36 percent and 38 percent of US and European firms, respectively, increased their capital expenditure, compared with 57 and 58 percent before the pandemic.

On many indicators, advances appeared concentrated among large superstar firms, particularly in the United States.[19] This was true across many sectors but particularly pronounced in professional, scientific, and technical services, IT, electronics manufacturing, and healthcare. Overall, capital expenditure declined by much less for large superstars than for other groups of companies between the third quarters of 2019 and 2020. R&D investment by large US superstars grew by about $2.6 billion (66 percent of total R&D investment growth in the third quarter of 2020 from a year earlier), compared with $1.4 billion for all other types of firms (34 percent). The superstar effect was less pronounced in Europe.[20]

[17] Refinitiv; Pamela Barbaglia and Joshua Franklin, "M&A spikes in record third quarter as boards go on pandemic deal spree," Reuters, September 30, 2020.

[18] Ryan A. Decker et al., *Declining business dynamism: Implications for productivity?*, Brookings Institution Hutchins Center working paper number 23, September 2016; and Silvia Lui et al., *Business dynamism in the UK: New findings using a novel dataset (ESCoE DP 2020-14)*, Economics Statistics Centre of Excellence, October 2020.

[19] We define large as the top 10 percent of firms by 2019 revenue and superstars as firms with substantially greater share of income than peers and that are pulling further away from those peers over time. See *Superstars: The dynamics of firms, sectors, and cities leading the global economy*, McKinsey Global Institute, October 2018.

[20] McKinsey research has shown that the gap in economic profit between the top quintile of firms and others widened significantly during the pandemic. See Chris Bradley, Martin Hirt, Sara Hudson, Nicholas Northcote, and Sven Smit, "The great acceleration," July 2020, McKinsey.com.

Exhibit E3

In the third quarter of 2020, firms' actions appeared less broad-based than before the pandemic.

Share of firms accelerating (firms that improved on a given metric), % ▲ Accelerating ▼ Decelerating

Potentially productivity-enhancing drivers	Proxy indicator used[1]	United States: Pre-pandemic 2019 vs 2018	United States: Pandemic Q3 2020 vs Q3 2019	Europe: Pre-pandemic 2019 vs 2018	Europe: Pandemic Q3 2020 vs Q3 2019
Automation and technology	GFCF in hardware, software, and databases[2]	Acceleration in growth in United States from 5% in 2018–19 to 7% growth in Q3 2019–Q3 2020[3]			
Operational efficiency	SG&A and COGS margin[4]	51 ▼	35	51 ▼	38
Product, business, and operational model disruption	Research and development	67 ▼	53	73 ▼	41
Investment in human and physical capital	Capital expenditure	57 ▼	36	58 ▼	38
Reorganization and agility		n/a[5]			
Shift to digital channels	E-commerce retail sales	Acceleration in e-commerce retail sales growth rate, from 15% to 31%		Acceleration in e-commerce retail sales growth rate, from 7% to 28%	
Shifts in consumption	Gross profit margin	48 ▲	51	49 ▲	51
Business dynamism (incl M&A)	Acquisitions	24 ▼	11	26 ▼	14
	Divestitures	7 ▼	3	11 ▼	6
Revenue (for reference)		65 ▼	39	69 ▼	42

1. Where we have used proxy indicators, they are the best available but not perfect. In some cases, we did not identify a suitable proxy.
2. GFCF (gross fixed capital formation), also called investment; acquisition of produced assets (including purchases of secondhand assets).
3. GFCF in computer hardware, software, and databases.
4. SG&A = selling, general, and administrative; COGS = cost of goods sold.
5. No relevant metric available.

Note: We exclude companies with insufficient data in 2018–20 and outliers (companies that have one-off data significantly impacting result on driver). Sample sizes may differ across drivers depending on data availability.

Source: OECD; S&P Global Market Intelligence; McKinsey Global Institute analysis

If advances broaden and demand is robust, annual productivity growth could accelerate by about one percentage point in the period to 2024

In the short term, there are compelling reasons to believe that collapsing revenue, space utilization, and investment due to the economic shock of the pandemic could hamper productivity growth.

However, as the disruption eventually recedes, significant productivity acceleration could be possible if action taken by firms enhances productivity, if the action spreads, and if demand strengthens. We reviewed eight sectors with industry experts who found potential for an increase of 1.5 percentage points of productivity growth per year in the period to 2024 across the sectors.[21] For the total nonfarm business sector, the potential could be 1.1 percentage points of additional annual productivity growth. Our sensitivity analysis suggests that the potential could range between 0.7 and 1.5 percentage points.

If productivity growth were to accelerate by one percentage point a year in the period to 2024, that would be more than double the rate after the global financial crisis in our sample countries. If the potential is realized, it implies additional per capita GDP in 2024 ranging from about $1,500 in Spain to about $3,500 in the United States.

The potential to accelerate productivity growth varies among sectors

The largest potential incremental rise in productivity growth in 2019–24 could be in the healthcare, construction, ICT, retail, and pharmaceuticals sectors at about two percentage points per year. Most of the other sectors we analyze could benefit from an acceleration in annual productivity growth of about one percentage point per year (Exhibit E4).

A bottom-up review of sectors with industry experts found potential for an increase of around 1 percentage point of productivity growth per year in the period to 2024

[21] In this report, we focus on productivity advances as felt by consumers and businesses rather than as measured by official statistics; we do not consider well-known measurement problems in detail. Most of our productivity-enhancing estimates will show up in productivity statistics, but some may not. This is particularly the case in sectors with some activities that standard measures of gross value added (output measured at market prices) do not include. Healthcare is an example.

Exhibit E4

Our sector analysis indicates potential for incremental productivity growth of approximately one percentage point per year through 2024.

United States and Europe

Sector	Share of nonfarm business economy, 2017, %[1]	Pandemic-related productivity acceleration potential, compound annual growth rate, 2019–24, %	Main contributors to potential productivity growth acceleration driven by COVID–19, 2019–24
Health	10	1.6–3.0	• Telemedicine • Operational efficiency
Construc-tion	5	1.7–2.5	• Operational efficiency • Modularization, design to constructability, and standardization • Digitization of processes and automation
ICT	10	1.2–2.3	• Demand for online services • Online channels • Online advertising
Retail	7	1.0–2.4	• E-commerce • Warehouse automation • Advanced analytics
Pharma-ceutical	2	0.8–2.3	• Digitization of sales channels • Automation of manufacturing • AI for vaccine discovery
Banking	8	0.9–2.0	• Hybrid working • Online channels • Shift to digital payments
Auto-motive	3	0.4–1.2	• Electric vehicles • Connected Car • Online sales
Travel and logistics	13	0.3–0.5	• Digital interaction (eg, apps) • Agile working • Automation of tasks
Subtotal[2]	58	1.0–2.0 **(1.5)**[3]	• Digital channels • Automation of tasks • Operational efficiency
Other nonfarm business sectors	42	0.3–0.9	• Automation of tasks • Digital channels • Lower real estate costs
Total nonfarm business sectors	100	0.7–1.5 **(1.1)**[3]	• Digital channels • Automation of tasks • Operational efficiency

1. Weighted by total nominal GDP contribution of United States (62%) and six European economies (38%) in our focus countries. Pharma includes chemicals and pharmaceuticals manufacturing due to lack of breakdown for United States and Sweden; automotive includes transport machinery; travel and logistics includes arts and recreation, accommodation and food services, transportation and storage, other service activities, and activities of households and extraterritorial units; other nonfarm business sectors includes professional services, wholesale, mining and quarrying, manufacturing excluding chemicals and pharmaceuticals and automotive, and utilities; excludes public administration and defense, real estate activities, education, and agriculture. Sectors included amount to 74% of total economy in United States and 75% in 6 European focus countries.
2. Subtotal potential productivity acceleration and contribution by lever is estimated using weighting of our 8 deep-dive sectors.
3. Midpoint estimate.

Note: Figures may not sum to 100% because of rounding.

Source: EU KLEMS; McKinsey Global Institute analysis

In the five sectors with the highest estimated potential, we note:

— **Healthcare.** During the pandemic, major resources were allocated to fighting the virus and away from services such as elective procedures, which tend to earn hospitals higher revenue. In France, for example, outpatient healthcare providers experienced a 71 percent decline in activity between January and April 2020.[22] As a result, the sector could experience lower value-added growth for some time, which could adversely affect productivity growth.[23] The largest driver of potential incremental productivity growth is the acceleration of telemedicine during the pandemic, which could well become a permanent feature. Industry experts say 20 percent of healthcare spending could be delivered virtually. In the United States, 76 percent of patients expressed interest in using telehealth in the future.[24] Other drivers of productivity growth include an increased focus on operational excellence through more flexible task scheduling and the adoption of best practices in procurement and lean operations. Overall, the sector has potential to accelerate annual productivity growth by more than two percentage points.

— **Construction.** Construction companies had to manage disruptions to global supply chains and increased costs associated with implementing health and safety measures during the pandemic, undermining productivity. However, accelerated adoption of digital and industrialized construction methods that improve operational efficiency could yield a large productivity boost.[25] A McKinsey survey found that two-thirds of construction executives expect the pandemic to accelerate shifts to digital technologies, industrialization, consolidation, and value-chain control.[26] Overall, the sector could benefit from an acceleration in annual productivity growth of two percentage points.

— **ICT.** The ICT sector has productivity upside from increased demand for online services. Many ICT firms are fixed-cost platform businesses that can scale rapidly in response to demand, raising productivity. Netflix added 25 million users globally in the first two quarters of 2020, increasing its subscriber base by 15 percent.[27] Demand for videoconferencing solutions expanded rapidly as remote working spread. Prior to the pandemic, the rate of remote working was 2 to 9 percent in some US sectors; it increased to between 36 and 84 percent during the pandemic.[28] The pandemic intensified the attractiveness of cloud computing to enable other business activities, including e-commerce and remote working. According to a McKinsey survey, 34 percent of business executives increased the migration of their company's digital assets to the cloud as a result of the pandemic, and 54 percent expected this change to persist.[29] In the United Kingdom, telecom company BT experienced a 2.4 time increase in demand for broadband upgrades.[30] Other drivers include an accelerated shift to online sales and increased online advertising. Overall, the sector has potential to accelerate annual productivity growth by about two percentage points.

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[22] Giles Colcough, Penelope Dash, and Lieven Van der Veken, "Understanding and managing the hidden health crisis of COVID-19 in Europe," June 2020, McKinsey.com.

[23] Axel Baur, Panco Georgiev, MD, Imraan Rashid Munshi, MD, and Marek Stepniak, "Healthcare providers: Preparing for the next normal after COVID-19," May 2020, McKinsey.com.

[24] Oleg Bestsennyy, Greg Gilbert, Alex Harris, and Jennifer Rost, "Telehealth: A quarter-trillion-dollar post-COVID-19 reality?" May 2020, McKinsey.com.

[25] According to previous McKinsey research, the construction sector could experience a productivity boost driven by better digital planning, upgraded on-site execution, and improved procurement and supply chain management of construction projects. Prior to the pandemic, growth in venture capital investment in construction tech outpaced that of overall venture capital investment, which could accelerate further following the pandemic. See *Reinventing construction: A route to higher productivity*, McKinsey Global Institute, February 2017; Katy Bartlett, Jose Luis Blanco, Josh Johnson, Brendan Fitzgerald, Andrew Mullin, and Maria João Ribeirinho, "Rise of the platform era: The next chapter in construction technology," October 2020, McKinsey.com; PitchBook, Inc.; * data have not been reviewed by PitchBook analysts.

[26] "The next normal in construction: How disruption is reshaping the world's largest ecosystem," June 2020, McKinsey.com.

[27] Netflix, 2020.

[28] Aamer Baig, Bryce Hall, Paul Jenkins, Eric Lamarre, and Brian McCarthy, "The COVID-19 recovery will be digital: A plan for the first 90 days," May 2020, McKinsey.com.

[29] Joe Dertouzos, Ewan Duncan, Matthias Kässer, Satya Rao, and Wolf Richter, "Making the cloud pay: How industrial companies can accelerate impact from the cloud," October 2020, McKinsey.com.

[30] BT Group PLC, October 2020 and February 2021.

— **Retail.** Retailers, particularly in nonessential categories and brick-and-mortar stores, experienced a significant demand shock as well as increased costs associated with added health and safety requirements and with transitioning from offline to online retail. These factors could be a drag on productivity for some time. On the positive side, however, the main driver of additional potential productivity is accelerating growth in e-commerce, which is likely to persist. Before the pandemic broke, e-commerce was forecast to account for less than one-quarter of all US retail sales by 2024; during the first two months of the COVID-19 crisis, the actual share of e-commerce in total retail sales rose from 16 to 33 percent.[31] Other productivity drivers include increased automation and new technologies, particularly in warehouses, and increased adoption of the so-called store of the future, which could disrupt business and operating models. Overall, annual productivity growth could accelerate by close to two percentage points.

— **Pharmaceuticals.** The productivity of pharmaceutical companies could be compromised in the near term by disruption to clinical trials for treatments unrelated to COVID-19. Between 50 and 75 percent of multisite trials were disrupted by lockdowns.[32] However, a shift toward digital channels could drive additional incremental productivity growth. During the pandemic, McKinsey experts estimate, 80 percent of interactions were digitized because sales representatives were no longer able to meet clinicians in person. So long as demand remains strong, rapid growth in digital marketing and sales channels, increased automation in pharmaceutical manufacturing, and greater adoption of artificial intelligence (in laboratories, for instance) could accelerate annual productivity growth by about 1.5 percentage points in the period to 2024.

Among other sectors, in banking the main drivers of productivity growth could be the shift to digital channels, particularly contactless payments, and increased use of telesales or videoconferencing. In the automotive sector, demand fell during the pandemic, but in fall 2020 there was evidence that it was steadily bouncing back toward prepandemic levels.[33] In the period to 2024, productivity growth could be driven by accelerated adoption of electric vehicles and connected cars, and greater digitization of sales channels. Demand for premium vehicles (such as electric vehicles and connected cars) has been robust during the pandemic, partly reflecting consumers' concerns about taking public transit and the fact that affluent households, which tend to drive demand for premium vehicles, have been less affected by the crisis than other households. In travel and logistics, the importance of face-to-face interaction in tourism could limit the potential of automation technology, but in the logistics sector, the shift to digital channels such as online booking and automation of supply chains could accelerate.

75%

of North American and European survey respondents expected higher new technologies investment in 2020–24

Surveys indicate that firms intend to take more action and expect an acceleration in productivity growth

Forward-looking survey evidence compiled in the course of 2020, as well as responses to the December 2020 McKinsey Global Economic Conditions survey, revealed significant intent to build on the changes many businesses made in response to the pandemic (Exhibit E5). A range of external surveys corroborates this broad picture.[34] The December survey showed that about 75 percent of respondents in North America and Europe said they expected investment in new technologies to accelerate in 2020–24, up from 55 percent

[31] Lars Fiedler, Eric Hazan, Brian Ruwadi, and Kelly Ungerman, *Retail reimagined: The new era for customer experience*, August 2020, McKinsey.com.

[32] Gaurav Agrawal, Brandon Parry, Brindan Suresh, and Ann Westra, "COVID-19 implications for life sciences R&D: Recovery and the next normal," May 2020, McKinsey.com.

[33] "How consumers' behavior in car buying and mobility is changing amid COVID-19," September 2020, McKinsey.com.

[34] Global Economic Conditions survey, McKinsey & Company, December 2020. Other McKinsey surveys used include the Digital Survey, Consumer Pulse Survey, Future of Work Survey, Innovation through Crises Survey, Org4Speed Leadership Survey, *Reimagining the postpandemic organization*, and "COVID-19 and European small and medium-size enterprises: How they are weathering the storm." External surveys include *The future of jobs report 2020*, World Economic Forum, October 20, 2020; *The business response to COVID-19: The CEP-CBI survey on technology adoption*, Centre for Economic Performance, September 2020; and Joachim Rotzinger, *Wer digitalisiert, blickt optimistischer in die Zukunft (Those who digitize are more optimistic about the future)*, Haufe Group, August 2020.

who said they increased such investment in 2014–19.[35] Many respondents also said they intend to move to more efficient and agile ways of operating, and a majority of respondents said that the COVID-19 crisis would accelerate their creation of new products, services, or both. On human capital building, a 2020 World Economic Forum report found that in our sample countries, between 35 and 50 percent of firms surveyed were looking to accelerate implementation of reskilling programs.[36]

This action is also reflected in executives' expectations that their firms will achieve high productivity growth. On average, their responses imply between 2 and 3 percent annual productivity growth in the period from 2019 to 2024, more than the 1.7 percent that results from adding prepandemic productivity growth to our estimate of potential.[37]

Exhibit E5

Surveyed executives expect acceleration on most drivers.

Share of respondents from Europe and North America whose firms experienced or expected advances, %

Potentially productivity-enhancing drivers	Prepandemic[1]	Postpandemic[2]	
Automation and technology	55	75	Estimate increased investment in new technologies
Operational efficiency	30	35	Expect decreased operating expenditure margins
Product, business, and operational model disruption	← 55 →		Creating new products and/or services accelerated by COVID-19
Investment in human and physical capital	← 40[3] →		Intend to accelerate implementation of upskilling/reskilling due to COVID-19
Reorganization and agility	55	70	Expect more rapid decision making and implementation of business decisions
Shift to digital channels	← 60 →		Targeting new customers and using new channels accelerated by COVID-19
Shifts in consumption	← 20 →		Adoption of new revenue models accelerated by COVID-19[4]
Business dynamism (incl M&A)	20	20	Consider M&A one of their biggest opportunities

1. End 2014 to end 2019.
2. End 2019 to end 2024 for all drivers except investment in human and physical capital (post–Oct 2020) and business dynamism (2020–21).
3. Rounded average for France, Germany, Italy, United Kingdom, and United States.
4. Shifting from subscription to freemium model, for example.

Note: Where we have used proxy indicators, they are the best available but not perfect. In some cases, we did not identify a suitable proxy.
Source: McKinsey Global Economic Conditions Survey, Dec 2020; World Economic Forum; McKinsey Global Institute analysis

The economic shock of the pandemic and firms' responses could exacerbate long-run demand drags, compromising the productivity potential

The difference between potential supply growth and fourth quarter 2020 forecast baseline growth in effective demand in 2024 could be as much as six percentage points, expressed in

[35] Our December survey includes 584 firms in our sample countries, of which 21 percent have more than $10 billion in annual revenue, 19 percent $1 billion to $10 billion, 33 percent $10 million to $1 billion, and 23 percent less than $10 million. The remaining 5 percent is split between "not applicable" and "don't know" responses.

[36] *The future of jobs report 2020*, World Economic Forum, October 20, 2020.

[37] McKinsey's December 2020 Global Economic Conditions survey allows us to compare our estimate to the productivity growth firms expect they will achieve. Our central estimate is based on prepandemic productivity growth plus our estimated productivity boost, amounting to total productivity growth of 1.7 percent. We asked businesses what they expect their productivity and customer surplus growth to be in the period from 2019 to 2024. The weighted average estimates of survey responses we obtained from businesses are 1.9 percent and 1.2 percent, respectively. Businesses do not measure these metrics directly, so this result should be treated with care. Additionally, productivity growth and customer surplus growth are not perfectly additive, but at least some of the customer surplus will be reflected in productivity statistics via price adjustments. Based on this, we conclude that businesses expect, on average, their productivity growth to be 2 to 3 percent between 2019 and 2024.

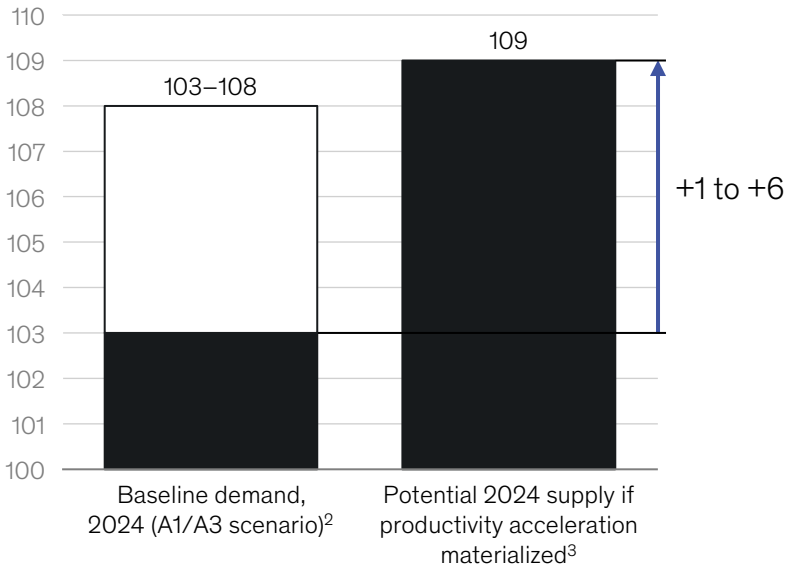
terms of 2019 GDP (Exhibit E6).[38] On the upside, additional supply could translate into about $2 trillion of rising incomes and public and private consumption or investment in our sample countries, equivalent to one full year of Italy's GDP. However, absent action to strengthen it, demand growth could remain tepid, wage growth will stay low, and, as a result, productivity growth will be slow (that is, the supply will not materialize) as firms do not invest and the most productive firms find growth difficult (as happened after the global financial crisis).[39]

Exhibit E6

Potential supply could exceed baseline demand in 2024.

United States and Europe

Potential supply and demand, 2024, index: 100 = 2019[1]



1. GDP-weighted average of the 7 sample countries.
2. A1 and A3 scenarios from McKinsey and Oxford Economics. Forecast from IHS Markit stands between A1 and A3.
3. Based on historical productivity growth (2010–19) and additional potential due to postpandemic acceleration of productivity.

Source: IHS Markit Comparative Industry, Dec 2020; OECD; Oxford Economics, Nov 2020; The Conference Board, Apr 2019 release; McKinsey Global Institute analysis

Just when robust demand is needed most, the nature of the COVID-19 crisis and of the potential actions taken by firms look set to exacerbate long-standing structural drags on demand. A temporary boost from pent-up demand is likely once the health situation is fully resolved.[40] However, long-standing structural drags on demand also need to be tackled if demand is to be robust over the longer term (Exhibit E7). Large-scale continuing fiscal support from governments, the Biden administration's early 2021 support package being a prominent example, could help minimize or reverse these drags.

[38] The excess supply potential is the difference between the GDP-weighted average of GDP forecasts (demand) and estimated potential supply for our sample countries in 2024 if the productivity boost is realized. The demand forecast reflects the range between the A1 and A3 scenarios developed by McKinsey with Oxford Economics; see *Nine scenarios for the COVID-19 economy*, December 2020, McKinsey.com. The supply potential forecast is the addition of prepandemic productivity growth (2010–19) and our estimated productivity acceleration potential of 1.1 percentage points. The gap does not factor in demand drags or demand increases dynamically resulting from the potential supply growth. We used the GDP forecast from IHS Markit Comparative Industry (December 2020) as a check of the robustness of the demand forecast and found that its weighted average forecast for our sample countries is between scenarios A1 and A3.

[39] *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.

[40] *The consumer demand recovery and lasting effects of COVID-19*, McKinsey Global Institute, March 2021.

Exhibit E7

The pandemic and firms' responses could exacerbate structural demand drags.

United States

Impact on demand Positive Uncertain Negative

Demand component	Driver	Pandemic impact		Firm response	
Private consumption	Employment and income levels	9pp	Increase in savings rate as of Sept	~60%	Productivity potential through efficiency-driven actions (ie, denominator-based)
		37%	Share of long-term unemployed by Dec		
		61%	Share of workforce that cannot work remotely (<1 day per week)	~60%	Firms that are looking to accelerate automation
			Temporary boost from pent-up demand		
	Income distribution and propensity to consume	54%	Share of decline in consumption from top income quartile households as of Oct	-0.4%	Superstar companies' change in revenue as of Sept, compared to 11% loss for competitors
		-25%	Employment rate of low-income households vs high-income as of Dec		
Private investment	Demand and macroeconomic outlook	140%	Global uncertainty compared to previous peak during global financial crisis, as of Dec	~3%	Drop in gross output (proxy of revenue) compared to prepandemic level as of Sept
			Low private consumption	~3%	Drop in private investment compared to prepandemic level as of Sept
	Investment intensity of production				Superstar effect (see above)
				1pp	Increase of intangible investment over total investment as of Sept
	Financial position		Low interest rate environment	7%	Increase in total loans on nonfinancial corporations' balance sheets as of Sept
Public consumption and investment	Financial capacity/ sustainability	19%	Size of announced fiscal stimulus as a share of GDP as of Jan 2021[1]		
		+21pp	Surge in debt-to-GDP ratio, which reached 127% in September, may limit future investment		
			Discussion of whether ultralow interest rates render debt levels less important		

Note: Net exports are not in scope of this research due to global nature of crisis and unclear long-run impact of pandemic.

1. $1.9 trillion package approved in March not included. Government spending of the kind being discussed in the United States in early 2021 (eg, a large infrastructure package) could mitigate or reverse demand weaknesses.

Source: Baker et al., 2020; BEA; BLS; Chetty et al., Nov 2020; IMF; OECD; Oxford Economics; S&P Global Market Intelligence; W EF, Oct 2020; McKinsey Global Institute analysis

After a potential burst of pent-up demand in the short term, the behavior of consumers and firms could dampen income and private consumption over the longer term

Before the pandemic, productivity growth had not always fully translated into broad-based wage growth and consumption. In the United States, median wage growth has been about 19 percentage points below productivity growth since 2000—6.5 percent of today's GDP in forgone wages. If US median wage had grown with productivity, today it would be close to $9,000 per year higher than it is. Consumption is mostly a function of employment and the income it generates, and the distribution of that income and the propensity to consume. The shock of the pandemic led to a collapse in consumption and a spike in savings, particularly among high-income households, and to job losses mostly among those on lower incomes.

In the short term, across our sample countries, consumption may spike as pent-up demand is unleashed, but other shifts that took place during the pandemic, notably efficiency-focused productivity action and accelerated digitization, could, over the longer term, dampen employment and incomes, and hasten labor-market polarization and propensity to spend. Our sector reviews suggest that about 60 percent of the estimated productivity potential comes from firms taking measures to cut labor and other input costs, for example by increasing automation.[41] If these productivity gains are not reinvested in growth that drives jobs and incomes, they could lead to a widening gap between productivity and wage growth, rising unemployment or lower employment. Accelerating superstar effects could also lead to further increases in inequality, for instance if the labor share of income falls further.

The pandemic and changes to the economic fabric it has prompted could depress already weak investment over the longer term

Up to

11%

fall in investment in Europe in Q3 2020 vs Q4 2019

Before the pandemic, investment rates were in long-run decline due to factors such as aging and slow growth, and investment weakened further during COVID-19. In the United States, private fixed investment in productive capital such as machinery, equipment, structures, R&D, and software stood nearly 3 percent lower in the third quarter of 2020 than in the fourth quarter of 2019. In Europe (where only combined quarterly private and public fixed investment data are available), the decline was 4 and 5 percent for Germany and France, respectively, but significantly higher for Spain and the United Kingdom at 11 percent.[42]

While investment will inevitably at least partially recover from this collapse—there may even be some unleashing of pent-up investment—a number of factors could be a persistent drag. A weak macro and consumption outlook can reduce the need to invest. A shift to intangibles and superstar effects, as well as heightened risk and high hurdle rates, might decrease the investment intensity of production. And bankruptcies and corporate debt overhang can reduce the ability to invest. The share of intangible investment over total investment rose across all our sample countries in the first three quarters of 2020—by as much as 2.8 percentage points in France and 1.9 in the United Kingdom. In December, the OECD found that firms anticipating a negative book value of equity and thus higher risk of insolvency had doubled in a sample of 14 European countries.[43]

Debates on debt sustainability will shape future public investment and consumption

Government consumption and investment made a modest but declining contribution to demand growth before the pandemic as a majority of our sample of countries strove to stabilize public debt built up largely in response to the global financial crisis. This trend reversed abruptly when the pandemic broke. As of January 2021, the size of announced economic support packages in the United States, for example, was the equivalent of 19 percent of 2020 forecast GDP, including additional spending and forgone revenues due to

[41] Productivity measures value added (numerator) per hour worked (denominator). Productivity can therefore be increased by raising value added or by reducing hours worked (that is, labor inputs). When estimating the productivity growth potential from action by firms, we classify each as numerator- or denominator-based and find that about 60 percent of the potential is achieved through denominator-based action. We do not take into account longer-term dynamic or spillover effects; for instance, we classify worker automation as driving productivity growth through reducing the denominator but do not assess resulting price reductions or wage increases that can increase the numerator.

[42] Quarterly figures for Europe include both private and public investment.

[43] "Insolvency and debt overhang following the COVID-19 outbreak: Assessment of risks and policy responses," in *OECD Economic Outlook*, Volume 2020 Issue 2: Preliminary version, December 2020.

tax deferrals, loans, and guarantees for households and firms.[44] In Europe, the relative size of economic support packages was 39 percent of GDP in Germany and as much as 42 percent in Italy, excluding the European Union's package of 5 percent of regional 2019 GDP. All other countries also registered sizable increases in the contribution of the public purse. This bold government intervention helped to avoid an even larger economic collapse, but at the cost of very substantial increases in public debt. In the United States, the increase was 21 percentage points between the final quarter of 2019 and the third quarter of 2020, taking the US debt stock of the federal government to 127 percent of GDP. In Europe, the increase was more modest but still ranged from three percentage points in Sweden to 20 percentage points in Italy. Despite rising debt levels, in the United States the Biden administration's $1.9 trillion support package passed by Congress in March 2021 suggested a determination to continue extending public support to the US economy, but there was a lively debate about whether the package was sustainable and may lead to an outbreak of inflation.[45] The longevity of public support, when it may taper off, and how the transition out of it is managed will be a crucial aspect determining present and future aggregate demand and productivity growth.[46]

Firms and policy makers should consider working on three interlocking priorities

$3,500

additional US per capita GDP potential in 2024 from productivity expansion

Businesses and policy makers were audacious in their response to COVID-19 and need to be bold in crafting a healthy postpandemic economy. Once the health crisis is contained and economies are fully open, they need to work simultaneously on expanding innovation and advances that could accelerate productivity growth, and on addressing drags on demand. The response to the pandemic underlined that both innovation among firms and the engagement of policy makers will be needed to deliver on the productivity potential. CEOs can shape the outlook rather than solely responding to it through the new products and services they offer, the investments they make, and the wages they pay. Yet it is also the time for collective action, as the immediate interest of individual firms (by, for instance, focusing on cutting costs) can work against the collective interest of driving growth. Policy makers have a range of interventions at their disposal to engage with businesses to steer toward a healthy economy. Our analysis suggests three interlocking questions for business leaders and governments to resolve: (1) how can innovation and other advances that can increase productivity growth be sustained and spread?; (2) how can action by firms that could boost productivity growth also support employment, median wages, and demand?; and (3) how can investment be increased—and directed to the right places?

— **How can innovation and other advances that can increase productivity growth be sustained and spread?** The expansion of productivity starts within firms, and many have taken action. In the period to 2024, our analysis suggests that supply potential could accelerate by about one percentage point per year. In our sample countries, if this potential were realized, it would imply additional per capita GDP in 2024 ranging from about $1,500 (Spain) to $3,500 (United States). But to underpin strong long-term growth, large corporations need to consider how to catalyze change across their entire supply chains and ecosystems to spread advances more widely. Policy can support these efforts through, for instance, public procurement focused on innovation, direct R&D investment

[44] Fiscal Monitor Database of Country Fiscal Measures in Response to the COVID-19 Pandemic, International Monetary Fund Fiscal Affairs Department, January 2021, imf.org. Direct fiscal stimulus excluding loans, equity injection, and guarantees was larger in the United States than in Europe. It amounted to 17 percent in the US, 11 percent in Germany, and between 4 and 8 percent in France, Italy, Sweden, and Spain.

[45] Some prominent protagonists in that debate in early 2021 were Lawrence H. Summers, Olivier Blanchard, and Paul Krugman. See Lawrence H. Summers, "Opinion: The Biden stimulus is admirably ambitious. But it brings some big risks, too," *Washington Post,* February 4, 2021; Oliver Blanchard, *In defense of concerns over the $1.9 trillion relief plan*, Realtime Economic Issues Watch, Peterson Institute for International Economics, February 2021; and *Will the Biden stimulus lead to inflation? A conversation with Paul R. Krugman and Lawrence H. Summers*, Bendheim Center for Finance, Princeton University, February 2021.

[46] Given that interest rates may remain low for some time, it may be feasible for governments to raise their investment in order to stimulate demand, even if their debt burden is high. A renewed debate in macroeconomics concerns the sustainability of debt given low interest rates. See, for example, Olivier Blanchard, "Public debt and low interest rates," *American Economic Review*, April 2019, Volume 109, Number 4; Jason Furman and Lawrence Summers, *A reconsideration of fiscal policy in the era of low interest rates*, Peterson Institute for International Economics, November 2020; and *Fiscal policy advice for Joe Biden and Congress*, Peterson Institute for International Economics virtual event, December 2020, piie.com.

(subsidies or tax credits), and revising competition, platform, and competition rules, bankruptcy procedures, and product and labor market regulations.

— **How can action by firms that could boost productivity growth also support employment, median wages, and demand?** The evidence presented in this report indicates that long-run structural demand drags could get worse after the pandemic eases and pent-up demand and economic support efforts ebb away. Lifting demand through a combination of consumption and investment to match additional potential supply could add six percentage points of GDP by 2024 in our sample countries. Individual firms will naturally address immediate pressure on their bottom line, but they also have a collective social and economic impact. The investments they make, the wages they pay, and the way they interact with their suppliers and workforces shape the environment they operate in. Businesses can help address demand drags by emphasizing growing revenue rather than solely seeking efficiencies. They can also invest in retraining workers who, without the right skills, risk job loss or wage cuts, undermining demand. Some companies are using the opportunity to gauge and strengthen the financial condition of their most vulnerable workers. Policy makers have a range of tools to support demand and after-tax income, ranging from fiscal stimulus to wage setting norms and predistribution (that is, preventing inequalities, for instance by providing better access to quality education, health care, and other support that enables higher earnings) and redistribution.

— **How can investment be increased—and directed to the right places?** Higher business, public, and household investment will be required to support both demand and productivity. Specific types of long-running investment gaps that could be closed now include sustainability, infrastructure, and affordable housing. For instance, in the United States, closing infrastructure gaps, which at the time of writing in early 2021 was gaining prominence in policy discussions, could produce an increase in annual investment equivalent to 0.5 percentage point of GDP.[47] Businesses are already considering making environmental, social, and governance issues more central to their decision-making process. Given recent innovation in some of these areas (for instance, falling solar power costs) and changing regulations, some investment opportunities are increasingly attractive. Additionally, firms can work toward setting higher sustainability standards and invest in line with those, getting ahead of the regulatory process. McKinsey surveys find that corporate executives expect sustainability to gain further importance, meaning companies can take advantage of access to capital and labor to invest in areas such as hydrogen, green aircraft, carbon capture, electricity storage, and the renovation of housing.[48] Governments, in turn, can support such investment by setting rules and pricing externalities, such as for carbon emissions. They could also look at rules governing land and housing markets to unlock investment. Furthermore, they can raise direct investment in high-priority, high-impact areas such as infrastructure, basic science, and skill building. To unlock funds, they could revisit the rules governing public investment, recognizing it as a public wealth-building activity on a balance sheet rather than as a deficit-increasing fiscal expense.

[47] *Bridging infrastructure gaps: Has the world made progress?* McKinsey Global Institute, October 2017.
[48] "Sustainability's strategic worth: McKinsey Global Survey results," July 2014, McKinsey.com.

Shifts in consumer and business behavior under the pressure of the pandemic offer hope that a more dynamic economy could emerge from the crisis—a welcome productivity dividend. However, business advances on potential drivers of higher productivity growth need to be more widespread, and demand must be robust well after the initial spike in consumption that many expect once the health crisis is effectively managed. Notably, the very changes made by some companies that could potentially deliver an acceleration in productivity growth could exacerbate structural weakness in demand and risk higher unemployment, economic stagnation, and higher inequality. The situation requires simultaneous recovery in supply and demand that is sustained over the longer term. The boldness and speed with which businesses and governments responded to the pandemic now need to be deployed to craft a broad-based, equitable, and sustainable recovery.

1. The great uncertainty

The COVID-19 pandemic has been a deeply damaging health crisis that has also caused the most challenging disruption to economies since World War II. As newly developed vaccines started to roll out in early 2021, the attention of business leaders and policy makers necessarily turned to contemplating how life beyond COVID-19 may look in economic terms, and to planning for long-term recovery.

Unlike previous economic crises, the pandemic simultaneously curtailed consumer demand and shut down commercial and industrial output—the shock was felt both on the demand and the supply side. Every part of economies was affected as governments took extraordinary measures to contain the spread of infection. Large swaths of many economies were shuttered. Offices closed and factories stopped running, and the retail, hospitality, and travel sectors, among others, went into deep freeze as governments attempted to stop the spread of the coronavirus through social distancing. The economic shock has also been global in its reach, affecting almost every country in the world; global supply chains have fragmented. And the speed at which the disruption impacted economies was extraordinary.

The COVID-19 crisis caused a deep economic shock

In the United States and the six large European economies that are the focus of this research—France, Germany, Italy, Spain, Sweden, and the United Kingdom—the pandemic caused a deep shock to demand. Even once the most severe restrictions were lifted in the third quarter of 2020, post-shutdown consumption and investment were still 3 percent below prepandemic levels in the United States. In Europe, the decline in demand was even larger; in the third quarter, levels of consumption and investment were 7 and 5 percent, respectively, below prepandemic levels. In December 2020, US employment was still down by nearly 10 million jobs. In Europe, a significant share of the workforce was put in temporary unemployment schemes. At the end of 2020, more than two million workers were still on short-time working (*Kurzarbeit*) in Germany, and nearly four million were furloughed in the United Kingdom.

The shock also affected the supply side. Businesses were forced to close; many instituted emergency changes to the way they operate in order to survive in a new and unexpected world of lockdowns and restrictions on entire populations. As of September 2020, about 25 percent of small businesses in the United States were still closed, with a high level of uncertainty about how many would eventually be able to reopen.[49] In spite of unprecedented government support, in August 2020, about one in ten small and medium-size enterprises (SMEs) in Europe were expecting to go bankrupt in the next six months, and one-fifth were concerned about defaulting on loans.[50] In the United States, labor productivity grew by 2.6 percent during 2020 versus 2019, reflecting the fact that many firms adjusted staff levels rapidly and lower-productivity workers, in particular, lost their jobs. In contrast, in major European economies, productivity was either flat, as in the case of France, or fell, as in Germany and Spain, which experienced declines of 0.2 and 0.6 percent, respectively.[51] European governments tended to support efforts to maintain employment through actions such as furloughing workers. The differential trends in productivity in the United States and major European economies do not, however, tell us very much about how productivity growth may unfold in the medium term once the disruption of the pandemic dissipates. The patterns observed when the pandemic was actively disrupting economies during 2020 were cyclical in nature—and importantly

[49] *Global Economics Intelligence executive summary, October 2020*, November 2020, McKinsey.com.
[50] Jonathan Dimson, Zdravko Mladenov, Ruchi Sharma, and Karim Tadjeddine, "COVID-19 and European small and medium-size enterprises: How they are weathering the storm," October 2020, McKinsey.com.
[51] Productivity numbers cover the private business sector in the United States and the total economy in Europe.

reflected public-policy choices and statistical effects. Short-term fluctuations in productivity are not necessarily representative of structural shifts in the economy. For instance, if the least productive employees lose employment disproportionately during a recession, productivity will grow faster temporarily due to a composition effect. Particularly during the COVID-19 crisis, the least productive sectors suffered more severe closures, boosting productivity growth for some quarters; however, as these sectors started to reopen, this effect also began to vanish. There can also be data issues. For example, accounting for hours worked is complex in the context of furlough schemes, and the adoption of different policies (on an unprecedented scale) and accounting methodologies may result in apparent differences in productivity figures that may not reflect fundamentals.

Overall, during 2020 both the United States and Europe experienced the deepest recession since World War II. GDP dropped 3.5 percent in the United States. In Europe, the economic contraction was generally larger at 4.9 percent in Germany, 8.1 percent in France, 8.9 percent in Italy, 9.9 percent in the United Kingdom, and 11 percent in Spain; the contraction in Sweden was 2.8 percent.

While the direct impact on economies was considerable and remained so in early 2021, this research explores the potential path ahead for productivity growth for the United States and our six large European economies; the seven economies together account for 40 percent of global GDP.[52] The eight sectors we examine in depth account, on average, for about 60 percent of the nonfarm business economy. We cover five additional sectors accounting for 40 percent of the nonfarm business economy by extrapolating relevant trends to these sectors based on our eight focus sectors. In this chapter, we explore the ingredients that economics tells us are needed to achieve a virtuous cycle of growth in the wake of a major disruption, looking at recoveries in the past and at scenarios for postpandemic economies.

Exiting the crisis with a period of sustained robust growth requires strong demand and a productivity acceleration

3.5%

US GDP contraction and

11%

fall in Spain in 2020

In the case of the COVID-19 crisis, an absolute prerequisite for economic renewal is that the spread of the infection is finally tackled and its impact on economic activity ends. In this research, we assume that a combination of safety measures, vaccines, and immunization will remove pandemic-related restrictions on economies during the course of 2021 and 2022.

Beyond this, economies need action on the supply side that can boost productivity and value creation that is diffused widely, particularly in large sectors, as well as sufficient demand to support companies in making productivity-enhancing changes and maintaining employment—a virtuous cycle (Exhibit 1). No healthy economic aftermath of a deep economic disruption has been exclusively on the supply side or demand side; both are needed. They rely on, and interact with, each other (see Box 1, "Gauging and assessing productivity—our approach").

Looking in more detail at the requirements for a virtuous cycle to work, first, action that can drive productivity growth needs to be broad-based among companies and in sufficiently large sectors to move the needle for the whole economy. If action is taken largely by leading firms—so-called superstars—that employ a small share of workers, then realized productivity is likely to fall short of its potential.[53] There are also risks associated with increasing productivity dispersion among firms and rising concentration of economic activity and profits in superstar firms. Innovation, digitization, and other productivity-enhancing action concentrated in leading firms could result in an increasing divide between superstars and a long tail of lagging or zombie companies, rising income inequality, and higher unemployment: a great divide in

[52] We do not analyze emerging markets, which have a different productivity-growth dynamic than mature markets.

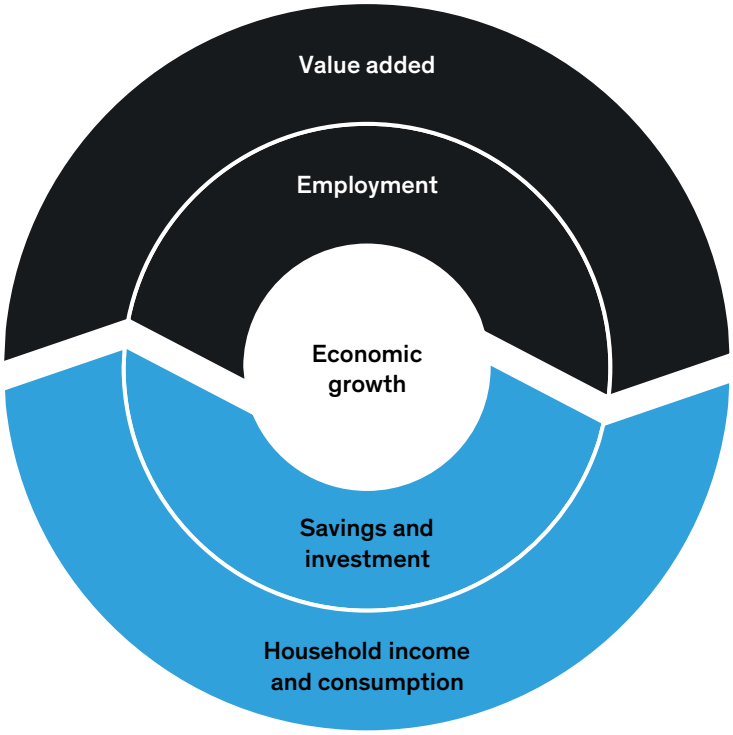
[53] *Superstars: The dynamics of firms, sectors, and cities leading the global economy*, McKinsey Global Institute, October 2018; "What every CEO needs to know about 'superstar' companies," McKinsey Global Institute, April 2019; and David Autor et al., *The fall of the labor share and the rise of superstar firms*, NBER working paper number 23396, May 2017. On productivity dispersion, see, for instance, John van Reenen, *Increasing differences between firms: Market power and the macroeconomy*, Federal Reserve Bank of Kansas City economic policy symposium, August 2018; and Dan Andrews, Chiara Criscuolo and Peter N. Gal, *Frontier firms, technology diffusion and public policy: Micro evidence from OECD countries*, The Future of Productivity Background Papers, OECD, 2015.

which, at best, only a minority of companies, households, and regions enjoy productivity and income growth.[54]

Second, faster productivity growth needs to translate into strong growth in income and demand. Demand can be undermined by weak consumption if workers lose jobs and income, if income goes increasingly to households (often those at the top of the income distribution) that spend less, or if the ability or propensity to spend is damaged. Demand can also suffer if investment is cut, exports are weak, or government spending consolidates. While governments have reacted to the pandemic with unprecedented support packages, the nature of the crisis is undermining private-sector demand. Uncertainty among consumers and business, combined with lockdowns, has undermined consumption and investment, and there could be lingering drags even after economic activity and confidence rebound more fully. Scarring effects from long-term unemployment; the destruction of human, physical, and organizational capital; and business debt accumulation, among other factors, could have a prolonged impact. The asymmetric shock of the pandemic, disproportionately affecting lower-income individuals, could persist and have long-lasting consequences on inequality, producing additional negative effects on consumption.

Exhibit 1

For the productivity potential to be realized, the virtuous cycle of economic growth needs to be restored.



Supply
Production and technology, labor

Higher demand encourages firms to drive innovation, digitization, and other productivity-enhancing actions, raising aggregate productivity growth

Demand
Consumption and investment

Higher aggregate productivity growth raises income, stimulates consumption, and incentivizes investment, raising aggregate demand

Source: McKinsey Global Institute analysis

[54] The OECD defines zombie companies as "old firms that have persistent problems meeting their interest payments." See Müge Adalet McGowan, Dan Andrews and Valentine Millot, *The walking dead? Zombie firms and productivity performance in OECD countries*, OECD Economics Department working paper number 1372, January 2017.

Box 1

Gauging and assessing productivity—our approach

Productivity is one of the central concepts in economics and key to raising long-term living standards and growth. For brevity, in this report we use "productivity" as shorthand for what is often called labor productivity, which is a measure of output per unit of labor input. More specifically, labor productivity is measured as gross value added divided by total hours worked, so it expresses the average value created for each hour devoted to the production of goods and services. Gross value added is the monetary value of all goods and services produced in an economy in a particular period, a metric that is adjusted (imperfectly) year-on-year for changes in the price and the quality of products and services offered. Labor productivity should not be confused with total factor productivity (TFP), which excludes the impact of human and physical capital accumulation to focus only on the contribution of technical change and new business methods. In our research, we look at the impact the crisis and how firms reacted to it could potentially have on productivity growth to 2024. We use two lenses: first, medium-term supply potential from changes in firm behavior and the economic fabric; and, second, demand and the impact it can have on productivity.

Medium-term supply potential. We decompose productivity growth potential into primary factors: (1) reducing the number of hours needed to produce a good or service; or (2) improving its quality and value. We look at several drivers that often have resulted in productivity growth in the past, and from which we expect to observe impact from the crisis. Notably, they include digitization, automation, and a shift to online channels; operational efficiency and asset utilization; innovation including in business and operating models; investments in human and physical capital; reorganization and agility; and a dynamic business environment in which the most productive firms can grow and capture market share.[1] At the same time, not all corporate action translates into productivity growth and, as famously described by Robert Solow, even productivity-accelerating action can take time to materialize in observed faster productivity growth.[2] In this research, we thus pursue a micro to macro approach. We look at measures firms are taking in response to the pandemic, using interviews and external as well as McKinsey surveys, and assess whether those measures may be positive or negative for productivity and in what way given that both numerator- and denominator-based actions can each impact productivity, but with different effects. We then apply in-depth sector reviews to assess and size opportunities for an acceleration in productivity growth. We include the potential for accelerated productivity growth in sectors where it is challenging to measure it, including, notably, healthcare. There is concern that many companies, especially small companies, are not able to use best practice methods and their productivity will lag as a result, so we also look into whether action taken by firms during the pandemic is concentrated among sectors and firms that were already ahead of their peers pre-pandemic. For that purpose, we use (albeit imperfect) firm-level indicators from S&P Global Market Intelligence up to the third quarter of 2020, as well as forward-looking surveys.

1 Philippe Aghion, Céline Antonin, and Simon Bunel, *Le pouvoir de la destruction créatrice: Innovation, croissance et avenir du capitalisme (The power of creative destruction: Innovation, growth and the future of capitalism)*, Éditions Odile Jacob, Paris, 2020.

2 In 1987, economist Robert Solow said that the computer age was everywhere except in the productivity statistics. The failure of innovation to boost productivity came to be known as the Solow Paradox. See *US productivity growth, 1995–2000*, McKinsey Global Institute, October 2001; and Mekala Krishnan, Jan Mischke, and Jaana Remes, "Is the Solow Paradox back?" *McKinsey Quarterly*, June 2018.

Demand in the short and medium term. Past MGI research has shown that demand, both in the short and medium run, matters for productivity and growth.[3] Effective aggregate spending or final demand is captured in the numerator of the productivity ratio. A short-term drop in demand as, for instance, consumption or investment plummet, will be reflected in declining value added and can lead to unemployment and underutilization of capacity, or "output gaps." In the medium to long run, in a "low pressure economy" with sustained output gaps and high uncertainty, firms are much less inclined to commit resources and invest in new capacity and technology, as we saw in the years following the global financial crisis. Waiting for more clarity becomes attractive.[4] In the end, everybody invests less, mutually reinforcing the drag. In a "high-pressure economy," in turn, in which consumption, investment, exports, and public demand are at or above capacity to supply, waiting implies lost opportunities, so firms tend to innovate and invest in higher capacity and the latest technology, and the most agile and productive firms can outgrow their peers. Additionally, there is more fertile ground for wages to rise both as a result of productivity-enhancing investment and of an economy with low unemployment, improving the business case for investment and automation further. Finally, we have seen that both mix as well as scale of demand can have a direct impact on productivity, for instance in network-based industries like telecoms or sectors with high intangibles investments like internet services.[5] This is why we consider it important to focus on both supply and demand in order to foster high medium- and long-term productivity growth.

We look at demand perspectives to 2024 to assess whether there is a risk of persistent output gaps (potential supply continuously above effective demand) beyond the short-term crisis and its immediate aftermath. For a rough initial sizing of how much potential supply could exceed demand by, we use GDP forecasts from Oxford Economics and IHS Markit Comparative Industry (December 2020) as baseline demand, and compare them with our estimated productivity-acceleration potential.[6] We then analyze the channels through which the economic impact of the pandemic and action by firms could impose drags on demand relative to the higher potential income. We do not model or quantify those channels as typical general equilibrium models are by construction supply-driven, and therefore not best suited for such analysis.

[3] MGI found that weak demand and an uncertain demand outlook weighed on productivity in many sectors and via multiple channels, including from less investment; capital deepening and investment-embodied technological change; fewer large-box retail stores replacing smaller ones; automated checkouts not being installed as uncertainty was high and wages of cashiers low; a lack of new automotive plants with the latest technology and under-utilization of existing technology; less scale effects on fixed-cost businesses as in lower use of electricity networks; less upgrading to higher-value products—in automotive, for instance, the saturation of the SUV boom and a slowdown in the shift to premium cars—that can be supplied at higher productivity levels. See *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.

[4] Robert K. Dixit and Robert S. Pindyck, *Investment under uncertainty*, Princeton University Press, 1994.

[5] *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.

[6] McKinsey analysis, in partnership with Oxford Economics (November 2020); IHS Markit Comparative Industry (December 2020).

Will the stars align for the postpandemic economy?

There are reasons for optimism, but the way ahead is still extremely uncertain. We have looked at four long-term scenarios (Exhibit 2). Could we move into an age of renewal as North America and Europe did after World War II on the back of broad-based action on the supply side and resulting productivity gains translating into strong demand? Will we see sluggish growth and increasing inequality, as in the aftermath of the global financial crisis that began in 2008? Will we experience a lost decade? Could we even see a spike in inflation from a combination of pent-up demand and government stimulus once the health crisis recedes? We cannot yet know the answer to these questions, since outcomes depend on critical choices by businesses and policy makers. But decision makers can shape the future. Critical choices lie ahead.

There is a distinct opportunity for the postpandemic economy to emerge from the dark days of 2020 into an age of renewed economic progress (Exhibit 2, Quadrant 2) on the back of productivity acceleration in large sectors combined with broad income growth across households that together sustain robust demand and investment—a virtuous cycle in which strong growth is realized. One episode that illustrates the virtuous cycle—but was not the result of a deep economic crisis—was the spike in productivity growth of the 1990s and early 2000s in the United States that was, in large part, the result of a boom in ICT investment, adoption, and integration into business processes and systems.[55] Maybe more analogous to the potential consequences of the pandemic is the aftermath of World War II in North America and Europe, when a virtuous cycle played out. Demand from rebuilding, government spending (including the Marshall Plan), and the recovery of household incomes combined with structural reform, industrialization and reindustrialization, increasing skills, technology diffusion, and strong private investment lifted both incomes and productivity. Across our seven focus economies, between 1939 and 1973, annual per capita GDP grew at 3.1 percent on average.[56] This growth rate is exactly the same if we look only at the immediate decade after World War II (to 1955).

Could the postpandemic recovery be a virtuous cycle and feel like the boom years after World War II? For years before the pandemic began, most developed economies muddled along near the middle of the quadrants illustrated in Exhibit 2, with weak productivity gains that did not translate into broad-based income and demand growth.[57] Economic drags on the virtuous cycle of growth, from declining public investment to decreasing labor shares and rising inequality, were left unaddressed. Now, as we contemplate life after COVID-19, can we do better? The jury is out.

There are encouraging signs that leading companies are advancing on a number of drivers that have proved to boost productivity in the past. Notably, they have been accelerating innovation and investment in digitization and automation; reorganizing to become more agile; and adopting new business and operational models, all in response to the pressures of doing business during the economic shock of the pandemic. Such advances could move economies to the right in the matrix of Exhibit 2 as potential—even if not realized—productivity growth accelerates.[58] This would be particularly true if weaker companies were to follow the approach of leading firms, if advances spread in large sectors to affect the total economy, and if confidence among investors revives.[59]

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55 *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018. Also see Robert J. Gordon and Hassan Sayed, *Transatlantic technologies: Why did the ICT revolution fail to boost European productivity growth?*, VoxEU, August 2020.

56 Antonin Bergeaud, Gilbert Cette, and Rémy Lecat, "Productivity trends in advanced countries between 1890 and 2012," *Review of Income and Wealth*, September 2016, Volume 62, Issue 3.

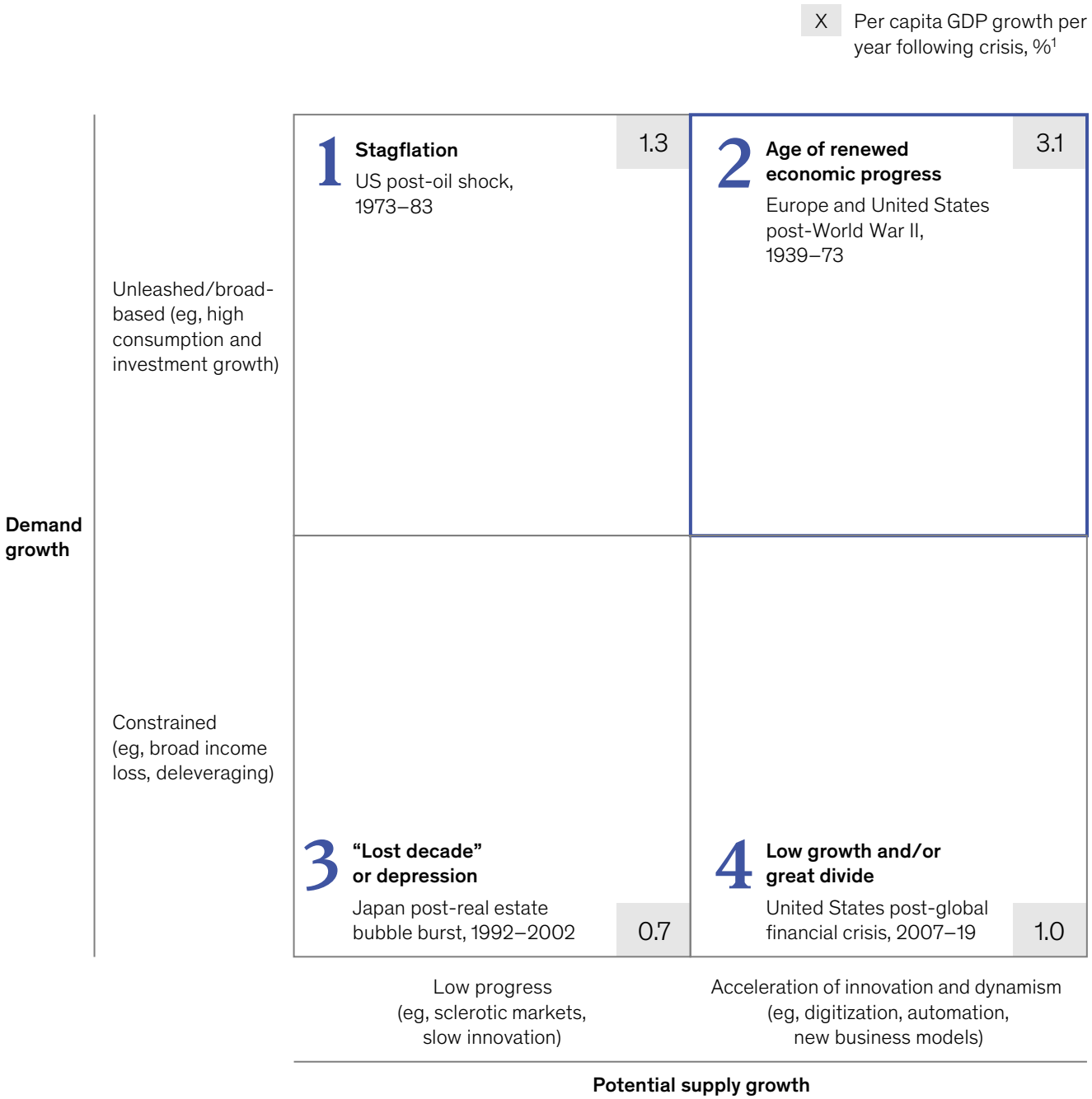
57 *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.

58 Kevin Sneader and Shubham Singhal, "The next normal arrives: Trends that will define 2021—and beyond," January 2021, McKinsey.com. Others are optimistic that accelerating innovation is a reality and could lead to rapid productivity growth. See, for instance, *Eli Dourado blog*, "Notes on technology in the 2020s," blog entry by Eli Dourado, December 31, 2020; *Marginal Revolution*, "What might an end to the Great Stagnation consist of?," blog entry by Tyler Cowen, December 13, 2020; *Noahpinion*, "Techno-optimism for the 2020s," blog entry by Noah Smith, December 4, 2020; "The pandemic could give way to an era of rapid productivity growth," *Economist*, December 10, 2020; and "Why a dawn of technological optimism is breaking," *Economist*, January 16, 2021.

59 On automation, see "After years of dithering, companies are embracing automation," *Economist*, January 16, 2021.

Exhibit 2

Could productivity growth accelerate after the COVID-19 crisis?



1 Stimulus meets weak productive capacity growth to result in low real output growth and possibly high inflation

2 Acceleration in supply growth translates into broad-based income and demand growth and robust economic growth

3 Failure to increase demand and weak innovation and supply growth lead to economic stagnation or even depression

4 Innovation and progress by only leading firms in the absence of demand leads to sustained output gaps, high unemployment and/or inequality, and slow economy-wide growth

1. Quadrant 1: US per capita GDP growth, 1973–83; Quadrant 2: weighted average of sample countries, 1939–73; Quadrant 3: Japan, 1992–2002; Quadrant 4: United States, 2007–19.

Source: Bergeaud, Cette, and Lecat, 2016; McKinsey Global Institute analysis

This leaves a big question: can this innovation and productivity-enhancing action move us into Quadrant 2 and an age of renewal, or will we fall further away from Quadrant 2 and risk a great divide (Quadrant 4)? Several conditions would need to be in place—that advances by firms actually matter for productivity, that the diffusion of actions by businesses is broad-based, and that demand is robust. Decisive action will be needed to achieve positive outcomes.

Our reviews of sectors show that there is real productivity potential from the actions that many businesses took in response to the economic shock of the pandemic. However, there is also initial evidence that acceleration on a range of firm-level proxy indicators like R&D spending, investment, and M&A may be concentrated among leading firms, requiring action to spread advances more broadly. If this concentration is confirmed and persists, any acceleration in productivity growth could fall short of potential, there could be an increasing divide between superstars and a long tail of lagging companies that limits the spread of innovation and business dynamism, and income inequality or unemployment could increase. We would move to the right in the matrix but not upward into Quadrant 2.

Additionally, during 2020, there was evidence that the nature of the economic crisis and the actions that firms are taking could exacerbate structural drags on demand (moving downward in the matrix with a mix of sustained output gaps, high unemployment, and inequality). Supply generates income that can drive demand, but there can be "leakages." Higher productivity and employment typically create higher income that is spent on driving demand. But the nature of productivity growth matters. If higher productivity growth results from innovation and value creation, demand and the economy can grow. However, if accelerated productivity growth is the result of businesses largely pursuing measures to boost efficiency by, for instance, automating jobs, then employment could fall, weakening incomes and demand if efficiency gains are not reinvested. Automation has driven wealth in the past by cutting prices, increasing the wages of those workers that remain, boosting volumes, reallocating workers to higher-productivity occupations and sectors, and broadly stimulating demand. The challenge is the scale and speed of automation, which heightens the imperative to reskill and support workers to make necessary transitions, and the economic environment in which it occurs. Moreover, if companies' actions favor the highly skilled, and those with lower skills either suffer reduced wages or lose their jobs, there is a risk of higher inequality and a lower propensity to consume. Superstar effects could also dampen demand through a declining labor share of income. If the percentage of national income that goes to worker compensation declines, demand suffers. Higher market concentration can also reduce competition, and hence the incentive to invest among both leading and lagging businesses.

Absent action to address those structural demand drags, they could break the virtuous cycle of growth, and productivity would suffer, too (Quadrant 4). In a low-pressure (low demand) and uncertain economy, firms do not need to invest in increasing capacity equipped with the latest technology, become more reluctant to take risks (the value of delay rises), and undertake any radical changes to the way they operate. Even the most productive firms find it hard to outgrow their competitors, thereby gaining market share, and the potential productivity dividend recedes.

This would resemble a repeat of the aftermath of the 2008 global financial crisis, with signs of technological and other firm-related progress, but slow diffusion of supply-side advances and sustained output gaps. The outcome of these conditions was a combination of sluggish growth and increasing polarization—a great divide. In the United States, for example, annual growth in per capita GDP between 2007 and 2019 was 1 percent.

It is worth noting that there may well be a sharp bounce in consumer spending as pandemic-related restrictions lift and pent-up demand is unleashed.[60] In February 2021, on the day after the British prime minister announced a gradual easing of lockdown restrictions, flight aggregator Skyscanner reported a 69 percent jump in bookings in one day, and easyJet said

[60] *The consumer demand recovery and lasting effects of COVID-19*, McKinsey Global Institute, March 2020.

that UK flight bookings quadrupled week-over-week.[61] Demand may also be sustained from large-scale government intervention. It is well known that governments took (and are still taking) unprecedented fiscal measures during the pandemic. Although there was increasing debate about the sustainability of such government spending given increasing public debt levels, there appeared to be some determination among governments to continue supporting economic activity. In the United States, the US Congress passed a $1.9 trillion economic support package in March 2021.[62] More could come to support investment in infrastructure, as well as green and digital innovation in both the United States and Europe, in the latter case through the Next Generation EU recovery plan that envisages the mobilization of €750 billion.[63] The outlook for the demand side will partly hinge on discussions about public investment and on how tapering off is brought about.

In a worst-case scenario that, at the time of writing in early 2021, is highly unlikely, demand could collapse due to rising unemployment and falling incomes, and productive capacity could collapse in parallel amid balance sheet damage, rising debt, and increasing corporate bankruptcies that then hit investment (Quadrant 3). This is a classic vicious cycle characterized by deflationary pressure and loss of productive capacity. The Depression years of the 1930s demonstrated what can happen if income loss triggers a downward spiral of declining demand, low investment, and large-scale job losses fueling further income losses. When Japan's real estate bubble collapsed in 1992, damaged balance sheets resulted in a long period of deleveraging; even successive rounds of fiscal and monetary stimulus could not prevent a "lost decade" in which low business dynamism combined with weak private-sector demand resulted in per capita GDP and productivity growth of only 0.7 percent a year from 1992 to 2002.

There is a final possibility of low real output growth while demand is strong, causing inflation, as happened during the 1970s oil price shock (Quadrant 1). Supply-side potential could be damaged by supply-chain shocks and sclerosis in the economic fabric from ample public support packages and declining business dynamism. Pent-up demand and fiscal and monetary stimulus could then result in negative output gaps and inflationary pressure. This possibility became an explicit topic for discussion among economists, prompted by the $1.9 trillion recovery plan announced in January by the US administration. Some economists argued that a combination of pent-up demand and substantial government spending in the face of damaged supply could lead to excessive overheating and inflation.[64]

The stakes are high

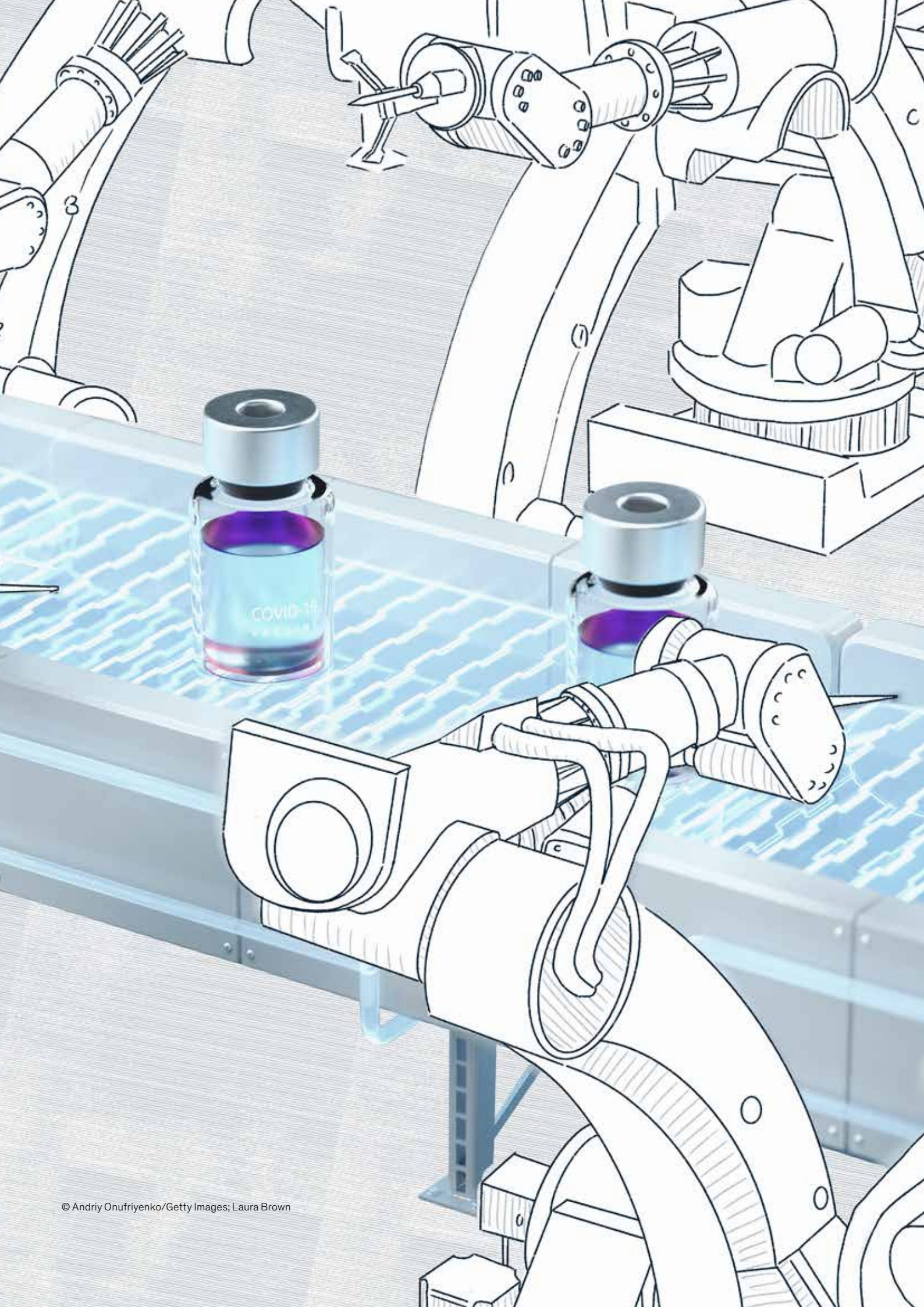
In light of this combination of promise, in the form of advances by firms on drivers of productivity, and distinct risks of concentration in diffusion of those advances and structural longer-term drags on the demand side (after an initial bounce), there is a risk that longer-term postpandemic growth will resemble Quadrant 4 or the aftermath of the global financial crisis if there is no sustained and decisive action to spread advances more broadly and support investment and consumption. Nevertheless, there is a distinct opportunity for the recovery to feel more like the postwar years if such action is taken.

The stakes are high. Starting at US 2019 per capita GDP, the difference between having, during ten years, a per capita growth rate like that after the end of World War II and the one experienced after the global financial crisis, for instance, amounts to 27 percentage points, or about $17,000. Achieving 1 percentage point of additional productivity growth per year in every country to 2024 would imply an increase in per capita GDP ranging from about $1,500 in Spain to about $3,500 in the United States. This is an opportunity for a new spirit

[61] Alice Hancock, Philip Georgiadis, and Jim Pickard, "Holiday bookings surge after UK unveils plans for lockdown easing," *Financial Times*, February 23, 2021.
[62] James Politi, "Biden to push $1.9tn stimulus for pandemic-battered US economy," *Financial Times*, January 15, 2021.
[63] *Recovery plan for Europe*, European Commission, 2020, ec.europa.eu.
[64] See, for example, Olivier Blanchard, "Public debt and low interest rates," *American Economic Review*, April 2019, Volume 109, Number 4; Jason Furman and Lawrence Summers, *A reconsideration of fiscal policy in the era of low interest rates*, Peterson Institute for International Economics, November 2020; and *Fiscal policy advice for Joe Biden and Congress*, Peterson Institute for International Economics virtual event, December 2020, piie.com.

of collective action to broaden productivity-enhancing advances, spread the gains, and raise demand that could result in a period of fast growth that was not achieved in recent decades.

In chapter 2, we turn to a discussion of how firms have been responding to the pressures of the pandemic in ways that could potentially boost productivity growth, and the extent to which action is being diffused among companies and sectors.



2. Bold action—by some firms

It is difficult to think about any positives emerging from the COVID-19 pandemic when the virus has caused such human tragedy and deep economic disruption. In late 2020, the toll on economies was all too evident. Unemployment was rising, long-established businesses faced no choice but to close their doors, global supply chains were partially broken, and public finances in many countries were hitting levels that would have been deemed problematic in more normal economic times. Productivity was severely hampered, with new health and safety requirements hindering business operations, fractured supply chains compromising the efficiency of production, and damaged balance sheets and a risky macroeconomic outlook standing in the way of investment in new machinery, buildings, and innovation. Even in early 2021—a year after COVID-19 was identified—many firms were still operating below capacity.

As economies recover from the disruption, many of these issues seem likely to dissipate. After the initial shock, the outlook for productivity could potentially be relatively positive. As economic activity plunged during the pandemic, long-established trends in business and consumer behavior suddenly accelerated by force of necessity. Many firms took bold steps during the pandemic that could transform their business over the long term; we look at many examples of companies that shifted gears at remarkable speed. Broadening out from individual companies and the extraordinary measures they took in response to the disruption, we discern several distinct trends. The pace of digitization and automation quickened in some companies, remote working became the norm, firms became more efficient and agile, and many businesses—and people—went online for the first time. The bold response of many companies and governments proved that organizations can transform quickly when they have to.

In this chapter, we look at action that businesses are taking on key drivers of productivity growth. We find that there has been a wave of innovation in technology adoption and business operations, but that during 2020 advances appeared to have been concentrated among large firms that were already performing well—and pulling ahead of their competitors—and operating in sectors that were also strong before the pandemic.

Despite uncertainty, firms acted on several drivers that offer the potential to boost productivity growth

In the short run, collapsing revenue, capacity and space utilization, and investment are likely to weigh on labor productivity; there will inevitably be adjustment costs (financial and fixed) that could undermine productivity growth. However, during 2020, in response to the deep economic disruption of the pandemic, there was evidence of action by firms on a range of drivers that have delivered higher productivity growth in the past. We looked at a number of drivers of potential gains in productivity growth and examples of businesses in Europe and the United States taking action on them during the pandemic despite reacting to many pressures (Exhibit 3).

Exhibit 3

The business response to the COVID-19 disruption could have a positive impact on productivity growth potential through several drivers.

■ Focus of this work

Effect of the pandemic shock

▲ Increase

● Mixed

▼ Decrease

Category	Potentially productivity-enhancing drivers	Short term	Long term	Long-term rationale
Firms' response to macro changes	Automation and technology	●	▲	Increasing and better use of technology
	Operational efficiency	▼	▲	Cost-cutting takes effect, pandemic measures lifted
	Product, business, and operating model disruption	●	▲	Scaling up of disruption initiated during the pandemic
	Investment in human and physical capital	▼	●	Recovery in line with market growth
	Reorganization and agility	▲	▲	New way of operating partially sustained and improved
	Shift to digital channels	▲	▲	Channel shift largely sustained
	Shifts in consumption and sector mix	●	▲	Consumption shift toward higher-value-added products; sector mix shift only slightly negative over long term
	Business dynamism (incl M&A)	▼	●	Unclear path of rising M&A and/or business entry and exit (more dynamism vs zombification)
Macroeconomic environment	Access to and cost of capital	▲	●	Lower rates for longer, but some scars in balance sheets
	Utilization and demand	▼	●	Capacity adjustments and rising use of digital networks, but also stranded assets
	Changes in regulation and taxation	●	●	Unclear whether boldness of decision making persists
	Global flows of goods, services, ideas, people	▼	●	Some sustained regionalization possible, but idea flows matter more for productivity

Source: McKinsey Global Institute analysis

We cannot be sure (and do not claim) that the advances on a range of productivity drivers among firms in 2020 will stick over the longer run, particularly given that all the firm-level data (along with evidence of advances by firms gleaned from a range of McKinsey and external surveys) we analyzed come from a time when the pandemic was ongoing, a very uncommon situation.[65] Nevertheless, developments during the disruption can still offer some guidance. Naturally, it is difficult to observe drivers such as "product, business and operating model disruption" in hard data, and therefore we used available proxies to measure them.

Investment in digitization and other technologies appears to have accelerated during the pandemic

~1/2

of companies surveyed during pandemic said investment in new technologies was up

The use of digital and other technologies appears to have accelerated during the pandemic, and, with the right conditions in place, has the potential to raise productivity as a result of substituting employees or contributing to raising output per worker as companies strove to solve pressing pandemic-induced challenges, reduce in-person contact and the risk of infection, and develop ways to tackle the virus itself. Digitization ramped up at rapid speed as companies responded decisively to the disruption.

Xenex, a United States–based robotics company that produces disinfecting robots, experienced a 500 percent increase in business from the start of 2020 to April of that year.[66] Japanese company Takeda adopted robotic process automation to accelerate paperwork filing for patient recruitment to a clinical trial of a promising COVID-19 treatment, cutting the process from weeks to days. In banking, UBS deployed new advanced analytics capabilities to detect fraud among the flood of pandemic-related loan applications.[67] In pharmaceuticals, artificial intelligence (AI) was used at scale to develop medical treatments in response to COVID-19.[68] One study suggests that pharmaceutical lab throughput can accelerate tenfold by using automation technologies.[69] Advanced analytics, more powerful computing, and AI are increasingly being used to provide improved insights during the R&D process. The speed and scale at which scientists pursued a COVID-19 vaccine was unprecedented, reflecting such innovations. Previous MGI research estimated that, using today's technologies, automation could potentially raise global productivity by 0.8 to 1.4 percent annually by 2030.[70] This potential could materialize more quickly because, in the face of the pandemic, businesses accelerated adoption.

A McKinsey Global Economics Conditions (executive) survey published in December 2020 indicated that firms accelerated investment in digitization and other technology in the middle of the pandemic. Fifty to 51 percent of respondents in North America and Europe said that they had increased investment in new technologies (excluding remote work technologies) between December 2019 and December 2020, when the pandemic was in full flow. Another global McKinsey survey conducted in October 2020 found that companies digitized many activities 20 to 25 times faster than they had previously thought possible.[71] McKinsey's Future of Work survey conducted in September 2020 showed a similar trend, with 85 percent of global respondents reporting acceleration in the digitization of employee interactions

[65] We examined a number of McKinsey surveys, namely the Global Economic Conditions survey, McKinsey & Company, December 2020 (with 1,282 respondents globally and 584 in the seven sample countries covered in the report, representing various industries and business functions). Other McKinsey surveys used include the Digital Survey (October 2020); Consumer Pulse Survey (November 2020); Future of Work Survey (June 2020, February 2020); Innovation through Crises Survey (June 2020); Org4Speed Leadership Survey (July 2020); *Reimagining the postpandemic organization*; and "COVID-19 and European small and medium-size enterprises: How they are weathering the storm." External surveys include *The future of jobs report 2020*, World Economic Forum, October 20, 2020; *The business response to COVID-19: The CEP-CBI survey on technology adoption*, Centre for Economic Performance, September 2020; and Joachim Rotzinger, *Wer digitalisiert, blickt optimistischer in die Zukunft (Those who digitize are more optimistic about the future)*, Haufe Group, August 2020.

[66] Christine Hall, "Robot manufacturers work to meet demand led by COVID-19," Crunchbase News, April 14, 2020.

[67] "Gap is rushing more robots into its warehouses to handle coronavirus disruption," CNBC, May, 2020.

[68] Abby Olena, "AI Is screening billions of molecules for coronavirus treatments," *Scientist*, May 7, 2020.

[69] *AI, labor, and economy case studies: Zymergen*, Partnership on AI, 2019, partnershiponai.org; Melanie de Almeida, *Taking biotech to the next level with laboratory automation*, Labiotech.eu, November 14, 2018; and *The Bio Revolution: Innovations transforming economies, societies, and our lives*, McKinsey Global Institute, May 2020.

[70] *A future that works: Automation, employment, and productivity*, McKinsey Global Institute, January 2017.

[71] "How COVID-19 has pushed companies over the technology tipping point—and transformed business forever," McKinsey & Company, October 5, 2020.

and collaboration.[72] Aspects of this digitization range from using digital tools to increasing videoconferencing. Intended acceleration of automation and AI, according to this same survey, was more modest but still notable, at 68 percent.

A survey by the Centre for Economic Performance conducted in September 2020 in collaboration with the Confederation of British Industry (CEP-CBI) also found that the pandemic appeared to have accelerated investment in technology. This survey used three lenses. First, it estimated that 60 percent of firms adopted new digital technologies ranging from enterprise resource planning to cloud computing and AI applications; of respondents who had not yet adopted, one-third said they planned to adopt in the future. Second, respondents from 38 percent of firms said that they had invested in new digital capabilities like e-commerce or advanced analytics. Third, 75 to 95 percent of firms reporting that they had adopted new digital technologies said that digitization, management practices, and innovation had been prompted or accelerated by COVID-19.

Signs of advances by companies appeared in short-term macroeconomic data, too. For instance, in the United States, Organisation for Economic Co-operation and Development (OECD) data show that gross fixed capital formation (a measure of investment) in computer hardware, software, and databases increased by 7.4 percent between the third quarters of 2019 and 2020, compared with 5.2 percent between 2018 and 2019 and an average growth rate of 7.1 percent between 2015 and 2019. We cannot access the same level of detailed data for Europe as we can for the United States, but total investment data indicate that European countries may be running behind the United States on this front. Conversely, survey evidence suggests a considerable degree of similarity between the two regions.

McKinsey experts working with firms around the world agree that both digitization and automation were advancing during 2020 and acknowledge that there was more evidence of acceleration in digitization than in automation. There are two potential reasons for this. First, certain types of digitization tend to be less complex. For instance, moving sales to an online channel is generally relatively simple and can be accelerated fairly quickly because a firm can draw from many successful business cases, competitors, suppliers, and other players. In contrast, automating certain tasks performed by humans can be very complex. In the case of the automation of a meat-production facility, for example, it may be much harder to find the right experts, knowledge, and suppliers. Moreover, the technical complexity of such projects tends to be very high. Second, certain types of digitization were forced on companies by COVID-19, including, for example, the digitization of work processes through a shift to teleworking and online sales. Automation of work processes is more of a choice than a necessity demanded by the pandemic. For instance, manufacturing automation at a steel production plant can be undertaken when conditions are less uncertain and challenging. In very broad terms, McKinsey experts regard the COVID-19 shock as a double-edged sword for automation. It encouraged businesses to innovate and adopt change at the same time that it exerted pressure on companies' financial capacity and demand outlook to put change into practice. The length and depth of the shock will determine the relative strength of these two forces.

[72] *The future of work after COVID-19*, McKinsey Global Institute, February 2021. The countries sampled for this report differ from the seven analyzed in this research; in the future of work report, the countries are Australia, Canada, China, France, Germany, India, Spain, the United Kingdom, and the United States.

The pressures of the pandemic forced many businesses to consider the efficiency of their operational processes as revenue declined

By streamlining processes and, in some cases, reducing the number of employees, many businesses could benefit from higher productivity. Even in the early days of the pandemic, many firms facing deep disruption took action to raise their efficiency in response to the crisis, largely because of declining revenue. These changes—and the efficiency gains achieved, in some cases very quickly—are likely to stick. Once the restrictions necessitated by the pandemic recede as infection rates come under control, those efficiency moves are likely to have their full effect.

59%

of companies said operational efficiency is a priority vs

36%

before the pandemic (April 2020 global survey)

Cost concerns became more prominent, with many executives anticipating that their sales, general, and administrative functions would need to deliver a 10 to 20 percent cost reduction to contend with the pandemic's disruption.[73] Globally, 59 percent of companies said in an April 2020 McKinsey survey that their priority was operational efficiency, up considerably from 36 percent before COVID-19. According to our December 2020 executive survey, 42 to 45 percent of respondents in Europe and North America experienced a decrease in operating expenditure as a share of revenue compared with a year earlier.

As an example, a telecom firm spotted an opportunity arising from the COVID-19 shock by increasing its use of digital interactions in response to its customers' desire for contactless resolution of issues. The company deployed a virtual collaboration tool that enabled it to address maintenance requirements remotely and eliminate the need for dispatching engineers. The firm achieved about $50 million in savings and improved resolution rates and customer ratings. For all the potential positives, it is clear that the risk of job losses or worker transitions associated with improving operational efficiency will need to be managed.

A majority of firms said that they were increasingly rethinking their product, business, and operating models in response to the pandemic

Innovation in business and operating models, together with the production of new goods and services for consumers and businesses, often increases value added in the economy, boosting productivity growth. In just a few weeks, the pandemic triggered unprecedented obsolescence of, and innovation in, business models. This was confirmed by McKinsey experts. Their overall conclusion was that most executives have "an inspiring story of radical, positive change in how work gets done and what it can accomplish."[74]

35%

of North American firms and

39%

of European firms reported investing to make technology a competitive advantage

There are many examples. Dick's Sporting Goods, a US retailer, launched curbside delivery in two days after its stores were shut down; the plan for this shift had specified that the work would take 18 months.[75] One financial-services company transitioned more than 1,000 of its global operations staff to work-from-home arrangements, equipping them with new technology within 72 hours to ensure business continuity. The decline in tourism due to national lockdowns encouraged hoteliers such as Red Roof in the United States to transform their hotel suites into remote working offices with day rates.[76] In the United Kingdom, chain restaurants began offering meal kits for consumers to replicate the restaurant experience at home, in addition to takeaways, click and collect, and grocery boxes.[77] Such accelerated innovation could foster waves of creative destruction or encourage new approaches to production, thereby raising productivity.

Surveys suggested that digital adoption during the pandemic was far less aimed at reducing costs than before it, and more focused on affecting business models. For instance, according to McKinsey's June digital survey, 35 percent of North American and 39 percent of European firms said they were "investing to make technology a competitive advantage," and 17 percent

[73] "Reset and reallocate: SG&A in the next normal," June 2020, McKinsey.com.
[74] Gemma D'Auria, Aaron De Smet, Chris Gagnon, Julie Goran, Dana Maor, and Richard Steele, "Reimagining the postpandemic organization," *McKinsey Quarterly*, May 2020.
[75] Anna Hensel, "Dick's Sporting Goods' e-commerce investments paid off during store closures," Modern Retail, June 2, 2020.
[76] *Red Roof offers "Work under our roof" day rate to provide a comfortable and quiet space for remote workers*, Red Roof, March 2020.
[77] Stacey Haas, Jon McClain, Paul McInerney, and Björn Timelin, "Reimagining consumer-goods innovation for the next normal," October 16, 2020, McKinsey.com; *Patty&Bun lockdown DIY kits now available for delivery nationwide*, Patty&Bun website; DIY Shoryu Kit, Shoryu Ramen.

of North American and 19 percent of European firms said that they were "refocusing [their] entire business around digital technologies." Only 10 percent of firms saw digitization primarily as a source of cost saving, compared with 48 percent in 2017 and 36 percent in 2018. Some external reports and surveys published in 2020 also suggested that the introduction of new products and services to better match shifts in consumer demand accelerated during the pandemic. For example, according to the September 2020 CEP-CBI survey, 45 percent of surveyed firms in the United Kingdom said that they had introduced new products or services, three-quarters of which were entirely new. After the global financial crisis and before the pandemic—specifically from 2016 to 2018—those figures were only 33 and 18 percent, respectively. This indicates that the pandemic-related shift has been substantial.

Human and physical capital accumulation are two other crucial elements that drive growth in labor productivity, but here the evidence was more mixed

Human and physical capital accumulation are crucial ingredients that typically drive growth in productivity, but the effect of COVID-19 on them appeared during 2020 to be more mixed than that of the other drivers we discuss. On human capital, a recent McKinsey report found that "COVID-19 has accelerated the adoption of fully digitized approaches to re-create the best of in-person learning through live video and social sharing."[78] Seventy-two percent of respondents to a KPMG survey ranked reskilling as one of the most important paths to shaping the workforce, yet only 33 percent characterized it as easy to implement.[79] Some firm-level evidence confirms these results. For example, during the pandemic, Verizon retrained more than 5,000 store employees to handle customer inquiries remotely.[80] Investment in physical capital (measured as gross fixed capital formation) varied substantially among countries during 2020. The short-term impact of the pandemic was negative overall. In the United States, total investment (gross fixed capital formation) remained flat between the third quarters of 2019 and 2020, compared with an increase of 4 percent between 2018 and 2019 and an average annual growth rate of 5 percent between 2015 and 2019. This was driven largely by steep declines in investment in transportation equipment and structures, OECD data show. In Europe, the overall drop in investment was steeper. Total European investment (gross fixed capital formation) fell by 4 percent between the third quarters of 2019 and 2020, compared with an increase of 7 percent between 2018 and 2019 and an average annual growth rate of 6 percent between 2015 and 2019.

The pandemic pushed companies to reorganize and become more agile

Businesses that rapidly reorganize their operations to focus on the highest-value activities, and those that empower their workers to work more flexibly, rapidly, and innovatively within and across teams, could also experience higher productivity growth.[81] The speed of change was remarkable in some cases. In our December 2020 executive survey, 52 to 55 percent of respondents in North America and Europe said their speed of making and implementing decisions was somewhat or significantly faster compared with December 2019. According to the October 2020 McKinsey survey, companies responded to COVID-19 with a range of changes much more quickly than they had anticipated they could—in fact, between 20 and 40 times faster.[82]

Agile telecommunications companies reacted twice as fast as their peers.[83] A leading global bank set up a daily working group of key leaders from across the company to coordinate its COVID-19 response, which helped to accelerate procurement cycles to days rather than months and enabled the purchase of technology required for employees to work from home.

[78] Sapana Agrawal, Aaron De Smet, Sébastien Lacroix, and Angelika Reich, "To emerge stronger from the COVID-19 crisis, companies should start reskilling their workforces now," May 2020, McKinsey.com.

[79] *The 2020 lesson for HR: Think big and play the long game: Findings from global HR executives in a KPMG survey conducted July 21–August 7, 2020,* KPMG, 2020.

[80] Jeremy Godwin, *The retail redeployment: How'd they do it?*, Verizon, April 2020.

[81] *How consumer companies are adopting agility during the COVID-19 pandemic*, February 2021, McKinsey.com; and Quentin Jadoul, Deepak Mahadevan, and Philippine Risch, "How agile can power frontline excellence," February 2021, McKinsey.com.

[82] "How COVID-19 has pushed companies over the technology tipping point—and transformed business forever," McKinsey & Company, October 2020.

[83] Christopher Handscomb, Deepak Mahadevan, Lars Schor, Marcus Sieberer, Euvin Naidoo, and Suraj Srinivasan, "An operating model for the next normal: Lessons from agile organizations in the crisis," McKinsey & Company and Harvard Business School, June 2020.

Many consumer companies turned to agile, too.[84] Recent McKinsey research found that 93 percent of organizations thought their agile business units had performed "better" or "significantly better" than their nonagile business units in both customer satisfaction and operational performance.[85]

Shifts online and to digital channels ramped up at lightning speed and will partially stick after the pandemic recedes

~60%

of firms reported a significant increase in customer demand for online purchasing

Shifts online, including by first-time users who had no choice during lockdowns, could facilitate higher productivity growth by raising output through more effective targeting of customers while reducing costs associated with physical channels. An accelerated shift online was arguably the most prominent trend in response to COVID-19. In a McKinsey Digital survey, 59 percent and 60 percent of firms in North America and Europe, respectively, said that they were experiencing a significant increase in customer demand for online purchasing, services, or both as a result of COVID-19. The pandemic drove "sticky" consumers to try online channels for the first time. Compared with historical growth rates, growth in e-commerce in the United States accelerated on a forecast ten-year trajectory in just three months.[86] In Europe, the share of people using at least one digital service in at least one industry in the six months to May 2020 jumped from 81 percent to 94 percent on average—a change that would have taken two to three years in most industries at prepandemic growth rates.[87] According to Euromonitor International, the total e-commerce market is expected to have grown, in current terms, by 28 percent and 31 percent in 2020 in Europe and the United States, respectively, compared with 7 and 15 percent in 2019.[88]

In retail, L'Oréal accelerated its digital transformation, achieving three years' worth of prepandemic rates of growth in e-commerce in eight weeks.[89] From mid-March, when lockdowns began, Sunrun, a US-based provider of residential solar electricity, rapidly accelerated its deployment of digital tools to enable fully virtual sales consultations; by the end of April, the company had recorded its highest sales day ever—all online. This transition was achieved significantly faster than the two years the company had planned for it to be completed prior to the pandemic.[90] Nike hosted workouts for housebound consumers on its mobile apps, driving an 80 percent increase in engagement and a 30 percent increase in digital sales in the first quarter of 2020.[91] IKEA began offering web-based video consultations during the pandemic.[92] Even lagging sectors demonstrated an accelerated shift to digital channels. In the United Kingdom's National Health Service, online consultations with general practitioners increased from 10 percent before the pandemic to 85 percent in spring 2020.[93] In construction, half of executives surveyed said that they had increased their investment in digital since the start of the crisis; previous MGI research had found that technology could deliver a 14 to 15 percent productivity boost by 2030.[94]

The pandemic also created an unparalleled shift to remote working due to social distancing requirements, one of the most visible and prominent features of the business response. Again, the speed of change was remarkable. An October 2020 McKinsey survey found that companies moved 43 times more quickly than expected.[95] During the pandemic, in the United States, the share of people working remotely ranged from 36 percent in education and health

[84] *How consumer companies are adopting agility during the COVID-19 pandemic*, February 2021, McKinsey.com.
[85] *Agile resilience in the UK: Lessons from COVID-19 for the "next normal,"* October 2020, McKinsey.com.
[86] Lars Fiedler, Eric Hazan, Brian Ruwadi, and Kelly Ungerman, *Retail reimagined: The new era for customer experience*, August 2020, McKinsey.com.
[87] Santiago Fernandez, Paul Jenkins, and Benjamim Vieira, *Europe's digital migration: Getting past the broad trends and averages*, McKinsey & Company, July 2020.
[88] Europe includes both Western and Eastern Europe; Euromonitor International Retailing 2021 Edition.
[89] Leila Abboud, "L'Oréal glimpses its digital future amid pandemic," *Financial Times*, May 15, 2020.
[90] Jean Haggerty, "Solar industry CEOs weigh-in on positive trends in Covid-impacted quarterly results," *PV Magazine*, May 14, 2020.
[91] Nick Leung, Joe Ngai, Jeongmin Seong, and Jonathan Woetzel, *Fast-forward China: How COVID-19 is accelerating five key trends shaping the Chinese economy*, McKinsey & Company, May 2020.
[92] IKEA, "IKEA Retail: Leveraging technology in Coronavirus times," May 8, 2020.
[93] Simon Stevens and Amanda Pritchard, *Second phase of NHS response to COVID-19,* UK National Health Service, April 2020, england.nhs.uk.
[94] *The next normal in construction: How disruption is reshaping the world's largest ecosystem*, McKinsey & Company, June 2020; and *Reinventing construction: A route to higher productivity*, McKinsey Global Institute, February 2017.
[95] "How COVID-19 has pushed companies over the technology tipping point—and transformed business forever," McKinsey & Company survey, October 5, 2020.

services to 84 percent in ICT, compared with 2 to 9 percent across sectors prior to the crisis.[96] According to the European Central Bank, 50 percent of the European labor force worked from home during the deepest periods of lockdown.[97] As many as 70,000 Deutsche Bank employees moved to a remote model.[98]

The evidence on the productivity impact of remote working is somewhat mixed. On the one hand, it can raise productivity growth by reducing travel time, increasing efficiency and flexibility, and boosting worker satisfaction that leads to higher performance. On the other hand, it can lower productivity growth by making it more difficult to build relationships and exchange of ideas—so-called knowledge spillovers—or by reducing the quality of training for younger employees, among other factors. Between April and May, a McKinsey survey found that 41 percent of respondents said that they had worked more productively when working remotely.[99] However, a report on the United States by The Conference Board in May 2020 found that industry and manual services were more likely to report a decline in productivity, while organizations with primarily professional and office workers were more likely to report no change. Nevertheless, about one-quarter of organizations surveyed by The Conference Board self-reported an increase in productivity—27 percent in industry and manual services, and 21 percent in professional and office roles.[100] Research on the relationship between remote working and productivity has yielded uneven results.[101] Looking at examples of individual firms, some employers, such as the global telecommunications firm Telenor, were more open to adopting hybrid working models (both in person and remote) following the pandemic after experiencing a productivity spike from remote working, enabling workers to work flexibly while also maintaining relationships in the workplace.[102] Technology firm Cisco Systems experienced an increase in productivity while employees were working from home, with an increase in the number of calls taken by customer services representatives and a rise in customer satisfaction, too.[103]

Shifts in consumption toward more affordable products are typical of recessions but should not persist

Changes in the composition of spending toward higher- or lower-value-added products and services affect productivity. The pandemic prompted a shift among consumers toward more affordable products and services, which could undermine productivity in the short term. According to one McKinsey survey, 20 to 30 percent of European and US consumers appeared to be purchasing less expensive products to save money. Such behavior is typical of recessions and can harm short-run productivity growth, but it should not persist once the recession is over. If incomes and confidence recover, this effect should dissipate, particularly if firms find ways to improve how they serve customers and offer them more valuable products, many of them tech-enabled.[104]

[96] Aamer Baig, Bryce Hall, Paul Jenkins, Eric Lamarre, and Brian McCarthy, "The COVID-19 recovery will be digital: A plan for the first 90 days," May 2020, McKinsey.com. There is evidence of both positive and negative impact on productivity from working from home. See Adam Gorlick, *Productivity pitfalls of working from home in the age of COVID-19*, Stanford Institute for Economic Policy Research, March 30, 2020.

[97] Martin Sandbu, "Restructuring after COVID will matter even more than recovery," *Financial Times*, October 15, 2020.

[98] Marc Shoffman, "Here's how Deutsche Bank figured out working from home for its employees, and banking from home for customers," Business Insider, May 19, 2020.

[99] "What's next for remote work: An analysis of 2,000 tasks, 800 jobs, and nine countries," McKinsey Global Institute, November 2020.

[100] *From immediate responses to planning for the reimagined workplace: Human capital responses to the COVID-19 pandemic*, The Conference Board, May 20, 2020.

[101] See, for example, Alex Bartik et al., *How the COVID-19 crisis is reshaping remote working*, VoxEU, July 2020. For an experiment with positive results, see Nicholas A. Bloom et al., *Does working from home work? Evidence from a Chinese experiment*, Oxford University Press, 2014.

[102] Johnny Wood, *How one Norwegian company is pioneering a flexible future for staff*, World Economic Forum, July 2020.

[103] David Gelles, "Are companies more productive in a pandemic?," *New York Times*, June 23, 2020.

[104] For an extensive analysis of postpandemic consumer trends, see *The consumer demand recovery and lasting effects of COVID-19*, McKinsey Global Institute, March 2020.

38%

fall in bankruptcies in France and Italy, and

28%

fall in United States Jan–Sept 2020

Business dynamism (including M&A) fell during the pandemic mostly due to policy decisions; the longer-run effect is uncertain

Another potential driver of productivity growth is business dynamism, but here the situation is uncertain. Higher rates of entry and exit by firms fostering increased competition, and M&A activity promoting resource reallocation and consolidation, can help the most productive firms to grow and move ahead of competitors.

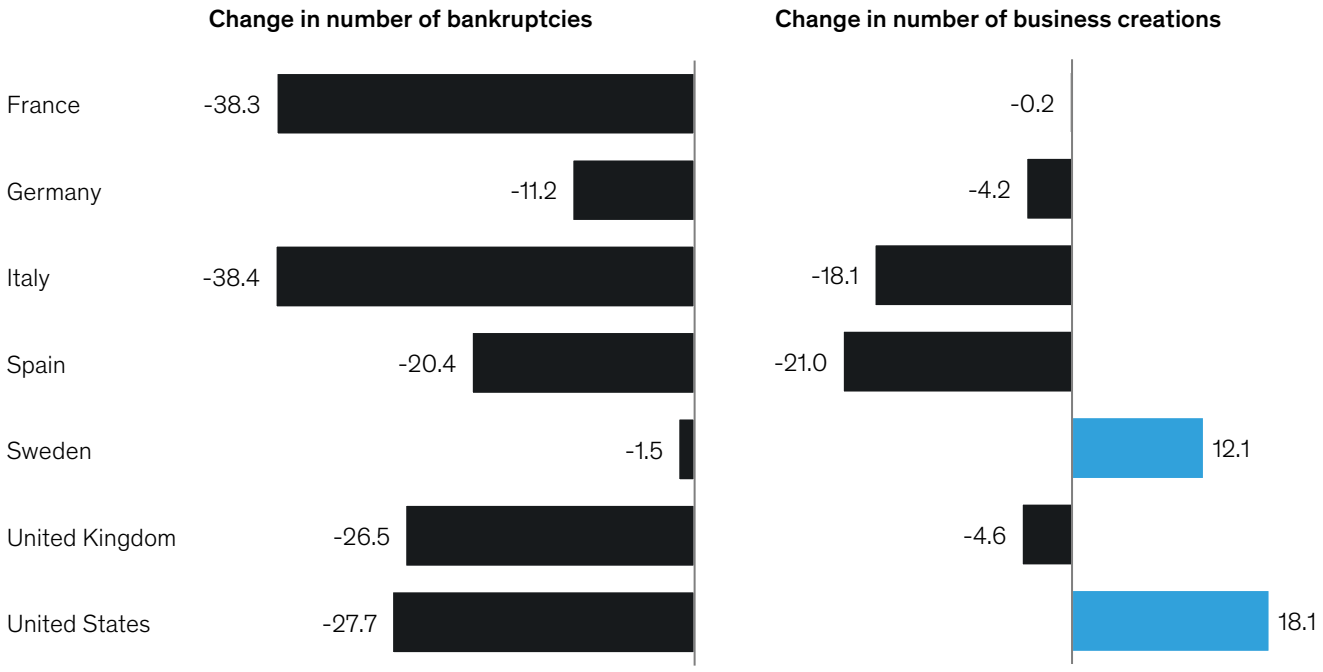
M&A activity, one of the ways in which companies restructure, declined during the COVID-19 crisis. Total global M&A volume in the first three quarters of 2020 decreased by 21 percent compared with the first three quarters of 2019. In the United States, the slump was particularly steep at 43 percent.[105]

Turning to the entry and exit of firms, between January and September 2020, a sharp decline in bankruptcies reflected large-scale government support to prevent mass business failure during the pandemic, particularly in hard-hit sectors including accommodation and restaurants. Looking at individual countries, bankruptcies fell 38 percent in France and Italy, 28 percent in the United States, and 11 percent in Germany, compared with the same period in 2019 (Exhibit 4). Notably, new businesses emerged in some countries even amid the stress of the pandemic, jumping by 18 percent in the United States and 12 percent in Sweden. However, in the rest of our sample countries, the rate of new business creation declined.

Exhibit 4

The number of bankruptcies decreased in 2020 vs 2019, while business creation varied by country.

Change by country, Jan–Sept 2020 vs Jan–Sept 2019, %[1]



1. Most recent data used depending on availability (usually Sept but may be Aug, Oct, or Nov).

Source: Banque de France; INSEE, France; Statistisches Bundesamt, Germany; Camera di Commercio delle Marche, Italy; Instituto Nacional de Estadística, Spain; Bolagsverket, Sweden; Office for National Statistics, United Kingdom; US Census Bureau; American Bankruptcy Institute; McKinsey Global Institute analysis

Given that policy makers in many economies explicitly decided to extend considerable support to businesses to sustain them during the pandemic, it is not yet possible to tell whether COVID-19 has been, or will be, a catalyst for renewed business dynamism or will result in the survival of low-productivity, inefficient firms, impeding productivity growth.

[105] Refinitiv; "M&A spikes in record third quarter as boards go on pandemic deal spree," Reuters, September 30, 2020.

The amount of underlying damage across business, as well as future policy decisions that will be taken to exit this highly unusual situation, are highly uncertain in early 2021.[106]

A changing macroeconomic environment could also affect productivity growth

Beyond their own actions, firms need to consider the impact of macroeconomic factors outside their control, including changes in access to, and the cost of, capital; in regulation and taxation; and in global flows of goods, services, ideas, and people. Access to capital was sustained by government interventions and the fact that bank balance sheets were relatively healthy going into the crisis. During the pandemic, firms sought capital in a range of ways. For instance, the volume of initial public offerings in the United States increased significantly, from $13 billion in the third quarter of 2019 to $58 billion in the third quarter of 2020, driven primarily by an increase in the number of deals, from 46 to 152, in the same period.[107] Debt issuance also accelerated. For example, global bond issuance surged by nearly 25 percent to $5.35 trillion in the period from January 1 to December 22, 2020, compared with the same period in 2019.[108] The cost of capital was also kept low, partly due to central banks' interventions. Looking ahead, access to financing and interest rates will remain crucial, particularly as companies strive to restore their finances as economic activity returns to prepandemic dynamics.

The pandemic caused deep and sudden disruptions to global trade and supply chains. A large part of this disruption is likely to be reversed when the pandemic recedes; it is notable that a sizable share of international trade lost in the early part of 2020 had been recovered by the end of the year. However, companies' strategic view of how they arrange their global footprint may have shifted, altering the pattern of international flows well beyond the crisis. MGI research has found that intricate production networks were designed to be efficient and cost-effective, but not necessarily resilient in the face of disruptions.[109] The future of trade policy and policy tensions are other factors subject to substantial uncertainty.[110]

Yet we do not foresee a negative long-term impact on productivity, partly because flows of ideas and data have taken up an increasing weight in all global flows even as the weight of trade in goods has declined. In 2016, MGI research found that digital flows, which had been virtually nonexistent 15 years earlier, had a larger impact on GDP growth than trade in goods.[111]

Measurable company advances so far appear concentrated, particularly in the United States

36–38%

of US and European firms increased capital expenditure in Q3 2020, lower than

57–58%

before pandemic

To create a virtuous cycle (alongside robust demand) requires productivity-enhancing advances to be broad-based both among firms and sectors, and in particular in large enough sectors to affect economy-wide productivity.[112] However, the initial evidence is that advances do not yet meet this bar in the case of either firms or sectors.

We used a number of metrics that are available at the firm level, such as R&D spending, investment, and M&A activity, as short-term proxies for our range of drivers that could potentially accelerate productivity growth (see Box 2, "Methodology and sources of firm-level data"). These are imperfect, but we need to look at large sets of firm-level data to get an indication of the breadth of advances. On all productivity-related indicators relevant to the drivers we have discussed, acceleration was less widespread during the pandemic than before it, according to our analysis of firm-level data; the only exception was gross profit margins for both the United States and Europe (Exhibit 5). This is understandable given that the pandemic disruption was severe. Even if the right diffusion and demand conditions are

[106] For a specific proposal on how to exit lockdowns and support measures successfully, see *A new policy toolkit is needed as countries exit COVID-19 lockdowns*, Peterson Institute for International Economics, June 2020.
[107] *Q3 2020 capital markets watch*, PwC; Dealogic.
[108] Nikou Asgari and Joe Rennison, "Corporate debt sales to shrivel in 2021 after record boom," *Financial Times*, December 31, 2020; Refinitiv.
[109] *Risk, resilience, and rebalancing in global value chains*, McKinsey Global Institute, August 2020.
[110] Pol Antràs, *De-globalisation? Global value chains in the post-COVID-19 age*, Harvard University working paper, November 2020.
[111] *Digital globalization: The new era of global flows*, McKinsey Global Institute, February 2016.
[112] In this analysis, the sectors do not match exactly those that we use in all other parts of this report because we use the default sector classification from S&P Global Market Intelligence's firm-level database.

in place, any measurable impact and actual productivity acceleration will take some time to appear.

Interestingly, the share of firms that accelerated on different metrics was very similar in the United States and Europe both before and in the midst of the pandemic. Despite the fact that many firms were negatively impacted by pandemic-induced disruption, a substantial share did improve on a range of metrics. For example, 36 percent and 38 percent of US and European firms, respectively, increased their capital expenditure; nevertheless, this was a lower share than before the pandemic, when comparable numbers were 57 and 58 percent. By the end of the third quarter of 2020, 35 percent and 38 percent of US and European firms in our sample, respectively, had improved their sales, general, and administrative expense and cost of goods sold as a percent of revenue (a measure of operational efficiency), and 53 percent and 41 percent of US and European firms, respectively, accelerated investment in R&D between the third quarters of 2019 and 2020. All of these numbers are lower than prepandemic figures.

Box 2

Methodology and sources of firm-level data

No single type or source of data covers each driver of productivity we include in our framework. For instance, "investment in reorganization and agility" is not a line in any profit and loss account. We therefore established—admittedly imperfect—proxies for profit and loss, balance sheet, and cash flow that would reflect potential shifts in such drivers. For instance, for disruption in product, business, and operating models, we use R&D expenditure. For investment in human and physical capital, we use capital expenditure.

The analysis is based on country-level data sets that included the financials of public companies that had published their third quarter 2020 financials as of January 2021. Data sets cover multiple industries and company types and sizes (the US data set has metrics for 4,295 companies, while the European one has metrics for 1,201 companies). For every productivity-enhancing driver, we calculated two metrics: advances in that driver and acceleration. An advance in a driver is defined as a share of companies that improved on its corresponding metric in a given period, while acceleration is defined as a difference in the rate of advance between two periods. For instance, the share of US firms *advancing* (that is, increasing) R&D investment between the third quarter of 2019 and the third quarter of 2020 was 53 percent. This compares with 67 percent in 2018–19. We conclude that US companies *decelerated* on this driver.

Because some of the drivers do not have consistent and comparable firm-level financial data available, we use macro-level evidence, too. For instance, according to OECD data, investment (as measured by gross fixed capital formation) in hardware, software, and databases in the United States increased by 7.4 percent between the third quarters of 2019 and 2020. Comparing this figure with growth of 5.2 percent in 2018 to 2019 and the average growth rate of 7.1 percent in 2015 to 2019 suggests acceleration.

Advances on several drivers seem to have been more concentrated in sectors and companies that were already leading prior to the crisis, particularly in the United States.

Slow diffusion of technologies and the superstar effect are not new—both were present before the pandemic began. However, there is a risk that this concentration could accelerate, because leading firms are better positioned to capture opportunities that arise. Superstars not only capture a greater share of income than their peers but also exhibit higher levels of digitization, have more skills within their workforces, and demonstrate higher innovation intensity. Larger firms, on average, are also more likely to be financially resilient to a long-lasting economic shock, have better access to information and financing, and tend to have more resilient supply chains.[113] Furthermore, recent studies on technological diffusion indicate that a large share of the latest technological advances rely heavily on scale effects to be useful. For instance, machine learning and AI require vast amounts of data to be efficient, and smaller firms may be unable to provide the necessary data.[114]

Exhibit 5

In the third quarter of 2020, firms' actions appeared less broad-based than before the pandemic.

Share of firms accelerating (firms that improved on a given metric), % ▲ Accelerating ▼ Decelerating

Potentially productivity-enhancing drivers	Proxy indicator used[1]	United States: Pre-pandemic 2019 vs 2018		United States: Pandemic Q3 2020 vs Q3 2019	Europe: Pre-pandemic 2019 vs 2018		Europe: Pandemic Q3 2020 vs Q3 2019
Automation and technology	GFCF in hardware, software, and databases[2]	Acceleration in growth in United States from 5% in 2018–19 to 7% growth in Q3 2019–Q3 2020[3]					
Operational efficiency	SG&A and COGS margin[4]	51	▼	35	51	▼	38
Product, business, and operational model disruption	Research and development	67	▼	53	73	▼	41
Investment in human and physical capital	Capital expenditure	57	▼	36	58	▼	38
Reorganization and agility		n/a[5]					
Shift to digital channels	E-commerce retail sales	Acceleration in e-commerce retail sales growth rate, from 15% to 31%			Acceleration in e-commerce retail sales growth rate, from 7% to 28%		
Shifts in consumption	Gross profit margin	48	▲	51	49	▲	51
Business dynamism (incl M&A)	Acquisitions	24	▼	11	26	▼	14
	Divestitures	7	▼	3	11	▼	6
Revenue (for reference)		65	▼	39	69	▼	42

1. Where we have used proxy indicators, they are the best available but not perfect. In some cases, we did not identify a suitable proxy.
2. GFCF (gross fixed capital formation), also called investment; acquisition of produced assets (including purchases of secondhand assets).
3. GFCF in computer hardware, software, and databases.
4. SG&A = selling, general, and administrative; COGS = cost of goods sold.
5. No relevant metric available.

Note: We exclude companies with insufficient data in 2018–20 and outliers (companies that have one-off data significantly impacting result on driver). Sample sizes may differ across drivers depending on data availability.

Source: OECD; S&P Global Market Intelligence; McKinsey Global Institute analysis

[113] *State of small business report*, Facebook and Small Business Roundtable, May 2020; Georgij Alekseev et al., *The effects of COVID-19 on US businesses: Evidence from owners, managers and employees*, Centre for Economic Policy Research, September 2020.

[114] Nikolas Zolas et al., *Advanced technologies adoption and use by U.S. firms: Evidence from the Annual Business Survey*, National Bureau of Economic Research working paper number 28290, July 2020.

Smaller firms are likely to be hit harder by the pandemic, as they have been in other major disruptions. After the global financial crisis, for instance, larger companies in the United States recovered to their pre-crisis contribution to GDP in an average of four years, while smaller businesses took six years.[115] During the pandemic, vulnerable jobs were disproportionately concentrated in small firms in the United States.[116] In Europe, there is ample evidence of challenges facing SMEs, too.[117] In Spain in 2020, for instance, large retail chains experienced an aggregate revenue increase of 3 percent compared with 2019, while small companies (with only one sales outlet) experienced a decline in revenue of 8.5 percent; small chains recorded a 17 percent decline.

In the third quarter of 2020, there was some evidence that the share of firms improving on the metrics we use was higher in sectors that were already ahead of their peers on those same dimensions before the pandemic. We ranked sectors based on their respective shares of firms that are accelerating (that is, improving on a metric). The highest-ranked US sectors between the third quarters of 2019 and 2020 were professional, scientific, and technological services; IT; healthcare; communication services; and electronics manufacturing (Exhibit 6). These are generally large sectors, and if they achieve higher productivity growth, they could have a positive impact on productivity growth in the total economy. Three of the five were in the top five for acceleration in 2018 to 2019, too. Europe had the same four out of five top sectors as the United States in the third quarter of 2020, and they showed a similar pattern: two of the five top sectors were in the top five in 2018 to 2019, too (Exhibit 7). As for sectors at the bottom of the rankings, patterns appear largely consistent. Some of these sectors, such as travel, transport, and logistics, as well as some subsectors of manufacturing, are also large and therefore important for overall productivity growth. Sectors we identify as leading across indicators overlap significantly with sectors identified in previous research on superstar firms.[118]

At the firm level, advances that could accelerate productivity growth appeared concentrated among large superstar firms, particularly in the United States (Exhibit 8).[119] As part of our analysis, we looked at which characteristics of firms were correlated with advances across drivers (see Box 3, "Superstar or not? Methodology for advances by type of firm"). Between the third quarters of 2019 and 2020, US large superstar firms accounted for a disproportionate share of the total advance (or a disproportionately low share of the total decline) in revenue, R&D spending, and capital expenditure.

[115] André Dua, Deepa Mahajan, Lucienne Oyer, and Sree Ramaswamy, "US small-business recovery after the COVID-19 crisis," July 2020, McKinsey.com.
[116] André Dua, Neha Jain, Deepa Mahajan, and Yohann Velasco, "COVID-19's effect on jobs at small businesses in the United States," May 2020, McKinsey.com.
[117] Jonathan Dimson, Zdravko Mladenov, Ruchi Sharma, and Karim Tadjeddine, "COVID-19 and European small and medium-size enterprises: How they are weathering the storm," October 2020, McKinsey.com.
[118] *Superstars: The dynamics of firms, sectors, and cities leading the global economy*, McKinsey Global Institute, October 2018; *Productivity growth in the digital age*, OECD, February 2019.
[119] We define large as the top 10 percent of firms by 2019 revenue. Superstars are firms that have a substantially greater share of income than peers and that are pulling away from those peers over time. See *Superstars: The dynamics of firms, sectors, and cities leading the global economy*, McKinsey Global Institute, October 2018.

Exhibit 6

In the United States, the share of accelerating firms appears greater in sectors that were already ahead before the pandemic.

Ranking of US sectors based on share of firms in sector accelerating (average across drivers)

Top 5 | Rank 6–13 | Bottom 5

Sector	Rank, Q3 2019–Q3 2020	Rank, 2018–19	Rank, Q3 2019–20, by driver: Revenue	Product, business, and operational model disruption, R&D	Investment in human and physical capital, capital expenditure	Business dynamism, acquisitions
Professional, scientific, and technical services	Top 5	Rank 6–13	Top 5	Top 5	Top 5	Top 5
Information technology	Top 5	Top 5	Rank 6–13	Top 5	Rank 6–13	Top 5
Healthcare	Top 5	Top 5	Top 5	Rank 6–13	Top 5	Top 5
Communication services	Top 5	Top 5	Rank 6–13	Rank 6–13	Rank 6–13	Top 5
Electronics manufacturing	Top 5	Rank 6–13	Top 5	Rank 6–13	Top 5	Rank 6–13
Banking and insurance	Rank 6–13	Rank 6–13	Top 5	Top 5	Rank 6–13	Bottom 5
Retail trade	Rank 6–13	Bottom 5	Rank 6–13	Top 5	Bottom 5	Rank 6–13
Utilities	Rank 6–13	Bottom 5	Rank 6–13	Rank 6–13	Top 5	Bottom 5
Consumer discretionary manufacturing	Rank 6–13	Rank 6–13	Top 5	Rank 6–13	Rank 6–13	Rank 6–13
Wholesale trade	Rank 6–13	Top 5	Rank 6–13	n/a[1]	Rank 6–13	Rank 6–13
Industrial manufacturing	Rank 6–13	Rank 6–13	Bottom 5	Rank 6–13	Rank 6–13	Rank 6–13
Administrative and support services	Rank 6–13	Top 5	Rank 6–13	Bottom 5	Bottom 5	Top 5
Other financials	Rank 6–13	Bottom 5	Bottom 5	Rank 6–13	Top 5	Bottom 5
Transportation and warehousing	Bottom 5	Bottom 5	Rank 6–13	n/a	Bottom 5	Rank 6–13
Real estate	Bottom 5	Rank 6–13	Rank 6–13	Rank 6–13	Rank 6–13	Rank 6–13
Arts, entertainment, and recreation	Bottom 5	Rank 6–13	Bottom 5	Rank 6–13	Rank 6–13	Rank 6–13
Mining, quarrying, and oil and gas	Bottom 5	Bottom 5	Bottom 5	Bottom 5	Bottom 5	Bottom 5
Accommodation and food services	Bottom 5	Rank 6–13	Bottom 5	n/a	Bottom 5	Bottom 5

1. Sectors and cells with fewer than 10 companies in sample excluded from analysis, except for product, business, and operational model disruption driver, where a threshold of 3 companies was set.

Note: The sector classification does not match perfectly that from other analyses because in this case we draw from the S&P Global Market Intelligence database and use its available sector classification directly.

Source: S&P Global Market Intelligence; McKinsey Global Institute analysis

Exhibit 7

In Europe, the share of accelerating firms appears greater in sectors that were already ahead before the pandemic.

Ranking of European sectors based on share of firms in sector accelerating (average across drivers)

Top 5 | Rank 6–13 | Bottom 5

Sector	Rank, Q3 2019–Q3 2020	Rank, 2018–19	Rank, Q3 2019–20, by driver: Revenue	Product, business, and operational model disruption, R&D	Investment in human and physical capital, capital expenditure	Business dynamism, acquisitions
Communication services	Top 5	Rank 6–13	Top 5	n/a[1]	Top 5	Top 5
Information technology	Top 5	Top 5	Top 5	Top 5	Rank 6–13	Top 5
Healthcare	Top 5	Top 5	Top 5	Top 5	Top 5	Rank 6–13
Professional, scientific, and technical services	Top 5	Rank 6–13	Rank 6–13	Rank 6–13	Rank 6–13	Top 5
Other financials	Top 5	Bottom 5	Top 5	Top 5	Top 5	Bottom 5
Banking and insurance	Rank 6–13	Rank 6–13	Rank 6–13	n/a	Top 5	Rank 6–13
Real estate	Rank 6–13	Rank 6–13	Top 5	n/a	Top 5	Bottom 5
Electronics manufacturing	Rank 6–13	Top 5	Rank 6–13	Rank 6–13	Rank 6–13	Rank 6–13
Utilities	Rank 6–13	Top 5	Rank 6–13	Rank 6–13	Rank 6–13	Rank 6–13
Arts, entertainment, and recreation	Rank 6–13	Bottom 5	Rank 6–13	Bottom 5	Rank 6–13	Top 5
Wholesale trade	Rank 6–13	Top 5	Rank 6–13	n/a	Rank 6–13	Rank 6–13
Administrative and support services	Rank 6–13	Rank 6–13	Bottom 5	Rank 6–13	Bottom 5	Top 5
Consumer discretionary manufacturing	Rank 6–13	Rank 6–13	Rank 6–13	Rank 6–13	Rank 6–13	Bottom 5
Industrial manufacturing	Bottom 5	Rank 6–13	Bottom 5	Bottom 5	Bottom 5	Rank 6–13
Transportation and warehousing	Bottom 5	Bottom 5	Bottom 5	n/a	Rank 6–13	Rank 6–13
Mining, quarrying, and oil and gas	Bottom 5	Bottom 5	Bottom 5	Bottom 5	Bottom 5	Rank 6–13
Retail trade	Bottom 5	Bottom 5	Rank 6–13	n/a	Bottom 5	Bottom 5
Accommodation and food services	Bottom 5	Rank 6–13	Bottom 5	n/a	Bottom 5	Bottom 5

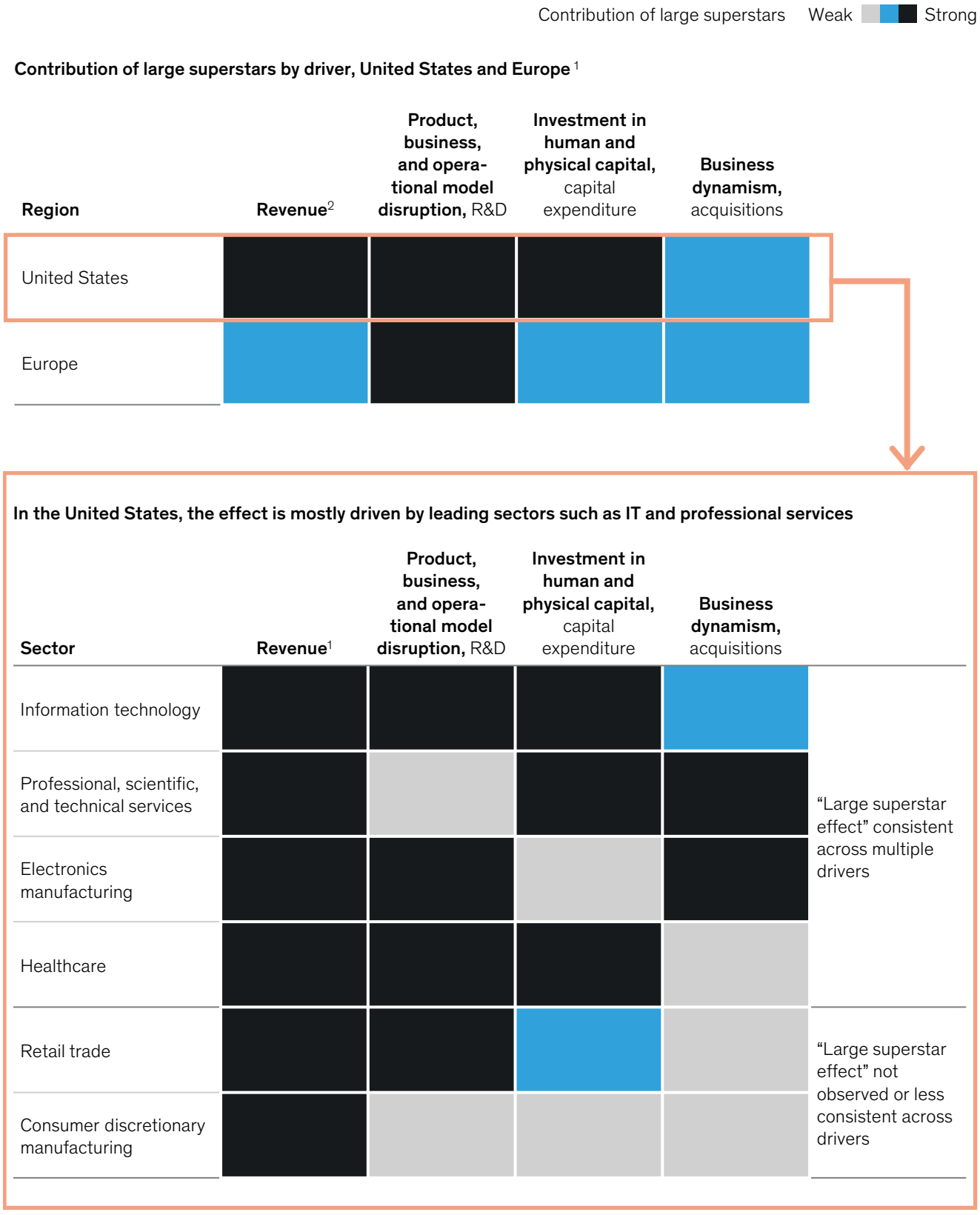
1. Sectors and cells with fewer than 10 companies in sample excluded from analysis, except for product, business, and operational model disruption driver, where a threshold of 3 companies was set.

Note: The sector classification does not match perfectly that from other analyses because in this case we draw from the S&P Global Market Intelligence database and use its available sector classification directly.

Source: S&P Global Market Intelligence; McKinsey Global Institute analysis

Exhibit 8

Large superstar firms account for a disproportionate share of positive advances in the United States.



1. Large firms are in top 10% by 2019 revenue. Superstar firms have substantially greater share of income than peers and are pulling away from peers over time. Metric used to compare firms is economic profit, a measure of a firm's invested capital multiplied by return above cost of capital.
2. Methodology: for each cell (eg, Europe revenue or US information technology R&D), percentage contribution of large superstar firms in change between Q3 2019 and Q3 2020 is calculated. Comparison of contribution figure with revenue weight of large superstars in sample suggests strength of "large superstar effect" (eg, if contribution is more than 10 pp higher than share of large superstar revenue, the "large superstar effect" is considered to be strong).

Note: The sector classification does not match perfectly that from other analyses because in this case we draw from the S&P Global Market Intelligence database and use its available sector classification directly.

Source: S&P Global Market Intelligence; McKinsey Global Institute analysis

Box 3

Superstar or not? Methodology for advances by type of firm

For this analysis, we split all firms in the data set (US and European firms that had published their quarterly financials as of early 2021) into categories depending on their size and whether they are superstars in their region and sector. The categories are large (top 10 percent in 2019 full-year revenue) and other. Consistent with previous MGI research, we tag a company as a superstar if it has a substantially greater share of income than peers, is pulling away from those peers over time, and "exhibits relatively higher levels of digitization; greater labor skill and innovation intensity; more connections to global flows of trade, finance, and services; and more intangible assets than do their peers."[1] We then calculate the change in each driver between the third quarters of 2019 and 2020 for each category—for instance, US revenue. Finally, we calculate the contribution of different types of firms—for example, large superstars—to changes within the corresponding driver. The effect does not seem to be relevant for most firm types and sizes except for large superstars. We identify the strength of the effect depending on the percentage contribution. For example, if a contribution is more than 20 percentage points higher than the share of large superstar revenue, we consider the large superstar effect to be strong.

[1] *Superstars: The dynamics of firms, sectors, and cities leading the global economy*, McKinsey Global Institute, October 2018.

Specifically, the revenue and capital expenditure of large superstars declined by much less than those of the rest of companies analyzed between the third quarters of 2019 and 2020. Large superstar firms lost no revenue in this period, while their competitors experienced a decline of 11 percent. In addition, R&D investment by large superstars in our US sample grew by about $2.6 billion (66 percent of total R&D investment growth in the third quarter of 2020 compared to a year earlier), compared with $1.4 billion for all other types of firm (34 percent of total R&D investment growth).This large superstar effect appears to be more consistent in sectors including IT, professional services, electronics manufacturing, and healthcare, which are also the leading sectors we have identified. In IT, for instance, large superstar firms contributed all the sector's revenue and capital expenditure growth, and almost all of its R&D growth.

Previous McKinsey and external research pointed in a similar direction. According to this research, the difference in implied economic profit in market valuations between firms in the top and bottom quintiles of economic profit widened substantially between December 2018 and May 2020, and the widening of that gap accelerated during the pandemic. In the whole period, the top quintile of companies grew total market-implied annual economic profit by $335 billion, while companies in the bottom quintile lost a staggering $303 billion.[120] In the United Kingdom, the September 2020 CEP-CBI survey found that the strongest predictor of adoption of digital technology, digital capabilities, new management practices, and product and service innovation during COVID-19 was being an adopter of those technologies and practices before the pandemic. All else being equal, previous adopters were close to 30 percent more likely to be adopters during COVID-19 than previous non-adopters. Another fairly good, albeit weaker, predictor was being large (with more than 50 employees).

[120] Chris Bradley, Martin Hirt, Sara Hudson, Nicholas Northcote, and Sven Smit, "The great acceleration," July 2020, McKinsey.com.

We found fewer signs of a superstar effect in Europe. In our analysis, only R&D spending showed a strong large superstar effect in the region. In line with these results, the divergence in market-implied economic profit between the top and the bottom quintile of companies was much more pronounced in the United States than in Europe.

This analysis was performed while the pandemic was still exerting a significant negative influence on economic activity (in the third quarter of 2020), and these findings reflect high levels of uncertainty among firms and a very deep plunge in demand. Even if it emerges that more firms accelerated their diffusion of productivity-enhancing drivers in the fourth quarter of 2020 and 2021, aggregate productivity gains would feasibly be achieved only if the changes were broad-based among sectors and firms.

A wave of innovation and changes to business operations arose in response to the disruption associated with the pandemic, but firm-level data suggest that during 2020, this action tended to be concentrated among large, high-performing firms. In chapter 3, we turn to life beyond the pandemic and explore whether the advances that occurred during 2020 may stick, whether action may broaden, and, crucially, whether demand is likely to be sufficiently robust to support continuing dynamic change.

3. Supply and demand after the pandemic

The innovation observed by many businesses in response to the deep disruption caused by the pandemic offered hope that renewed dynamism could help to fuel a healthy long-term outlook for economies once they emerge from the crisis. But we also observed that advances during 2020 were limited in breadth and tended to be focused on high-performing sectors and companies. Given these findings, the first question we asked is whether those advances are likely to stick once the crisis has eased and whether firms intend to continue to progress on them. For that purpose, we compiled survey evidence in the course of 2020, including the December 2020 McKinsey Global Economic Conditions and a range of external surveys.[121] The second question we sought to answer is whether demand, crushed during the pandemic and needed to support further innovation, will be robust. In our attempt to anticipate an uncertain future after the pandemic and its associated economic disruption dissipate, two findings stand out:

— **We found significant intent to build on the changes many businesses made in response to the pandemic.** If advances broaden, particularly in large sectors, and demand is robust, there is potential for annual productivity growth to accelerate by about one percentage point in the period to 2024. If productivity growth were to accelerate by one percentage point a year in the period to 2024, that would be more than double the rate after the global financial crisis in our sample countries. If the potential is realized, it implies additional per capita GDP in 2024 ranging from about $1,500 in Spain to about $3,500 in the United States.

— **However, the economic disruption of the pandemic and the measures businesses are taking in response could exacerbate long-standing structural drags on demand that were already evident throughout the period from the global financial crisis to the outbreak of COVID-19 in early 2020.** We find that potential supply could exceed baseline demand by up to six percentage points in 2024, putting the productivity potential at risk. This outcome is subject to present and future policy decisions.

In this chapter, we look at the potential path ahead on both the supply side and the demand side.

[121] We examined a number of McKinsey surveys, namely the Global Economic Conditions survey, McKinsey & Company, December 2020 (with 1,282 respondents globally and 584 in the seven sample countries covered in the report, representing various industries and business functions). Other McKinsey surveys used include the Digital Survey (October 2020); Consumer Pulse Survey (November 2020); Future of Work Survey (June 2020, February 2020); Innovation through Crises Survey (June 2020); Org4Speed Leadership Survey (July 2020); *Reimagining the postpandemic organization*; and "COVID-19 and European small and medium-size enterprises: How they are weathering the storm." External surveys include *The future of jobs report 2020*, World Economic Forum, October 20, 2020; *The business response to COVID-19: The CEP-CBI survey on technology adoption*, Centre for Economic Performance, September 2020; and Joachim Rotzinger, *Wer digitalisiert, blickt optimistischer in die Zukunft (Those who digitize are more optimistic about the future)*, Haufe Group, August 2020..

~1 pp

potential increase in productivity growth to 2024

If advances broaden and demand is robust, annual productivity growth could potentially accelerate by about one percentage point to 2024

For the countries examined in this research, we conducted in-depth assessments of eight sectors and partial assessments of five additional sectors, leveraging corporate surveys, expert interviews, and our work with clients to estimate a best-case scenario for a potential boost to productivity growth as the result of the COVID-19 crisis.

If the shifts observed during the pandemic enhance productivity and are undertaken by a broad range of companies including in large sectors, and if demand is robust, our deep review of eight sectors with industry experts shows potential for an increase of 1.0 to 2.0 percentage points of productivity growth per year by 2024 across the sectors for both the United States and Europe. Our central estimate is that productivity growth could accelerate by about 1.5 percentage points per year in the period to 2024 in the eight sectors analyzed. For the total nonfarm business sector, which adds professional services, mining and quarrying, utilities, and the rest of manufacturing to the eight sectors on which we focus, the potential could be about 0.7 to 1.5 percentage points of additional annual productivity growth; our central estimate is 1.1.[122]

The potential for accelerating productivity through action by companies on a range of productivity drivers varies among sectors. The largest potential (upper bound) incremental rise in productivity growth in 2019–24 could be in the healthcare, construction, ICT, retail, and pharma sectors at about two percentage points per year. Most of the other sectors we analyze could benefit from an incremental productivity boost of about one percent per year (see Box 4, "Methodology for estimating potential productivity acceleration," and Exhibit 9).

The largest potential (upper bound) incremental rise in productivity growth in 2019–24 could be in the healthcare, construction, ICT, retail, and pharma sectors at about two percentage points per year.

[122] In this report, we focus on productivity advances as felt by consumers and businesses rather than as measured by official statistics; we do not consider well-known measurement problems in detail. Most of our productivity-enhancing estimates will show up in productivity statistics, but some may not. This is particularly the case in sectors with some activities that standard measures of gross value added (output measured at market prices) do not include. Healthcare is an example. Our estimated additional productivity boost is weighted by the gross value added contribution of our eight deep-dive sectors, alongside the five additional sectors, and by the gross value added contribution of our seven focus countries.

Box 4

Methodology for estimating potential productivity acceleration

To quantify the potential incremental productivity boost driven by firms' response to the pandemic, we prioritized eight sectors in our sample countries and extrapolated main trends to five other sectors that make up the nonfarm business economy. For each sector, we conducted expert interviews, enabling us to identify trends accelerated specifically by COVID-19. We then used those interviews in conjunction with market analysis to quantify a 2019 baseline scenario for each trend, to ascertain forecasts to 2024 in place before the pandemic, and to estimate the potential for a pandemic-associated productivity boost by 2024.

Our approach to e-commerce illustrates our method for quantifying the productivity potential that could arise out of key trends. McKinsey research estimated that e-commerce sales accounted for 16 percent before the pandemic and could be 22 percent in 2024; we fed these insights into the 2024 baseline scenario.[1] To calculate the potential productivity acceleration from this trend, we assumed that e-commerce sales increase to 28 percent of retail sales by 2024 in the United States. Data from China suggest that six percentage points of e-commerce growth is likely to stick once the pandemic recedes.[2] Therefore, we assumed a slight decline from the peak of 33 percent experienced in the United States during the pandemic.[3] Previous MGI research found that online retail can be twice as productive as offline retail, although this finding did not account for the impact of any shift in the logistics sector. We therefore estimated that there could be a productivity acceleration of five percentage points per year from faster adoption of e-commerce during the pandemic.[4] Separately, as a robustness check, we analyzed the six most important individual opportunities across our set of deep-dive sectors, which account for nearly half of the estimated productivity potential.

We conducted sensitivity analyses of our calculations of potential incremental productivity. We varied the contribution of our two key drivers—the shift to digital channels and the adoption of a range of digital and other technologies, which together account for 72 percent of the total incremental productivity boost we estimated. Our estimates are likely to be most sensitive to changes in these two drivers. For a lower-bound estimate, we halved the contribution of these two drivers in each sector. For an upper-bound estimate, we multiplied their contribution by 1.5 times. The potential incremental productivity boost from action taken during the pandemic could range between 0.7 and 1.5 percentage points, in line with our midpoint estimate of 1.1 percentage points for the total nonfarm business economy. Separately, as a robustness check, we analyzed the seven most important individual opportunities across our set of deep-dive sectors, which account for nearly half of the estimated productivity potential. We adjusted our assumptions for both their adoption rates and their impact on productivity, and therefore adjusted their productivity potential. This analysis resulted in estimated incremental productivity growth of 0.7 to 1.7 percentage points, which is aligned with our previous result.

1 Lars Fiedler, Eric Hazan, Brian Ruwadi, and Kelly Ungerman, *Retail reimagined: The new era for customer experience*, August 2020, McKinsey.com.
2 Raphael Buck, Tracy Francis, Eldon Little, Jessica Moulton, and Samantha Phillips, "How consumer-goods companies can prepare for the next normal," April 2020, McKinsey.com.
3 Lars Fiedler, Eric Hazan, Brian Ruwadi, and Kelly Ungerman, *Retail reimagined: The new era for customer experience*, August 2020, McKinsey.com.
4 *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.

Exhibit 9

Our sector analysis indicates potential for incremental productivity growth of approximately one percentage point per year through 2024.

United States and Europe

Sector	Share of nonfarm business economy, 2017, %[1]	Pandemic-related productivity acceleration potential, compound annual growth rate, 2019–24, %	Main contributors to potential productivity growth acceleration driven by COVID–19, 2019–24
Health	10	1.6–3.0	• Telemedicine • Operational efficiency
Construc-tion	5	1.7–2.5	• Operational efficiency • Modularization, design to constructability, and standardization • Digitization of processes and automation
ICT	10	1.2–2.3	• Demand for online services • Online channels • Online advertising
Retail	7	1.0–2.4	• E-commerce • Warehouse automation • Advanced analytics
Pharma-ceutical	2	0.8–2.3	• Digitization of sales channels • Automation of manufacturing • AI for vaccine discovery
Banking	8	0.9–2.0	• Hybrid working • Online channels • Shift to digital payments
Auto-motive	3	0.4–1.2	• Electric vehicles • Connected Car • Online sales
Travel and logistics	13	0.3–0.5	• Digital interaction (eg, apps) • Agile working • Automation of tasks
Subtotal[2]	58	1.0–2.0 **(1.5)**[3]	• Digital channels • Automation of tasks • Operational efficiency
Other nonfarm business sectors	42	0.3–0.9	• Automation of tasks • Digital channels • Lower real estate costs
Total nonfarm business sectors	100	0.7–1.5 **(1.1)**[3]	• Digital channels • Automation of tasks • Operational efficiency

1. Weighted by total nominal GDP contribution of United States (62%) and six European economies (38%) in our focus countries. Pharma includes chemicals and pharmaceuticals manufacturing due to lack of breakdown for United States and Sweden; automotive includes transport machinery; travel and logistics includes arts and recreation, accommodation and food services, transportation and storage, other service activities, and activities of households and extraterritorial units; other nonfarm business sectors includes professional services, wholesale, mining and quarrying, manufacturing excluding chemicals and pharmaceuticals and automotive, and utilities; excludes public administration and defense, real estate activities, education, and agriculture. Sectors included amount to 74% of total economy in United States and 75% in 6 European focus countries.
2. Subtotal potential productivity acceleration and contribution by lever is estimated using weighting of our 8 deep-dive sectors.
3. Midpoint estimate.

Note: Figures may not sum to 100% because of rounding.

Source: EU KLEMS; McKinsey Global Institute analysis

— **Healthcare.** During the pandemic, major resources were directed toward fighting the virus and away from services such as elective procedures, which tend to earn hospitals higher revenue. In France, for example, outpatient healthcare providers experienced a 71 percent decline in activity between January and April 2020.[123] As a result, the sector could experience lower value-added growth for some time due to the pandemic, which could adversely affect productivity growth.[124] In response to the pandemic, many providers changed the way they operated and shifted to digital channels. Virtual care became a reality. In the United Kingdom's National Health Service, for instance, many providers of digital solutions worked to provide a digital-first front door; the patient journey starts on an app or online and continues to the optimal care setting, whether online or physical. As a result, online consultations with general practitioners increased from 10 percent of total consultations before the pandemic to 85 percent in spring 2020.[125] In the United States, Mercy Virtual put in place a system that allowed patients to be intubated at home with only a nurse in attendance, with critical care specialists then monitoring patients remotely.[126] The largest driver of incremental potential productivity growth in healthcare could be the acceleration of telemedicine during the pandemic, which could become a permanent feature in healthcare. In the United States, 76 percent of patients expressed interest in using telemedicine in the future, and industry experts say 20 percent of healthcare spending could be delivered virtually.[127] By 2024, if the shift to telemedicine continues, the healthcare sector could benefit from higher productivity growth. Industry experts estimate that online consultations are twice as productive as those conducted offline because they facilitate faster triaging of patients, better quality of care, less time lost due to waiting for appointments, and greater potential for digitizing processes at the back end. Using these data points, we estimate that the shift to telemedicine could deliver an annual boost to productivity in the healthcare sector of about 1.5 percentage points between 2019 and 2024. Other possible drivers of productivity growth include an increased focus on operational excellence through more flexible task scheduling and the adoption of best practices in procurement and lean operations. McKinsey has found that the more productivity levers deployed, the better the outcomes in volume, revenue, and operating margin.[128] Overall, the sector could potentially experience an acceleration in annual productivity growth of about two percentage points.

— **Construction.** Construction companies have had to manage ongoing disruptions to global supply chains and increased costs associated with implementing health and safety measures during the pandemic. If those were to last, productivity growth could be affected negatively. Accelerated adoption of digital and industrialized construction methods and the resulting improvements to operational efficiency could be the largest boost to productivity growth. For instance, more digitized planning procedures in building information modeling can reduce clashes, rework, and delays. On site, digitally supported workflow management and computer vision–based progress tracking can optimize work processes, logistics, and quality. Previous MGI research found that digitization and automation could raise productivity by 68 percent across all asset classes. Assuming that adoption rises from 31 percent in our 2024 baseline scenario to 37 percent in 2024, we estimate that the construction sector could benefit from a boost in productivity

[123] Giles Colcough, Penelope Dash, and Lieven Van der Velken, "Understanding and managing the hidden health crisis of COVID-19 in Europe," June 2, 2020, McKinsey.com.
[124] Axel Baur, Panco Georgiev, MD, Imraan Rashid Munshi, MD, and Marek Stepniak, "Healthcare providers: Preparing for the next normal after COVID-19," May 8, 2020, McKinsey.com.
[125] Simon Stevens and Amanda Pritchard, *Second phase of NHS response to COVID-19*, UK National Health Service, April 2020, england.nhs.uk.
[126] Fred Pennic, *AHN to implement Mercy Virtual's ICU program to enhance critical care*, HIT Consultant, June 24, 2019.
[127] Oleg Bestsennyy, Greg Gilbert, Alex Harris, and Jennifer Rost, "Telehealth: A quarter-trillion-dollar post-COVID-19 reality?" May 2020, McKinsey.com.
[128] The 2020 McKinsey Health System Executive Growth Survey shows that when respondents pursued five-plus growth levers simultaneously, they achieved significantly better outcomes in volume, revenue, and operating margin than respondents who pursued three levers or fewer. See Rupal Malani, Louis Revenig, Thomas Santo, and Matt White, "Preparing for the next normal now: How health systems can adopt a growth transformation in the COVID-19 world," August 2020, McKinsey.com.

growth of 0.8 percentage point per year from this lever alone.[129] In a McKinsey survey conducted in early May 2020, nearly two-thirds of respondents said that COVID-19 could accelerate the overall transformation of the industry through increased adoption of digital technologies, industrialization, consolidation, and value-chain control, and half said that they had already raised investment in line with these ongoing shifts.[130] Prior to the pandemic, growth in venture capital investment in construction tech far outpaced the growth in investment of venture capital overall, and this could further accelerate following the pandemic if the pace of digitization of the sector quickens.[131] After a long period of stagnation, our analysis suggests that the sector could potentially experience an acceleration in productivity growth of about two percentage points per year.

— **ICT.** The information and communications technology sector could benefit from a productivity acceleration due to increased demand for digital services on scalable platforms such as online entertainment, cloud computing, and videoconferencing solutions, among others. Netflix added 25 million users globally in the first two quarters of 2020, increasing its subscriber base by 15 percent.[132] Demand for videoconferencing solutions expanded rapidly as remote working became the norm in many sectors. Prior to the pandemic, the rate of remote working ranged between 2 and 9 percent across certain sectors in the United States; it increased to between 36 and 84 percent during the pandemic.[133] The pandemic also intensified the need for cloud computing as an enabler for other business activities, including e-commerce and remote working.[134] According to a McKinsey survey, 34 percent of executives increased the migration of their company's assets to the cloud as a result of the pandemic, and 54 percent expected this change to persist after the pandemic.[135] Telecom companies also experienced increased demand. In the United Kingdom, BT upgrade demands rose by 2.4 times during the pandemic.[136] If increased demand persists, productivity growth in the sector could rise. Many ICT firms are fixed-cost platform businesses that can scale rapidly and with limited cost increases in response to demand. Another key driver of productivity growth could be the shift to online sales channels in the telecom sector, which we quantified using a similar approach to e-commerce growth in the retail sector. Other drivers include increased spending on online advertising, diverted from traditional advertising channels such as billboards, and increased automation in the sector. Overall, the sector has potential to accelerate annual productivity growth by about two percentage points per year.

— **Retail.** Retailers, particularly those active in nonessential categories and brick-and-mortar stores, have faced significant shocks to demand, increased health and safety requirements, and transition costs associated with shifting from offline to online retail, all of which could be a drag on productivity for some time (for more detail, see Box 5, "Retail and the COVID-19 crisis"). However, if measures taken in response to the COVID-19 disruption persist, they could raise the rate of productivity growth. The main driver of additional potential productivity is the acceleration of e-commerce growth, which may

[129] According to previous McKinsey research, the construction sector could experience a productivity boost driven by better digital planning, improved on-site execution, and upgraded procurement and supply-chain management of construction projects. Prior to the pandemic, growth in venture capital investment in construction tech outpaced that of overall venture capital investment, which could accelerate further after the pandemic. See *Reinventing construction: A route to higher productivity*, McKinsey Global Institute, February 2017; Katy Bartlett, Jose Luis Blanco, Josh Johnson, Brendan Fitzgerald, Andrew Mullin, and Maria João Ribeirinho, "Rise of the platform era: The next chapter in construction technology," October 2020, McKinsey.com; PitchBook, Inc.; * data have not been reviewed by PitchBook analysts.

[130] *The next normal in construction: How disruption is reshaping the world's largest ecosystem*, June 2020, McKinsey.com.

[131] Katy Bartlett, Jose Luis Blanco, Josh Johnson, Brendan Fitzgerald, Andrew Mullin, and Maria João Ribeirinho, "Rise of the platform era: The next chapter in construction technology," October 2020, McKinsey.com; PitchBook, Inc.; * data have not been reviewed by PitchBook analysts.

[132] Q2 2020 financial statements, Netflix, July 2020.

[133] Aamer Baig, Bryce Hall, Paul Jenkins, Eric Lamarre, and Brian McCarthy, "The COVID-19 recovery will be digital: A plan for the first 90 days," May 2020, McKinsey.com.

[134] Joe Dertouzos, Ewan Duncan, Matthias Kässer, Satya Rao, and Wolf Richter, "Making the cloud pay: How industrial companies can accelerate impact from the cloud," October 2020, McKinsey.com.

[135] "How COVID-19 has pushed companies over the technology tipping point—and transformed business forever," October 2020, McKinsey.com.

[136] *H1 2020/21 results—news release*, BT Group PLC, October 2020; *Q3 2020/21 trading update—news release*, BT Group PLC, February 2021.

persist as first-time users become accustomed to this channel.[137] Before the pandemic, forecasts envisaged e-commerce accounting for less than one-quarter of all US retail sales by 2024, but in the first two months of the pandemic, the actual share of e-commerce in total retail sales rose from 16 to 33 percent.[138] E-commerce may account for a higher share of total sales in countries such as the United Kingdom, which had the highest rate of online shopping adoption prior to the pandemic.[139] Previous MGI research found that online sales can be twice as productive as offline sales: greater availability of data enables online-only retailers to target consumers for higher-value sales and larger baskets while employee utilization in fulfillment centers is higher than in traditional retail stores. Online shopping also enables consumers to save time. According to the Progressive Policy Institute, between 2007 and 2016, Americans spent 64 million fewer hours per week shopping for consumer goods due to the rise of e-commerce. As a result, lower-paid, less productive brick-and-mortar jobs have been replaced by more productive, higher-paid warehousing jobs, contributing to productivity growth that has not historically been accounted for in official retail sector productivity figures.[140] We estimate that e-commerce growth could potentially boost retail sector productivity by one percentage point per year between 2019 and 2024. In addition to changing consumers' behavior, over half of retailers anticipate closing underperforming stores due to the pandemic.[141] Overall, retail productivity growth could accelerate by about two percentage points per year due to the pandemic.

— **Pharmaceuticals.** Pharmaceutical companies could experience disruptions to clinical trials for treatments that are not related to COVID-19. Between 50 and 75 percent of multisite trials were disrupted during the pandemic due to lockdowns, potentially undermining productivity if the focus on COVID-19 persists at the expense of research into other conditions.[142] However, a shift to digital channels could drive additional incremental productivity growth. During the pandemic, McKinsey experts estimate, 80 percent of interactions were digitized because sales representatives were no longer able to meet clinicians in person, compared with nearly half of interactions in our 2024 forecast baseline. If this trend persists, those experts suggest that digital interactions could raise productivity in the sector by 25 percent by enabling fewer sales representatives to see more clinicians during the workday and reducing associated marketing and sales costs, which account for nearly 40 percent of total pharmaceuticals operating costs. We estimate that the shift to digital channels could raise productivity in the sector by 0.6 percentage point per year. Pharmaceutical companies also expanded their use of AI and analytics during the pandemic much more rapidly than anybody would have imagined before COVID-19. One global pharmaceutical company linked a number of COVID-19 scenarios to develop a view of supply and demand for each of its products by country, and then fed that information into finance and operations planning.[143] Assuming demand in the sector remains strong, rapid growth of digital marketing and sales channels, increased automation in pharmaceutical manufacturing, and greater adoption of AI could potentially accelerate annual productivity growth by about 1.5 percentage points to 2024.

[137] Recent MGI research found that e-commerce grew by as much in 2020 as the previous three to five years combined in a range of countries. See *The future of work after COVID-19*, McKinsey Global Institute, February 2021.
[138] Lars Fiedler, Eric Hazan, Brian Ruwadi, and Kelly Ungerman, *Retail reimagined: The new era for customer experience*, August 2020, McKinsey.com.
[139] Anita Balchandani, Bryan Hancock, Samantha Phillips, and Tobias Wachinger, *Rebooting retail: How technology will shape the future of retail*, McKinsey & Company, June 2020.
[140] Michael Mandel, *How ecommerce creates jobs and reduces income inequality*, Progressive Policy Institute, September 2017.
[141] Praveen Adhi, Andrew Davis, Jai Jayakumar, and Sarah Touse, "Reimagining stores for retail's next normal," April 2020, McKinsey.com.
[142] Gaurav Agrawal, Brandon Parry, Brindan Suresh, and Ann Westra, "COVID-19 implications for life sciences R&D: Recovery and the next normal," May 2020, McKinsey.com.
[143] "The state of AI in 2020," McKinsey & Company, November 2020.

Box 5

Retail and the COVID-19 crisis

The pandemic crushed retail demand. US retail sales plunged 16.5 percent in April 2020, while footfall slumped by 85 percent in the United Kingdom due to lockdowns.[1] However, different subsegments of retail were affected differently. For example, online retailers outperformed brick-and-mortar retailers. The McKinsey Consumer Pulse Survey in June 2020 suggested that US consumers' intent to spend on essential categories such as groceries increased, while intent to spend on nonessential categories such as accessories, furnishings, and footwear fell.[2] Job and income losses among consumers could continue to reduce retail demand.

As countries have intermittently reopened shopping, many retailers have borne the cost of new health and safety regulations. Walmart spent an estimated $3.3 million a day on COVID-19 cleaning and personal protective equipment in fall 2020.[3] Many of these changes happened virtually overnight, straining retail supply chains.[4] Retail profit margins may erode as a shift from offline to online continues: brick-and-mortar stores may become unprofitable if online penetration increases by 10 percentage points, reflecting increased overhead costs, more competition and promotional intensity, and limited scope to reduce in-store labor costs.[5]

However, if retailers manage these adjustment costs, the sector has a number of potential drivers of higher productivity (Exhibit 10). One of the key drivers may be the acceleration of e-commerce growth. Prior to the pandemic, US grocery retailer Kroger partnered with Ocado, a UK online-only grocery company, to accelerate and reduce the cost of fulfilling online grocery orders. During COVID-19, Kroger expanded its e-commerce offerings, started no-contact delivery and pickup services, and hired more workers for e-commerce.[6] Kroger experienced a 92 percent increase in digital sales in the first quarter of 2020. E-commerce could raise productivity in the sector through more efficient targeting of consumers, shifting job mix, and time savings for consumers.

The shift online and more widespread use of contactless payment systems offer retailers more data on consumer purchasing behavior, which could prompt more adoption of automation and new technologies to improve operations. From January to August 2020, contactless payments increased for 69 percent of retailers in the United States, and almost all retailers expect contactless payments to continue increasing over the next 18 months.[7] Walmart, Tractor Supply, and CVS adopted contactless payments during the COVID-19 pandemic for the first time.[8] Sainsbury's, the British grocery chain, achieved a 15 to 30 percent increase in sales in just six weeks on its SmartShop system, which enables customers to scan and pay for items through an app; before the pandemic, this increase would have taken three to four years.[9] Applying advanced analytics to these data could spur retail productivity by identifying more profitable product categories, reducing operational inefficiencies, and even helping to optimize store layouts. In May 2020, growth of e-commerce at fashion retailer Levi's accelerated by 79 percent. The company prioritized engagement with customers through social media apps and invested in digital and AI capabilities to optimize promotions and efficiently fulfill orders, among other initiatives.[10]

Retailers explored ways to reduce contact among staff in their warehouses due to the pandemic, which could accelerate the adoption of automation technologies. Gap, the American apparel retailer, sped up the rollout of warehouse robots.[11] Grocery retailer Broad Branch Market invested in self-driving robots to ferry deliveries to customers in Washington, DC.[12] In the United Kingdom, Co-Op Food accelerated the adoption of delivery robots to support shielding customers, which contributed to a fourfold increase in sales.[13] Previous McKinsey research suggests that nearly one-third of tasks could be automated in the retail sector in the United Kingdom by 2030; that automation could be accelerated by the COVID-19 pandemic.[14] As a result, the effect on skills and labor requirements will need to be managed, potentially in a shorter time frame.

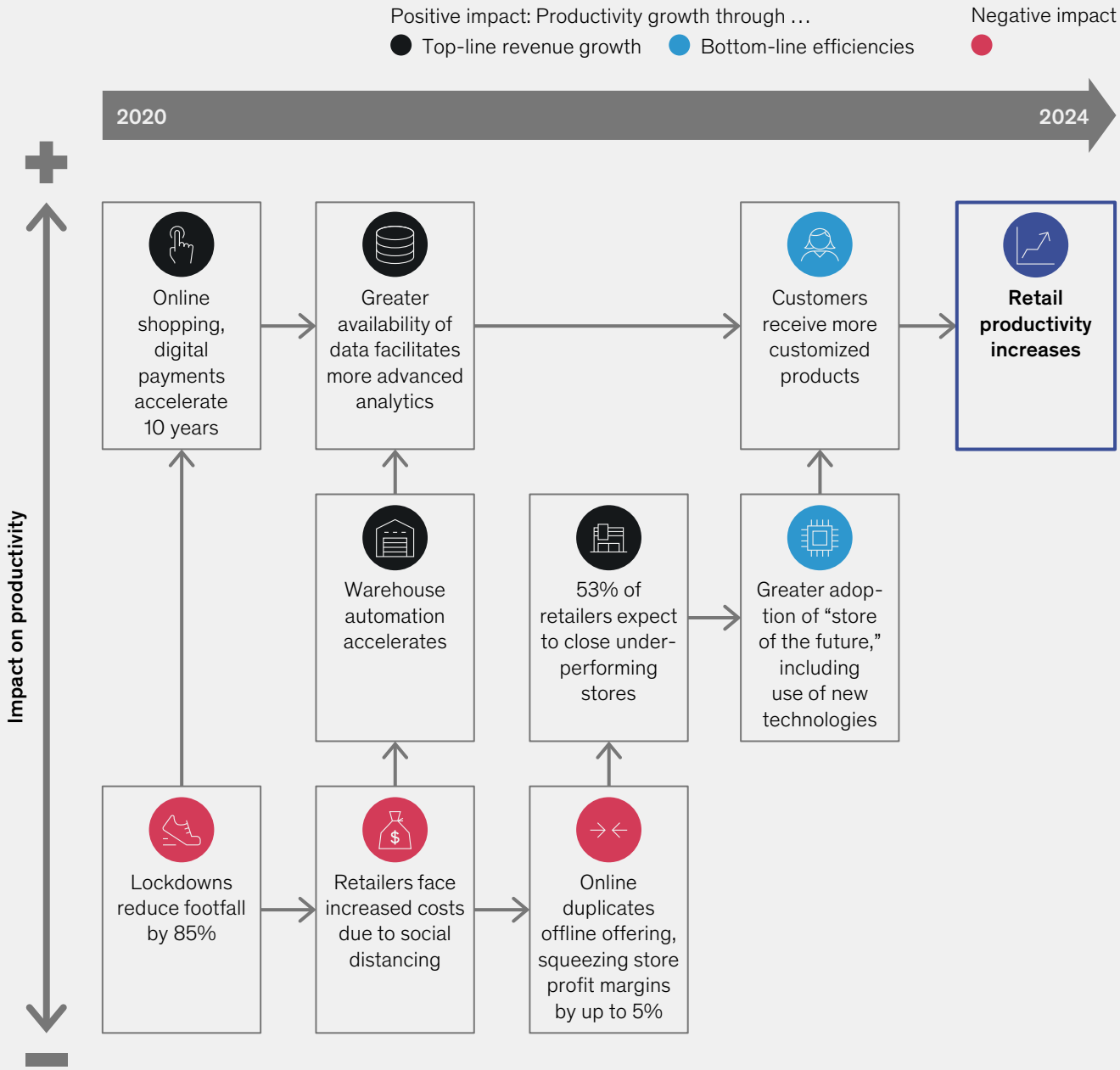
1 Lars Fiedler, Eric Hazan, Brian Ruwadi, and Kelly Ungerman, *Retail reimagined: The new era for customer experience*, August 2020, McKinsey.com; and Elias Jahshan, "April was retail's worst month ever as footfall plummets almost 85%," Retail Gazette, May 18, 2020.
2 Tamara Charm, Becca Coggins, Kelsey Robinson, and Jamie Wilkie, "The great consumer shift: Ten charts that show how US shopping behavior is changing," August 2020, McKinsey.com.
3 Marc Bain, "COVID-19 has Walmart spending $3.3 million a day on cleaning and PPE," Quartz, August 19, 2020.
4 Ashutosh Dekhne, Sonam Gupta, Aniket Joglekar, and Sajal Kohli, "How retail can adapt supply chains to win in the next normal," November 2020, McKinsey.com.
5 Praveen Adhi, Andrew Davis, Jai Jayakumar, and Sarah Touse, "Reimagining stores for retail's next normal," April 2020, McKinsey.com; Michael Mandel, *Pre-pandemic and warehouse productivity and hours growth, and post-pandemic implications*, Brookings Productivity Measurement Initiative, April 2020.
6 Melissa Repko, "Kroger stuns with 92% e-commerce gain, but it has to prove it's not a coronavirus blip," *CNBC*, June 18, 2020.
7 J. Craig Shearman, *Coronavirus leads to more use of contactless credit cards and mobile payments despite cost and security concerns*, National Retail Federation, August 2020.
8 Tatiana Walk-Morris, "COVID-19 boosts contactless payment adoption: NRF," Retail Dive, August 10, 2020.
9 Fabian Wallace-Stephens and Emma Morgante, *Who is at risk? Work and automation in the time of COVID-19*, Royal Society of Arts, October 2020.
10 Derek du Preez, "Levi's plans to accelerate e-commerce and invest in AI initiatives to help reduce COVID-19 pain," *Diginomica*, July 8, 2020.
11 Jeffrey Dastin, "Gap rushes in more robots to warehouses to solve virus disruption," Reuters, May 21, 2020.
12 Nathaniel Meyersohn, "Grocery stores turn to robots during the coronavirus," *CNN Business*, April 7, 2020.
13 Maija Palmer, "Delivery robots thrive in the coronavirus lockdown," Sifted, May 29, 2020.
14 Anita Balchandani, Bryan Hancock, Samantha Phillips, and Tobias Wachinger, *Rebooting retail: How technology will shape the future of retail*, June 2020, McKinsey.com.

The pandemic forced many retailers to reassess their business and operating models. According to McKinsey's survey of US retail executives, 12 percent expect to shift to more "experiential" stores due to COVID-19.[15] This could speed up adoption of so-called stores of the future, in which retailers use new technologies to create experiential stores and customized goods and services for consumers. At the Modern Retail Collective, for example, augmented-reality mirrors enable customers to interact with and virtually try on merchandise, reducing retailers' inventory needs while giving shoppers more opportunities to explore and customize their products.[16]

Exhibit 10

In retail, long-run productivity growth could rise due to changes accelerated by the pandemic.

Persistence and impact of pandemic-related changes in productivity



Source: McKinsey Global Institute analysis

[15] Praveen Adhi, Andrew Davis, Jai Jayakumar, and Sarah Touse, "How retailers are preparing for the post-coronavirus recovery," April 2020, McKinsey.com.
[16] *New at McKinsey Blog*, "An inside look at the McKinsey store revitalizing brick-and-mortar business," November 12, 2019, McKinsey.com.

— **Banking.** Any productivity gains will depend, to an extent, on banks managing the future risk associated with the provision of cheap capital to support businesses during the pandemic disruption. If a large percentage of these businesses were to go bankrupt and therefore could not pay back their debt, banking sector productivity growth could be at risk. Up to 65 percent of banks in Europe could end up in the caution zone, where they may need to reconsider how to preserve or raise capital.[144] In contrast, productivity growth could accelerate due to a shift to digital channels and transactions, increased adoption of hybrid working, and a shift to more agile organizations. The main driver of productivity growth could be the shift to digital channels, including, for instance, increased use of contactless payments, higher adoption of telesales or videoconferencing with customers, and other digitally enabled transformations. This may further contribute to increased use of online banking and rationalizing bank branch networks if the shift to digital channels is sticky. According to UK Finance, contactless payments accounted for about 20 percent of all payment transactions in the United Kingdom in 2019.[145] During the pandemic, consumers turned to contactless payments because they were perceived to be safer than other forms of payments, particularly cash, which encouraged businesses to adopt card terminals. This contributed to a 40 percent surge in contactless payments worldwide between January and March 2020.[146] UK Finance forecasts that contactless payments could rise to 37 percent of all transactions by 2028 in the United Kingdom.[147] We estimate that this 37 percent could materialize by 2024 due to the surge in contactless payments during the pandemic. If adoption of digital payments is sustained, banking productivity could rise. MasterCard research found that consumers with contactless-enabled cards spent 30 percent more using those cards than consumers with conventional cards, while another study found that consumers with contactless cards used their cards more frequently for purchases than those with conventional cards.[148] We estimate that the accelerated shift to contactless payments during the COVID-19 pandemic could contribute to an acceleration in annual productivity growth of 0.5 percentage point between 2019 and 2024 due to transaction fees accrued from these payments and reduced costs associated with handling, processing, and storing cash, as well as increased consumer surplus due to more efficient payment processes. Notably, the age gap in the use of digital banking services closed for the first time. The McKinsey Financial Decision Maker Pulse Survey conducted in mid-May 2020 in France, Germany, Italy, Sweden, and the United Kingdom found that those aged 51 to 64 and 65-plus were just as likely to prefer internet and mobile banking as younger cohorts. If banks are able to convert these preferences into behavior, digital could remain the default channel for retail banking in the long term, raising productivity. McKinsey estimates that 80 percent of simple transactions and two-thirds of simple product sales could be fulfilled digitally.[149] Another key driver of productivity growth could be the shift to hybrid working in which employees have more capacity to work remotely when it is more productive to do so, but also maintain in-office interactions to sustain working relationships and facilitate team working. In addition, if the adoption of hybrid working accelerates, banks could benefit from reduced headquarter real estate costs. In the United States, 70 percent of financial services employees worked from home during the crisis, compared with 5 percent before.[150] Other drivers of accelerated productivity growth include increased adoption of agile working. Banking productivity could potentially rise by about 1.5 percentage points per year as a result.

[144] Kevin Buehler, Miklos Dietz, Federico Fumagalli, Cindy Levy, Susan Lund, Olivia White, and Eckart Windhagen, "Banking system resilience in the time of COVID-19," July 2020, McKinsey.com.
[145] *UK payments market summary 2020*, UK Finance, June 2020.
[146] Kate Rooney, "Contactless payments jump 40% as shoppers fear germs on cash and credit cards, Mastercard says." CNBC, April 29, 2020.
[147] *UK payments market summary 2019*, UK Finance, June 2019.
[148] *New MasterCard advisors study on contactless payments shows almost 30% lift in total spend within first year of adoption*, MasterCard, May 2012; Tobias Trütsch, "Impact of contactless payment on spending," *International Journal of Economic Sciences*, 2014, Volume III, Number 4.
[149] Chandana Asif, Klaus Dallerup, Stephanie Hauser, Alia Parpia, and Zubin Taraporevala, "Reshaping retail banking for the next normal," June 11, 2020, McKinsey.com.
[150] Aamer Baig, Bryce Hall, Paul Jenkins, Eric Lamarre, and Brian McCarthy, "The COVID-19 recovery will be digital: A plan for the first 90 days," May 2020, McKinsey.com.

— **Automotive.** Although demand for vehicles declined during the pandemic, in fall 2020 there was evidence that it was steadily bouncing back, partly reflecting nervousness among consumers about taking public transit.[151] Evidence from China, which locked down and opened up earlier than Europe or the United States, gives some cause for optimism. During quarantine, light-vehicle usage dropped 80 percent and use of public transit by 85 percent.[152] As restrictions eased, consumers returned to previous levels of car use but remained hesitant about using public transit. There was some evidence of an increase in the use of digital channels and e-commerce in the sector during the pandemic. Chinese automakers started to employ digital channels such as TikTok and Alibaba's Tmall to digitize their entire sales process, launching live-stream videos, answering customer questions, and selling vehicles directly to consumers' homes.[153] In the United States, more consumers bought parts online, and this behavior may well persist.[154] Potentially productivity-enhancing products and services such as electric vehicles, connected cars, and digitized sales channels are likely at too early a stage to provide a significant crisis-related boost in the next five years. We estimate that the share of electric vehicles in total auto sales could rise from 2 percent in 2019 to 16 percent in 2024 due to COVID-19, compared with 8 percent in the 2024 baseline projection based on forecasts using data from BloombergNEF and the European Alternative Fuels Observatory.[155] According to McKinsey research, demand for electric vehicles was particularly resilient in China and Europe despite the pandemic.[156] According to the International Energy Agency, buyers of electric vehicles tend to belong to more affluent households that have been less affected by the pandemic than other households.[157] Some governments, including Germany's, have increased consumer incentives for electric vehicle purchases and invested in charging infrastructure as part of their COVID-19 stimulus recovery programs.[158] Electric vehicles require 30 percent less labor to produce than similarly priced vehicles with internal combustion engines, which could boost productivity by 0.5 percentage point per year between 2019 and 2024.[159] Overall, the potential productivity acceleration for the sector could be about one percentage point per year.

— **Travel and logistics.** The pandemic slashed demand by restricting domestic and international travel, and McKinsey research has suggested that recovery to prepandemic levels could take until 2024 or even later.[160] Face-to-face interactions remain an important part of the tourism industry, particularly in the luxury sector, limiting the potential for hotels to fully adopt room service apps and other digital channels. Nonetheless, we estimate that the use of smartphones for end-to-end travel planning could accelerate by three percentage points due to COVID-19.[161] According to Travelport Digital, more than 20 percent of leisure travelers have used apps to upgrade their travel experience, which creates increased value added for the sector through higher spending on add-ons such as upgrading seats, paying for Wi-Fi, or ordering meals that involve minimal additional cost for the travel companies that provide them.[162] As a result, we estimate that productivity growth could potentially rise by 0.1 percentage point per year between 2019 and 2024. However, the easy wins for productivity growth may have already been largely realized. Previous MGI research found that tourism was the only sector to experience slow but sustained productivity growth following the global financial crisis, driven by industry restructuring and consolidation, early introduction of digital channels

[151] "How consumers' behavior in car buying and mobility is changing amid COVID-19," September 2020, McKinsey.com.
[152] *Beyond coronavirus: The road ahead for the automotive aftermarket*, May 2020, McKinsey.com.
[153] *Fast forward China: How COVID-19 is accelerating 5 key trends shaping the Chinese economy*, May 2020, McKinsey.com.
[154] *Beyond coronavirus: The road ahead for the automotive aftermarket*, May 2020, McKinsey.com.
[155] *Electric vehicle outlook 2020*, BloombergNEF, 2020; European Alternative Fuels Observatory, 2020.
[156] Thomas Gersdorf, Russell Hensley, Patrick Hertzke, and Patrick Schaufuss, "Electric mobility after the crisis: Why an auto slowdown won't hurt EV demand," September 2020, McKinsey.com.
[157] Marine Gorner and Leonardo Paoli, *How global electric car sales defied COVID-19 in 2020*, International Energy Agency, January 2021.
[158] Thomas Gersdorf, Russell Hensley, Patrick Hertzke, and Patrick Schaufuss, "Electric mobility after the crisis: Why an auto slowdown won't hurt EV demand," September 2020, McKinsey.com.
[159] Michael Sheetz, "Electric vehicles could cost the auto industry millions of jobs, a top analyst says," CNBC, March 15, 2019.
[160] Urs Binggeli, Margaux Constantin, and Eliav Pollack, "COVID-19 tourism spend recovery in numbers," October 2020, McKinsey.com.
[161] *How smartphones influence the entire travel journey in the U.S. and abroad*, Google, February 2018.
[162] *How travellers are using mobile*, TravelPort Digital, 2019.

through online booking, and new business model disruption such as the rise of Airbnb and Tripadvisor.[163] In contrast, the logistics sector has experienced increased demand for its services, driven by the acceleration of e-commerce during the pandemic. COVID-19 could accelerate the shift to digital channels, such as online booking, or accelerate automation of the entire logistics supply chain to meet higher demand and manage capacity, which could raise the sector's productivity. Previous McKinsey research found that only 6 percent of the largest freight forwarding and ocean cargo logistics companies offered end-to-end online booking services.[164] According to Transport Intelligence, 10 percent of freight volumes are booked through online booking platforms, marketplaces, or digital forwarders, a figure forecast to rise to 19 percent by 2023 prior to the pandemic.[165] WebCargo estimates that using online booking systems could boost productivity for logistics providers by 15 percent through reducing labor costs and providing customers with quotes more quickly.[166] We estimate the shift to digital channels in logistics could boost productivity by 0.1 percentage point per year. The logistics sector has more potential to digitize, but we do not expect that this potential will materialize by 2024. Yet increased demand for last-mile delivery and faster delivery may reduce productivity due to higher operational costs.[167] Other potential drivers of productivity growth include accelerated adoption of automation and increased adoption of agile working. In total, for travel and logistics, our analysis suggests that productivity growth could accelerate by about 0.5 percentage point per year in the period to 2024.

The shift in the sector mix had a large short-term impact on productivity growth, but this effect is likely to become modest once the immediate effects of the pandemic recede

Productivity growth depends not only on what happens within each sector but also on how the relative size of sectors varies—the so-called sector mix or between-sector effect. The unequal impact of the pandemic on sector-specific demand may change the sector mix in economies. In the short term, the pandemic's greatest impact was on relatively low-productivity sectors like accommodation and food services and arts and entertainment, while high-productivity sectors, including ICT, were less badly affected. This was initially beneficial for productivity growth. The shift in the sector mix from the end of 2019 to the third quarter of 2020, for example, yielded a positive effect on productivity of between zero and 0.7 percentage point in our sample countries. As economies recover, there is a great deal of uncertainty about how the sector mix will evolve. Overall, we expect the small negative contribution of the mix shift observed in the decade before the pandemic, stemming from shifts toward services, to persist.[168]

[163] *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.
[164] *Travel and logistics: Data drives the race for customers*, May 2018, McKinsey.com.
[165] *Online freight forwarding survey 2019*, Transport Intelligence, January 2021.
[166] Tzvi Zucker, "What is air cargo eBooking?," WebCargo, September 2019.
[167] Tim Ecker, Malte Hans, Florian Neuhaus, and Julia Spielvogel, "Same-day delivery: Ready for takeoff," January 2020, McKinsey.com.
[168] *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.

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of surveyed executives said COVID-19 would be a major growth opportunity

Forward-looking surveys indicate that firms intend to take more action across most drivers and expect an acceleration in productivity growth

Our December 2020 Economics Conditions survey, together with other business surveys conducted largely in 2020 by McKinsey and others, enabled us to take the temperature of future intentions for action among firms. Surveys, by their nature, give us only a general picture of what may be happening on the ground, not necessarily of intention. Nevertheless, in a particularly uncertain period, they are a useful guide, and the findings of business adoption of potentially productivity-enhancing levers in many surveys has been remarkably consistent.

Survey evidence compiled in the course of 2020 indicated that there was significant intent to build on changes made in response to the pandemic on a range of drivers of productivity. Three out of four executives surveyed by McKinsey in April 2020 said that COVID-19 would be a major opportunity for growth. Intentions to make changes on different potential drivers of productivity vary, but we found substantial intent across most drivers. In particular, intent seems robust regarding automation, digitization, and new technologies, as well as shifting to online channels, operating model disruption, and reorganization and agility. We found smaller or more mixed results for operational efficiency, investment in human and physical capital, and business dynamism (Exhibit 11).

About 55 percent of respondents in North America and Europe said that the COVID-19 crisis would accelerate their creation of new products, services, or both.

Exhibit 11

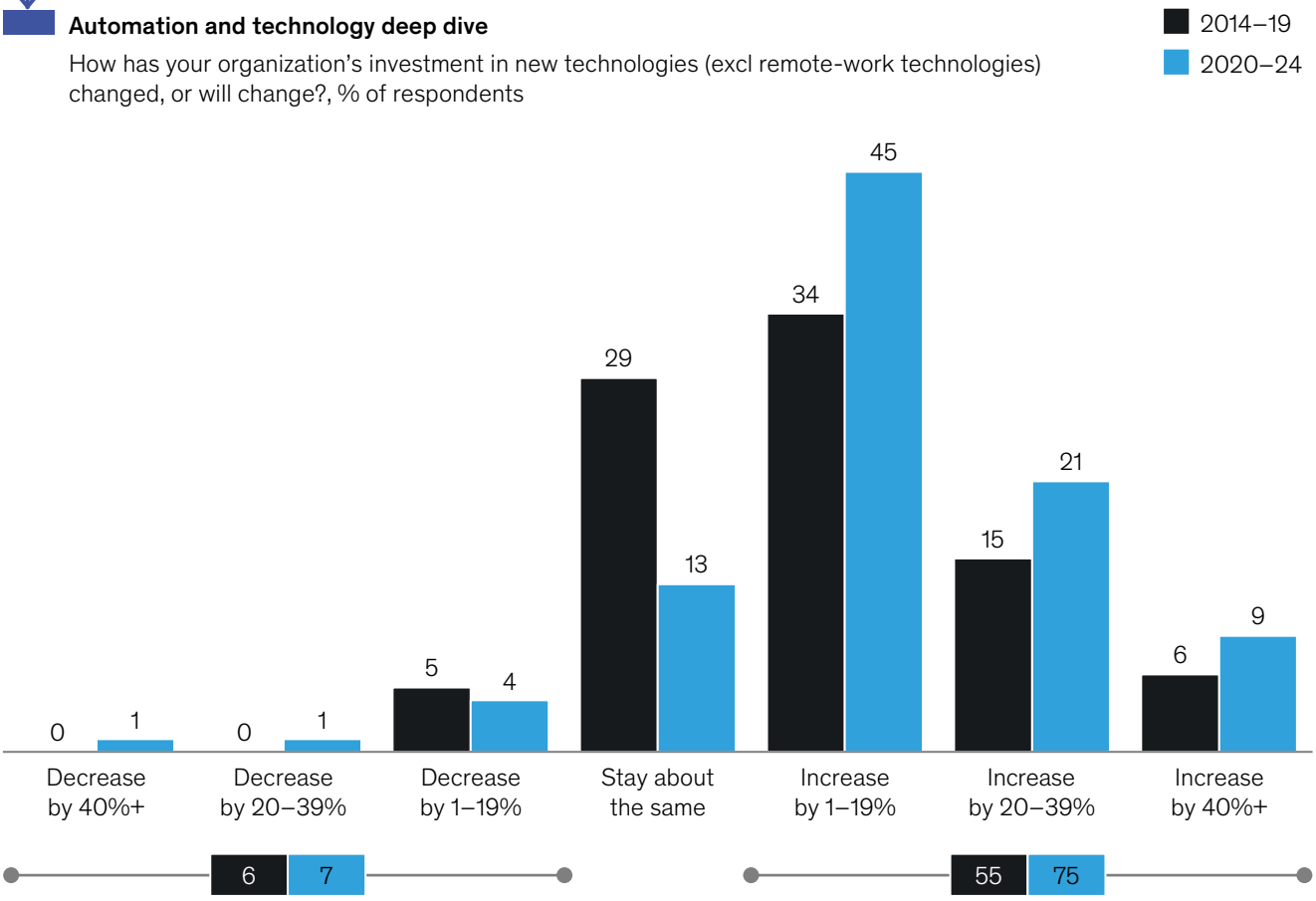
Surveyed executives expect acceleration on most drivers.

Share of respondents from Europe and North America whose firms experienced or expected advances, %

Potentially productivity-enhancing drivers	Prepandemic[1]	Postpandemic[2]	
Automation and technology	55	75	Estimate increased investment in new technologies
Operational efficiency	30	35	Expect decreased operating expenditure margins
Product, business, and operational model disruption	← 55 →		Creating new products and/or services accelerated by COVID-19
Investment in human and physical capital	← 40[3] →		Intend to accelerate implementation of upskilling/reskilling due to COVID-19
Reorganization and agility	55	70	Expect more rapid decision making and implementation of business decisions
Shift to digital channels	← 60 →		Targeting new customers and using new channels accelerated by COVID-19
Shifts in consumption	← 20 →		Adoption of new revenue models accelerated by COVID-19[4]
Business dynamism (incl M&A)	20	20	Consider M&A one of their biggest opportunities

Automation and technology deep dive

How has your organization's investment in new technologies (excl remote-work technologies) changed, or will change?, % of respondents



1. End 2014 to end 2019.
2. End 2019 to end 2024 for all drivers except investment in human and physical capital (post–Oct 2020) and business dynamism (2020–21).
3. Rounded average for France, Germany, Italy, United Kingdom, and United States.
4. Shifting from subscription to freemium model, for example.

Note: Where we have used proxy indicators, they are the best available but not perfect. In some cases, we did not identify a suitable proxy.

Source: McKinsey Global Economic Conditions Survey, Dec 2020; World Economic Forum; McKinsey Global Institute analysis

Looking at the detail by driver of productivity, we find:

— **Automation and technology.** In our December 2020 survey, approximately 75 percent of respondents in North America and Europe said they expected investment in new technologies to accelerate in 2020–24, up from 55 percent who said they increased such investment in 2014–19 and about 50 percent who reported increased investment between December 2019 and December 2020. Differences between North American and European respondents were negligible across drivers. For instance, 76 percent of respondents in North America and 77 percent of those in Europe said that they expected investment in new technologies to accelerate in 2020–24. According to the survey, the rate of acceleration varies by sector. For example, the highest relative acceleration was observed in the consumer sector, where 80 percent of respondents globally said that they expected to increase investment in new technologies in 2020–24, compared with 45 percent who said they had done so in 2014–19. Other surveys reach similar conclusions. For instance, across our sample countries, a survey by the World Economic Forum conducted in the course of 2020, with results published in October 2020, indicated that between 85 and 95 percent of firms were accelerating or looking to accelerate the digitization of work processes as a result of COVID-19.[169] Intended acceleration of automation was more modest but still notable. According to the World Economic Forum, 50 to 65 percent of firms intended to accelerate automation of tasks. The rate of acceleration slightly varies by country and region, but the differences are not significant enough to make any conclusive judgement that one region or country demonstrates stronger intent than another.

— **Operational efficiency.** In our December 2020 executive survey, approximately five percentage points more companies in North America and Europe expected a decrease in operating expenditure as a share of revenue in 2020–24 compared with 2014–19. The highest relative acceleration was in the automotive and assembly sector, where 34 percent of respondents said that they would reduce operating expenditure as a share of revenue in 2020–24, compared with 9 percent who said the same in 2014–19. Other surveys of US firms also suggested that the shift was about to happen. For instance, in the December 2020 McKinsey executive survey, 20 and 22 percent of US and European firms, respectively, said that they would consolidate at least some of their operations across or within geographies, or both, once fully operational. Other forms of efficiency could be remote working as well as the deployment of digital tools to carry out processes that were formerly undertaken by people. Surveys point to substantial advances in these areas that may well stick. In the United States, for instance, 86 percent of firms surveyed said that they were looking to provide more opportunities to work remotely, and 54 percent of firms were exploring the option of accelerating the use of digital technologies in training their workforces. These technologies have potential to reduce costs in various ways, for example by reducing the need to travel or the amount of office space needed.

— **Product, business, and operating model disruption.** In our December 2020 survey, about 55 percent of respondents in North America and Europe said that the COVID-19 crisis would accelerate their creation of new products, services, or both. Furthermore, about 40 percent of respondents said that adoption of new operating models such as insourcing delivery and shifting from a capital-intensive to capital-light model would be accelerated by COVID-19.

[169] The World Economic Forum survey consists of data collected from January to September 2020, with most responses collected during the COVID-19 pandemic while at least partial lockdown measures were in place. By March 23, when most economies were experiencing the effects of the pandemic and had started to implement measures to slow the spread of the virus, only 24 percent of the surveys had been completed. By mid-April, when most economies were in full or partial lockdown, just 36 percent of companies had completed the survey. See *The future of jobs report 2020*, World Economic Forum, October 2020.

— **Investment in human and physical capital.** On the one hand, some businesses may accelerate investment in infrastructure and skills that are necessary to enable accelerated digitization, automation, and changes in business models. On the other hand, the negative shock to revenue coupled with prolonged uncertainty may pull in the opposite direction for some time. In addition, the temporary closure of educational institutions and the fact that many workers were outside the labor force for a relatively long period due to lockdowns could have a negative longer-term impact on skills.[170] The 2020 World Economic Forum report found that, globally, between 35 and 50 percent of firms surveyed were looking to accelerate implementation of such programs as a result of COVID-19. According to another survey conducted in Germany, 30 percent of firms said that they viewed personnel and organization as an important area for investment from 2021 to 2023. Regarding investment in physical capital, a McKinsey survey of more than 2,200 SMEs in five countries (France, Germany, Italy, Spain, and the United Kingdom) found that 23 to 37 percent of them were concerned about having to postpone growth projects due to the pandemic.

— **Reorganization and agility.** Our December 2020 executive survey found that about 70 percent of respondents in North America and Europe thought that their speed of making and implementing decisions would be somewhat or significantly faster in 2020–24, compared with 55 percent who said the same in 2019–20. The highest relative acceleration was in the automotive and assembly and the consumer sectors; the most modest acceleration was in healthcare and social services. In a McKinsey survey conducted in July 2020, 72 percent of firms said that they agreed or strongly agreed with the statement that COVID-19 would initiate changes in their core processes and how they run their business. Another McKinsey survey in June 2020 found that a large positive development triggered by COVID-19 was the shift to agile leadership, which many expect to become permanent. For example, consumer and retail executives surveyed increasingly say they favor leaders who empower others and promote an open environment over those who practice authoritative or consultative leadership.[171] In the United Kingdom, according to the CEP-CBI survey, about 60 percent of firms said they had adopted or intended to adopt new management practices, such as new business operations processes and people management practices.

— **Shift to digital channels.** According to our executive survey, about 60 percent of respondents in Europe and North America highlighted "targeting new customers and/or approaching them in new ways" as an area in which the COVID-19 crisis would accelerate changes to their business. A 2020 MGI report found that between 26 and 33 percent of the workforce in advanced economies could work remotely for three to five days a week as effectively as they could if they worked from an office. If this level of remote work were to take hold and be sustained, the number of people working from home would be quadruple the number before the pandemic.[172]

— **Business dynamism.** It is possible that once the crisis dissipates, renewed interest in acquisitions and divestitures materializes. For example, there could be new opportunities for healthy and productive firms to acquire others that have damaged balance sheets or are close to bankruptcy. Overall, however, no significant changes in M&A intentions emerged from 2020 surveys. Our survey found that respondents from about 20 percent of European and North American firms said that M&A would be one of their largest opportunities in the next 12 months, similar shares to before the pandemic. On firm entry and exit, as we have already noted, the outlook for both bankruptcies and new business creation will hinge on the degree to which—and when—governments choose to tip

[170] Olivier J. Blanchard and Lawrence H. Summers, *Hysteresis and the European unemployment problem*, NBER working paper number 1950, June 1986; and Antonio Fatás and Lawrence H. Summers, *Hysteresis and fiscal policy during the global crisis*, VoxEU and CEPR, October 2016.
[171] *Consumer organization and operating models: Bold moves for the next normal*, August 2020, McKinsey.com.
[172] "What's next for remote work: An analysis of 2,000 tasks, 800 jobs, and nine countries," McKinsey Global Institute, November 2020.

the balance away from direct support for businesses in the face of economic disruption toward allowing more normal market conditions.

This action is also reflected in executives' high productivity growth expectations for their own firms. On average, their responses imply between 2 and 3 percent annual productivity growth in the period from 2019 to 2024. In contrast, adding our estimated boost to prepandemic productivity growth rates, total productivity growth would amount to 1.7 percent (Exhibit 12).[173] Even if diffusion were to become broadly spread among companies and large sectors, it may still take some time before productivity gains come through in a new variant of the Solow Paradox.[174]

Even if diffusion were to become broadly spread among companies and large sectors, it may still take some time before productivity gains come through in a new variant of the Solow Paradox.

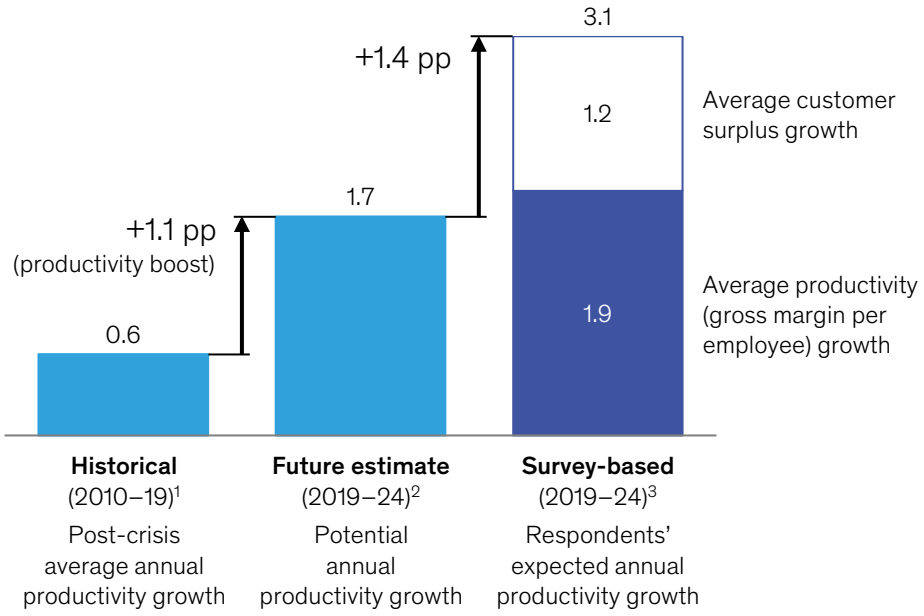
[173] McKinsey's December Global Economic Conditions survey enables us to compare our estimate to the productivity growth firms expect they will achieve between 2019 and 2024. Our central estimate is based on prepandemic productivity growth plus our estimated productivity boost, amounting to total productivity growth of 1.7 percent. We asked businesses what they expect their productivity growth and customer surplus growth to be in the period from 2019 to 2024. In the survey, we defined productivity as "either reducing the number of full-time workers while maintaining the same level of output or increasing revenues or gross margin while maintaining the same number of employees," and customer surplus as "improving product or service quality for customers while keeping prices constant or by lowering the price for the same product or service." The weighted average estimate of survey responses we obtained from businesses is 1.9 percent for productivity growth and 1.2 percent for customer surplus growth. Our objective is to approximate labor productivity growth as understood by economists, but businesses do not measure this metric directly, so this result should be treated with care. Additionally, productivity growth and customer surplus growth are not perfectly additive, but at least some of the customer surplus will be reflected in productivity statistics via price adjustments. Based on this, and with these caveats in mind, we conclude that businesses expect, on average, their productivity growth to be 2 to 3 percent between 2019 and 2024.

[174] Mekala Krishnan, Jan Mischke, and Jaana Remes, "Is the Solow Paradox back?," *McKinsey Quarterly*, June 2018.

Exhibit 12

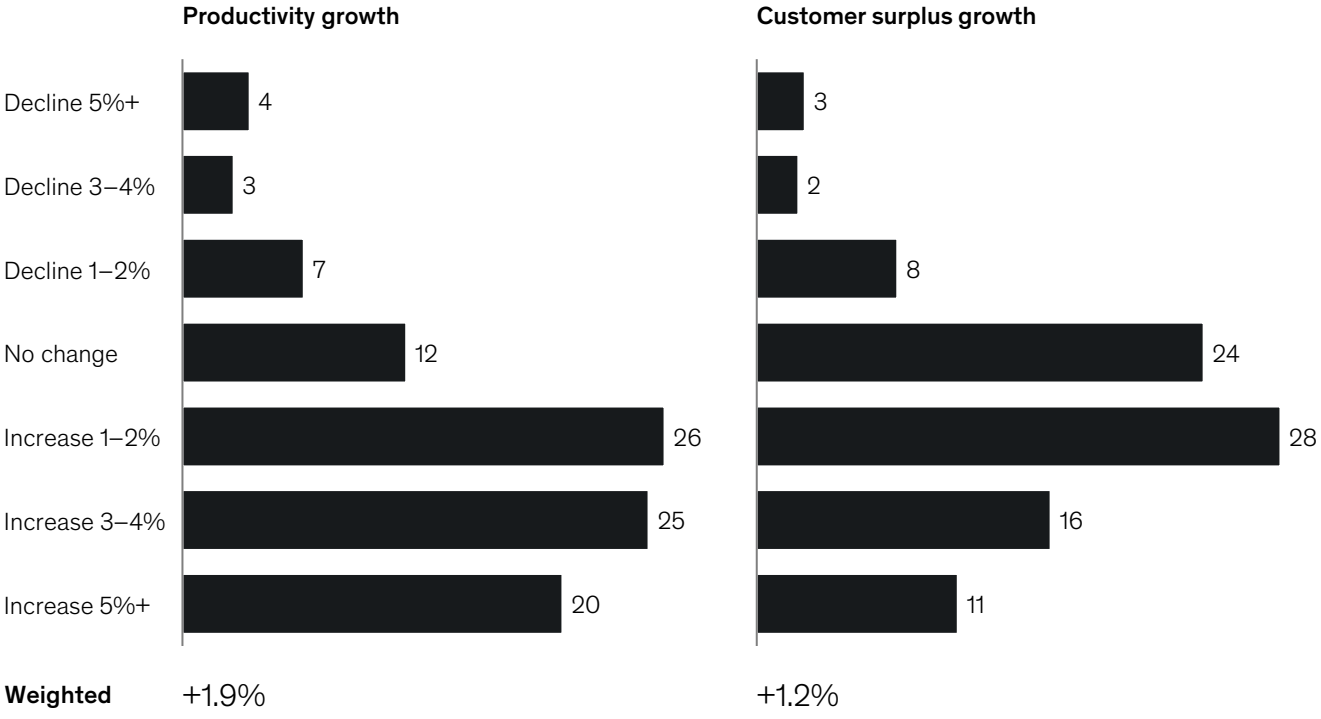
Surveyed firms are more optimistic about their firms' future productivity growth than our estimate.

Productivity growth, %



A majority of respondents expect productivity and customer surplus growth to be higher than in past decade

Expected firm-level productivity/customer surplus growth, 2019–24, % of respondents[4]



1. Weighted average of sample countries.
2. Average annual productivity growth following global financial crisis (2010–19) of 0.6%, plus potential productivity boost in response to COVID-19 of 1.1%.
3. Approximation of future productivity growth based on these questions: (1) "Between the end of 2019 and the end of 2024, how do you think your organization's average level of productivity will have changed from a business perspective (ie, increased productivity by either reducing the number of full-time workers while maintaining the same level of output or increasing revenues or gross margin while maintaining the same number of employees)?"; (2) "Between the end of 2019 and the end of 2024, how do you think your organization's average level of customer surplus will have changed (ie, by improving product or service quality for customers while keeping prices constant or by lowering the price for the same product or service)?" Businesses do not calculate their productivity as economists do, so this is an approximation based on assumption that gross margin per employee captures unadjusted productivity, while customer surplus captures price/quality adjustment.
4. Respondents employed in companies headquartered in France, Germany, Italy, Spain, Sweden, United Kingdom, and United States.

Note: Figures may not sum to 100% because of rounding.

Source: OECD; McKinsey Global Economic Conditions survey, Dec 2020; McKinsey Global Institute analysis

The economic shock of the pandemic and the response of companies could exacerbate long-term structural demand drags

The negative impact on demand during the pandemic is a major concern. Of potentially even greater concern is the danger that demand will remain weak in the longer term even well after governments get a grip on the spread of COVID-19 and contain the economic disruption that the virus has been causing. We looked at private consumption growth, private investment, public-sector consumption and investment, and the inevitable worker transitions needed to align the productivity growth potential with shifting demand.

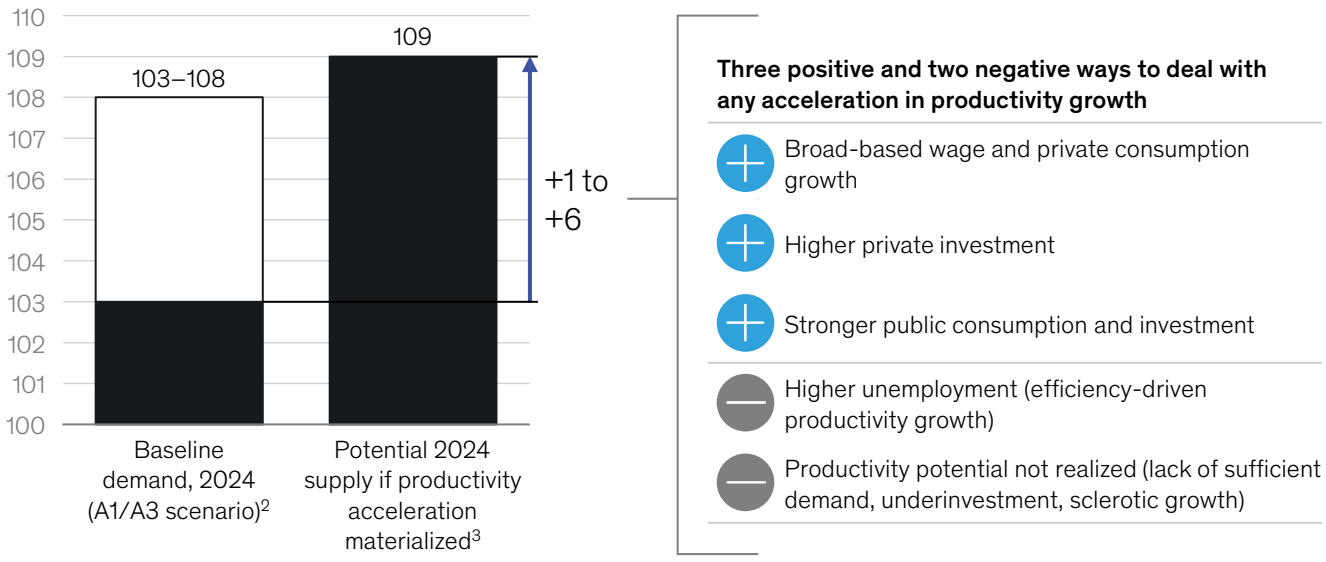
Potential supply could exceed baseline demand by up to six percentage points in 2024

Our analysis undertaken through the course of 2020, when the pandemic was causing significant disruption, finds that there could be a difference between potential supply and baseline demand in 2024 of up to six percentage points of 2019 GDP (Exhibit 13).[175] Potential additional supply could translate into about $2 trillion of rising incomes and consumption or investment—public or private—by 2024 in our sample countries, which is equivalent to one full year of Italy's GDP. Looking at the potential difference for individual countries, the expected excess supply appears lower in the United States than among European economies, reflecting higher projected US baseline demand in 2024. These demand projections do not include stimulus packages approved in early 2021 or potential future investment packages like those being discussed in early 2021, particularly in the United States. Their approval could contribute to reducing or even eliminating the gap between potential supply and realized demand.

Exhibit 13

Potential supply could exceed baseline demand in 2024.

United States and Europe



1. GDP-weighted average of the 7 sample countries.
2. A1 and A3 scenarios from McKinsey and Oxford Economics. Forecast from IHS Markit stands between A1 and A3.
3. Based on historical productivity growth (2010–19) and additional potential due to postpandemic acceleration of productivity.

Source: IHS Markit Comparative Industry; OECD; Oxford Economics; The Conference Board; McKinsey Global Institute analysis

[175] The excess supply potential we calculate represents the difference between the GDP-weighted average of GDP forecasts (that is, demand) and our estimated potential supply for sample countries in 2024 if the productivity boost is realized. The demand forecast reflects the range between the A1 and A3 scenarios developed by McKinsey in partnership with Oxford Economics. See *Nine scenarios for the COVID-19 economy*, December 2020, McKinsey.com. These scenarios take into account unprecedented monetary and fiscal support packages in the immediate aftermath of the crisis. The forecast of supply potential is the total of prepandemic productivity growth (2010–19) and our estimated productivity acceleration potential of 1.1 percentage points. The gap between potential supply and demand does not factor in demand drags or demand increases dynamically resulting from the potential supply growth. We also used the December 2020 GDP forecast from IHS Markit Comparative Industry recast as a check for the robustness of demand, and we found that its weighted average forecast for our sample countries is between scenarios A1 and A3.

Absent sustained action to strengthen demand, the more probable (baseline) scenario is that, after an initial recovery—including some pent-up consumption and investment—demand growth will remain tepid, wage growth low, and productivity growth slow. In a low-pressure economy in which businesses experience low demand for their products and services, they invest less in new capacity that embeds the latest technology or productivity-enhancing measures than they otherwise would; this results in lower productivity growth overall. Furthermore, in a stagnant market, it is difficult for productivity leaders to gain market share. These factors contributed to the productivity slowdown after the 2008 global financial crisis and are a high risk for the economy after the COVID-19 pandemic.[176]

Following the global financial crisis, productivity growth measured as a GDP-weighted average in our sample countries was 0.8 percent per year between 2007 and 2019. This is less than half the rate from 1990 to 2007 or from 2000 to 2007—both 1.9 percent. After 2007, productivity growth in most countries was below 1 percent per year. The rate of productivity growth ranged from 0.1 percent in Italy and 0.2 percent per year in the United Kingdom to 1 percent in the United States and 1.1 percent in Spain. The productivity slowdown was broad-based. There were three waves behind the job-rich, productivity-weak recovery experienced in the United States and Western Europe: the waning of the ICT productivity boom (including restructuring of domestic operations and supply chains), financial crisis aftereffects such as weak demand and uncertainty and a lack of investment, and slow materialization of the benefits of digitization due to a lack of scale, adoption barriers, and transition costs.[177]

Considering demand weakness further, according to the International Monetary Fund, there was a persistent output gap—the difference between realized and potential GDP—that is often used as an indicator of demand shortfalls. Between 2008 and 2019, GDP-weighted average realized GDP in our sample countries was 2.6 points below potential, compared with an average output gap of 0.5 percent between 1990 and 2007 and of 0.2 percent in 2000 to 2007.[178] The only countries of our sample that did not experience a large output gap after the global financial crisis were Germany and Sweden.

In 2019, more than a decade after the onset of the global financial crisis, the output gap had finally been closed in most countries. However, there is now a risk that the low-growth, low-productivity aftermath of that crisis could be repeated. The International Monetary Fund expects the output gap to widen again in most countries and reach 2.1 percent of potential output on average in 2020–24.[179] The postpandemic economy could well be characterized by slow GDP and productivity growth.

Another possibility is that despite weak demand, sufficient numbers of firms *do* drive innovation and start implementing productivity-enhancing measures at scale and in large sectors, and that these actions lead to employment losses or increasing inequality. In the absence of demand for their products and services, businesses may focus on increasing efficiency by cutting employment. Our sector reviews indicate that 60 percent of the productivity potential that we have calculated for our sample countries and sectors comes from firms taking measures to cut labor or other input costs to increase efficiency—a "denominator effect" (see further discussion later in this chapter).[180] Examples include accelerated automation of warehouses by retailers or broader use of robotic automation in pharmaceutical companies. Even if these actions do not result in higher long-term unemployment, they could increase income inequality as the effect of greater technological

[176] *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.
[177] Ibid.
[178] *World Economic Outlook, October 2020: A long and difficult ascent*, International Monetary Fund, October 2020.
[179] Simple rather than weighted average because forecasts to 2024 are not available for two countries in our sample.
[180] Productivity measures value added (numerator) per hour worked (denominator), and therefore there are two ways to increase it: by increasing value added or by reducing hours worked (that is, labor inputs). When estimating the productivity growth potential from action by firms, we classified each as numerator- or denominator-based, and we found that about 60 percent of the potential is achieved through denominator-based action. We did not take into account longer-term dynamic or spillover effects; for instance, we classified worker automation as driving productivity growth through reducing the denominator but did not assess resulting price reductions or wage increases that can increase the numerator.

change leads to even greater polarization in the labor market (see Box 6, “The complex relationship between productivity, employment, and inequality”).

In the decade preceding the COVID-19 crisis, employment developed positively for a majority of countries in our sample. On average (GDP weighted), employment grew by 0.6 percent a year between 2007 and 2019—and by as much as 1 percent in Germany and Sweden, and 0.9 percent in the United Kingdom. In 2019, the employment-to-population ratio reached a level not seen in decades in Germany (54 percent), Sweden (50 percent), and the United States and the United Kingdom (49 percent). Trends were less positive in other countries such as France where employment kept pace with population growth, Italy where it dropped during the post-financial crisis era but had nearly recovered by 2019, and Spain where employment decreased substantially. At the same time, income inequality increased in most of our sample countries.[181]

Our sector reviews indicate that 60 percent of the productivity potential that we have calculated for our sample countries and sectors comes from firms taking measures to cut labor or other input costs to increase efficiency.

[181] In our sample countries, the average Gini index of market income and disposable income (after taxes and transfers) increased by 4 and 3 percent, respectively, between 2008 and 2017, the last year for which data for all countries are available.

Box 6

The complex relationship between productivity, employment, and inequality

Productivity and employment tend to grow together. In the United States, an analysis of three-year periods reveals that productivity growth was positive in every year at least since 1950 while employment was positive in all but 11 years. The correlation between the two variables at the total economy level tends to be positive.[1] At the sector level, however, the link between productivity growth and employment growth is often negative (Exhibit 14). From 2010 to 2019, for example, the sectors with high productivity growth, including ICT services, high-tech manufacturing, and retail, had the lowest employment growth, while those with the strongest employment growth, including accommodation and food services, transportation services, and construction, typically had lower productivity growth.

How is it possible that what's true at the sector level is not so at the economy level? The answer is spillover effects: productivity growth in some sectors produces outcomes such as growing incomes that lead to higher demand for goods and services in others. At the aggregate economy level, these positive spillover effects outweigh the negative within-sector effects, and employment grows. Between 2010 and 2019, employment (hours worked) in the private economy in the United States grew at 1.8 percent per year, while productivity increased at an annual rate of 0.7 percent. For the pattern to persist—and there is no guarantee that it will—would require aggregate demand to continue increasing; subdued demand could mute spillover effects and lead to higher unemployment.

A second condition is that workers can transition from shrinking to growing sectors. Even if net employment is created, there is no guarantee that jobs are of high quality in high-paying sectors and occupations. Previous MGI research has found growth in both lower- and higher-paid jobs in the recent past, but a decline in jobs with medium pay, increasing inequality.[2] The pandemic could worsen this effect. However, productivity growth need not lead to lower employment or increased inequality. History tells us that it is the key ingredient for job-rich, broad-based prosperity. However, for that desirable outcome to materialize, countries need robust aggregate demand and smooth, effective transitions toward higher-paid occupations.

[1] David Autor and Anna Salomons correlated the two variables across time in several countries and found that employment tends to rise with productivity growth. See David Autor and Anna Salomons, *Does productivity growth threaten employment? "Robocalypse Now?,"* European Central Bank Annual Conference, Sintra, Portugal, June 27, 2017.

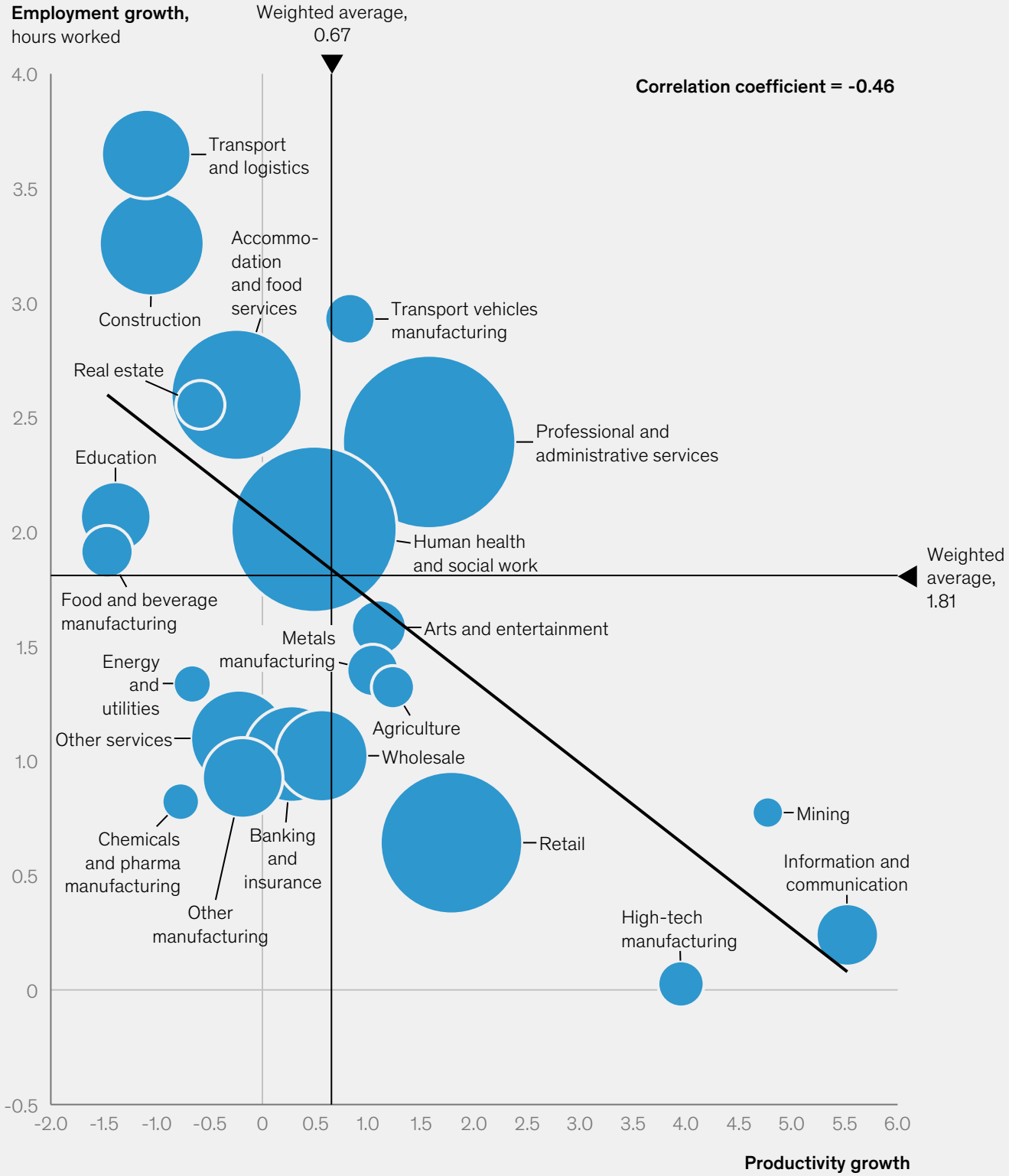
[2] *A future that works: Automation, employment, and productivity*, McKinsey Global Institute, January 2017; *Jobs lost, jobs gained: Workforce transitions in a time of automation*, McKinsey Global Institute, November 2017; *Skill shift: Automation and the future of the workforce*, McKinsey Global Institute, May 2018; and *The future of work after COVID-19*, McKinsey Global Institute, February 2021.

Exhibit 14

In the United States, the relationship between productivity and employment growth in the business sector was negative at the sector level after the global financial crisis.

Productivity vs employment growth after global financial crisis, compound annual growth rate, 2010–19, %

Size indicates number of full-time equivalent workers, 2019



Note: Excludes textiles manufacturing since it is a small outlier.
Source: BEA; BLS; McKinsey Global Institute analysis

Demand was subject to long-standing drags well before the pandemic

Comparing the drivers of demand growth from peak to peak of successive business cycles helps indicate which demand components were the main drivers of the slowdown in economic growth experienced since 2000. We investigated the period of economic expansion preceding the financial crisis, from 2000 to 2007, and the period following that crisis, from 2007 to 2019 (Exhibit 15). We looked at per capita GDP rather than GDP in order to neutralize the effect of population dynamics.[182] On average, across our sample countries, per capita GDP growth fell by almost half in GDP-weighted terms, from 1.5 percent to 0.8 percent. Of the difference, 0.5 percentage point came from lower consumption growth, the largest of the demand components analyzed.

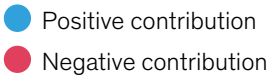
Going into the pandemic, productivity growth had not always translated sufficiently into growth in median wages.

[182] This enables us to better benchmark our sample countries, because an economy with a fast-growing population will have a more rapid increase in GDP even if each individual's output does not change.

Exhibit 15

Consumption and investment contributed less to per capita GDP growth in 2007–19 vs 2000–07, with growing output gaps after the global financial crisis.

Drivers behind drop in demand per capita between 2000–07 and 2007–19



Pre- vs post-global financial crisis growth decomposition, pp of GDP[1]	France	Germany	Italy	Spain	Sweden	United Kingdom	United States	Average
Per capita GDP growth, CAGR, 2000–07, %	1.2	1.4	0.7	1.8	2.6	2.2	1.6	1.5
Private consumption[1]	0.5	0.3	0.5	1.4	0.5	1.0	0.6	0.5
Private investment[1]	0.3	0	0.6	1.0	0.7	0.3	0	0.1
Public consumption[1]	0	0.2	0.2	0.5	0	0.4	0.2	0.2
Public investment[1]	0	0.1	0.2	0.3	0.1	0.1	0.1	0.1
Net exports[1]	0.1	1.0	0.3	1.6	0.7	0.2	0.2	0.1
Per capita GDP growth, CAGR, 2007–19, %	0.5	1.0	-0.5	0.3	0.6	0.4	1.0	0.8
Employment growth, number of workers[2]	0.4	1.0	0.1	-0.4	1.0	0.9	0.6	0.6
Productivity growth, per hour[2]	0.7	0.7	0.1	1.1	0.6	0.2	1.0	0.8
Output gap[3] 2000–07	0.7	0.2	0.1	2.3	1.4	1.2	-0.7	-0.2
Output gap[3] 2008–19	-1.2	0.1	-1.9	-3.1	0.1	-0.7	-3.6	-2.6

1. Contribution to per capita GDP change between pre–financial crisis (2000–07) and post–financial crisis (2007–19).
2. Post–financial crisis (2007–19) compound annual growth rate.
3. Average of yearly gap (2008–19).

Note: Figures may not sum to 100% because of rounding.

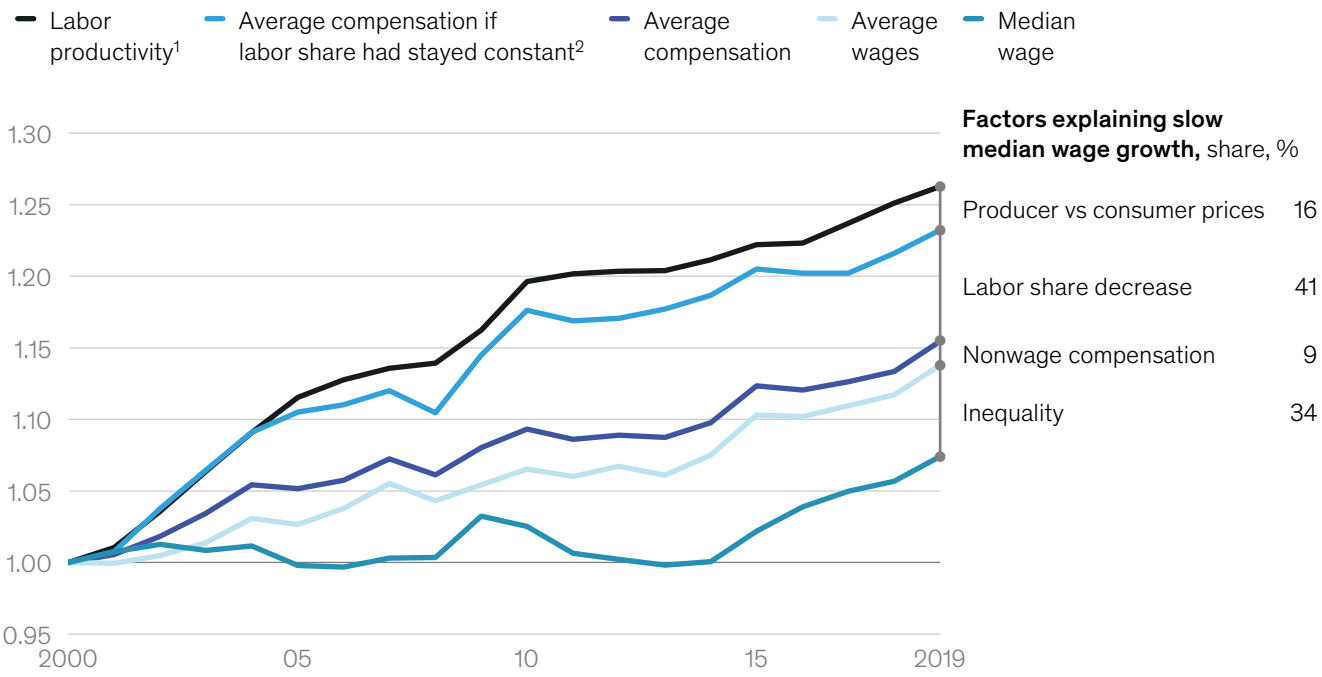
Source: AMECO; BEA; IMF World Economic Outlook; OECD; The Conference Board; McKinsey Global Institute analysis

Going into the pandemic, productivity growth had not always translated sufficiently into growth in median wages and consumption. In the United States, for example, median wage growth was 19 percentage points below productivity growth between 2000 and 2019, which amounts to 6.5 percent of today's GDP in forgone wages (Exhibit 16). In other words, if the US median wage had grown with productivity, today it would be close to $9,000 per year higher than it is. The gap mainly stems from labor share of income, which fell by 4.8 percentage points during this period. Previous MGI research identified several causes behind the recent drop in the United States, among them boom and bust effects from commodity and real estate cycles, a long-term rise in depreciation due to a shift toward intangible assets, and superstar effects and consolidation in particular sectors. Technology (for instance, automation) and globalization, including the erosion of the bargaining power of labor, also played a role, although a more modest one.[183] The second main trend causing a growing divergence between median wages and productivity is rising income inequality. In fact, the rising share of income going to upper income deciles with a lower marginal propensity to consume represents a 1 percent of GDP drag on consumption.[184]

Exhibit 16

In the past, productivity growth in the United States did not translate fully into median wage growth.

Contributors to productivity–median wage gap for total US economy, index: 1 = 2000



1. Productivity figures per person employed (total number of workers).
2. Counterfactual that calculates additional average compensation of workers if labor share remained at 2000 level in nominal terms.

Source: BLS: OECD; OECD STAN; McKinsey Global Institute analysis

[183] For a complete overview of the main root causes and sectors behind the decrease in labor share and academic literature, see *A new look at the declining labor share of income in the United States*, McKinsey Global Institute, October 2018.

[184] The one-percentage-point inequality drag is based on a simple counterfactual. We calculate how much higher consumption would have been in 2019 if inequality had remained unchanged since 2000, while holding the propensity to consume of low-, middle-, and high-income households and every other possible variable constant.

The patterns in Europe are somewhat heterogeneous, but overall there is evidence of a substantial reduction in the contribution of private per capita consumption to growth, too. In Spain, and the United Kingdom, if median wage growth had not trailed productivity growth, consumption could have been 2.5 and 2.9 percent of GDP higher, respectively. As in the United States, pretax income inequality has been increasing in major European economies in recent decades, but the bulk of it has been alleviated through the use of taxes and transfers. Where income inequality was present, it imposed a moderate drag on consumption, with the highest value in our sample for Sweden at 0.9 percent of current GDP and Germany at 0.7 percent. Other European countries had lower values. Following a fast drop in the 1980s and 1990s, the labor share in Europe has staged a partial recovery since 2000, and therefore this factor had been less of a drag on household income and consumption before the pandemic.

Rising costs of essential goods such as housing can have a negative effect on real wages, consumption, and productivity growth, too. Consumers who spend a growing share of their income on these goods cannot spend it on other goods and services that generally have a higher GDP multiplier than real estate. Additionally, rising housing costs in high-productivity cities prevent people from moving to them. As an example, in Italy and Spain, additional housing costs represented an increase of about 8 percent of GDP between 1999 and 2015. When we look at the increase in housing as a share of consumption and apply GDP multipliers to the consumption basket, the rising cost of housing may have represented a 1.1 percent GDP drag in the United States in 2019 relative to 2000.

Turning to private investment, aging and a weak macro environment have been important drivers of a long-term decline. One possible driver is a shift to intangible investments, because increases in this type of investment are constrained by the availability of skills but can scale to the point of broad use at near-zero marginal cost. The average ratio of investment to GDP was 1.8 percentage points lower in the period from 2010 to 2019 than between 2000 and 2007 across our sample countries despite the relatively strong investment recovery in the years preceding the COVID-19 crisis in countries such as France, Sweden, and the United States. Similarly, investment also contributed less (by 0.1 percentage point on average) to per capita growth after 2007 than before.

Finally, in the past, government consumption and investment made a modest contribution to demand growth, but this contribution has declined, too. Public investment as a share of GDP was lower by an average of 0.2 percentage point of GDP from 2010 to 2019 than the average in the period before the global financial crisis, from 2000 to 2007. Government consumption as a share of GDP increased over that time frame, but its contribution to growth still fell. Germany was an exception, with a strong contribution of government spending to demand growth.

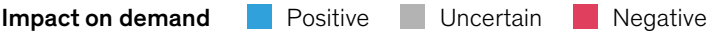
The pandemic shock and corporate action may exacerbate long-standing drags on demand, risking stagnation and a great divide if no action is taken

The nature of the COVID-19 crisis and of the action taken by firms that could boost potential supply growth look set to exacerbate long-standing structural drags on the three key drivers of demand, potentially undermining realized productivity and GDP growth, causing a great divide, or both (Exhibit 17).

Exhibit 17

The pandemic and firms' responses could exacerbate structural demand drags.

United States



Demand component	Driver	Pandemic impact		Firm response	
Private consumption	Employment and income levels	9pp	Increase in savings rate as of Sept	~60%	Productivity potential through efficiency-driven actions (ie, denominator-based)
		37%	Share of long-term unemployed by Dec		
		61%	Share of workforce that cannot work remotely (<1 day per week)	~60%	Firms that are looking to accelerate automation
			Temporary boost from pent-up demand		
	Income distribution and propensity to consume	54%	Share of decline in consumption from top income quartile households as of Oct	-0.4%	Superstar companies' change in revenue as of Sept, compared to 11% loss for competitors
		-25%	Employment rate of low-income households vs high-income as of Dec		
Private investment	Demand and macroeconomic outlook	140%	Global uncertainty compared to previous peak during global financial crisis, as of Dec	~3%	Drop in gross output (proxy of revenue) compared to prepandemic level as of Sept
			Low private consumption	~3%	Drop in private investment compared to prepandemic level as of Sept
	Investment intensity of production				Superstar effect (see above)
				1pp	Increase of intangible investment over total investment as of Sept
	Financial position		Low interest rate environment	7%	Increase in total loans on nonfinancial corporations' balance sheets as of Sept
Public consumption and investment	Financial capacity/ sustainability	19%	Size of announced fiscal stimulus as a share of GDP as of Jan 2021[1]		
		+21pp	Surge in debt-to-GDP ratio, which reached 127% in September, may limit future investment		
			Discussion of whether ultralow interest rates render debt levels less important		

Note: Net exports are not in scope of this research due to global nature of crisis and unclear long-run impact of pandemic.

1. $1.9 trillion package approved in March not included. Government spending of the kind being discussed in the United States in early 2021 (eg, a large infrastructure package) could mitigate or reverse demand weaknesses.

Source: Baker et al., 2020; BEA; BLS; Chetty et al., Nov 2020; IMF; OECD; Oxford Economics; S&P Global Market Intelligence; W EF, Oct 2020; McKinsey Global Institute analysis

The actions firms take could dampen income and private consumption even after the crisis recedes

Fear of contagion, lockdowns, and the shuttering of many businesses during the pandemic contributed to a considerable consumption shock, and the recovery path is uncertain. In the third quarter of 2020, private consumption in the United States was more than 3 percent below the level of the fourth quarter of 2019, before the pandemic. In Europe, the decline in consumption was even more pronounced in all countries but France; in Spain and the United Kingdom, for instance, consumption was more than 10 percent lower than it was before the pandemic.

Consumption is mostly a function of employment and income, as well as of the distribution of that income and the propensity to consume. The shock of the pandemic led to problems on both fronts: lockdowns and fears of contagion translated into higher savings (or lower propensity to consume) among high-income households, and the unequal shock of the pandemic led to job losses mostly for lower-income households who couldn't provide services to them.

Even if there is a temporary boost to consumption from pent-up demand once the health situation is fully resolved, which seems likely, there could be longer-term drags on consumption. Accelerated automation and digitization as well as efficiency-focused productivity advances could dampen employment and income and could hasten the polarization of labor markets. Accelerating superstar effects may lead to further rises in inequality, including from a higher capital share of income. They include the following:

— **The unequal shock of the pandemic hitting employment and income, particularly at the bottom of the income distribution.** During the pandemic, the decline in private consumption mainly came from high-income households; specifically, by October 2020, 54 percent of the decline in consumption in the United States originated in households in the top income quartile.[185] However, effects on employment and health were disproportionately felt by those with lower incomes, raising inequality. Employment among US workers earning less than $27,000 was still almost 25 percent below pre-crisis levels in December 2020, but it had fully recovered for individuals earning more than $60,000.[186] In the United Kingdom, during the first wave of the pandemic, 80 percent of people in the bottom decile of the earnings distribution were either in a shutdown sector or unlikely to be able to do their job from home; this excludes workers in essential services who continued working.[187] Between June 2019 and June 2020, earnings of individuals in the lowest quartile fell more than those in any other quartile.[188] A study of Spain estimated that market income inequality increased by almost 30 percent during the initial months of the COVID-19 crisis.[189] In a series of articles on the United States and Europe during the pandemic in 2020, McKinsey showed that the impact of COVID-19 disproportionately affected the most vulnerable types of workers—those with lower educational levels, skills, and incomes, and those from disadvantaged demographic groups.[190] Some of these regressive effects were often partially or totally offset by public transfers. However, these exceptional measures in response to the pandemic will eventually taper off, and the economic scarring resulting from a long period outside the labor force may persist. If recent recessions are a guide, even a V-shaped recovery in GDP may still mean a long,

[185] Raj Chetty et al., *The economic impacts of COVID-19: Evidence from a new public database built using private sector data*, National Bureau of Economic Research working paper 27431, November 2020.
[186] Track the recovery, tracktherecovery.org.
[187] Richard Blundell, Robert Joyce, Monica Costa Dias, and Xiaowei Xu, *COVID-19 and inequalities*, Institute for Fiscal Studies, June 2020.
[188] Sinem Hacıoğlu Hoke, Diego R. Kanzig, and Paolo Surico, *The distributional impact of the pandemic*, World Inequality Lab working paper 2020/24, November 2020.
[189] Oriol Aspachs et al., *Measuring income inequality and the impact of the welfare state during COVID 19: Evidence from bank data*, VoxEU and CEPR, September 2020.
[190] See, for instance, "Lives and livelihoods: Assessing the near-term impact of COVID-19 on US workers," McKinsey Global Institute, April 2020; Aria Florant, Nick Noel, Shelley Stewart, and Jason Wright, "COVID-19: Investing in Black lives and livelihoods," April 2020, McKinsey.com; Tera Allas, Marc Canal and Vivian Hunt, "COVID-19 in the United Kingdom: Assessing jobs at risk and the impact on people and places," May 2020, McKinsey.com; Anu Madgavkar, Olivia White. Mekala Krishnan, Deepa Mahajan, and Xavier Azcue, "COVID-19 and gender equality: Countering the regressive effects," July, 2020, McKinsey.com; and David Chinn, Julia Klier, Sebastian Stern, and Sahil Tesfu, "Safeguarding Europe's livelihoods: Mitigating the employment impact of COVID-19," April 2020, McKinsey.com.

U-shaped (or K-shaped) recovery in employment, accompanied by a rise in long-term unemployed, underemployed, and discouraged workers for a longer period. In December 2020, the share of long-term unemployed in the United States was 37 percent, up from about 20 percent before the crisis.

— **Higher savings and lower propensity to consume, particularly at the higher end of the income distribution.** When people are uncertain about the future, especially about whether they might lose their jobs, they hold back on consumption and raise savings, and this dampens aggregate demand. In this crisis, lockdowns generated an additional effect—in many cases, households could not spend because parts of the economy were shut down in order to stop the spread of the virus. During the pandemic, US household personal saving as a share of disposable personal income increased from 7 percent in the fourth quarter of 2019 to 16 percent in the third quarter of 2020. The surge in saving was mainly driven by richer, older households that were prevented from spending money on labor-intensive services, such as personal health treatments, domestic services, arts and entertainment, and restaurants and accommodation services.[191] The increase in saving was not limited to those with high incomes. As a result of the fiscal stimulus, even unemployed individuals in the United States doubled their liquid savings between March and July 2020.[192] A surge in aggregate saving was observed in Europe, too. Savings doubled from 12 percent to 25 percent of disposable income in the Eurozone and quadrupled in the United Kingdom, from 7 to 27 percent in the second quarter of 2020. Savings subsequently declined but were still far above prepandemic levels early in 2021. During the pandemic, in the United Kingdom individuals in the top income quartile had median saving rates of about 20 percent, against 5 percent for those in the bottom quartile.[193] Over the longer run, once the health crisis finally eases, the persistence of high saving and low consumption rates will depend on whether high levels of uncertainty recede, by how much, and how quickly.

— **Automation, digitization, and efficiency-focused productivity action dampening employment and incomes, hastening labor market polarization.** With digitization and automation accelerating, an estimated 60 percent of potential productivity-enhancing moves by leading firms appear to be focused on reducing labor and other costs (Exhibit 18). The potential acceleration of automation of tasks that we have noted may put disproportionate additional pressure on lower-income individuals. Routine tasks, typically undertaken by those with lower skills and lower incomes, tend to be more susceptible to automation.[194] During the global financial crisis, the number of workers employed in routine jobs in the United States, for example, fell significantly and did not recover. Now, due to COVID-19, MGI estimates that in the United States alone an additional 5 percent of workers could be displaced due to automation by 2030, on top of the 22 percent forecast before the pandemic. That corresponds to an additional 8 million workers affected by automation. The estimated number of additional displaced workers due to COVID-19 is between 0.5 million and 1 million for France, Germany, and Spain. These workers are disproportionately low-skill, as well as more vulnerable on dimensions including gender, age, and nationality. Even more than before the crisis, job growth in developed countries will be concentrated in high-skill occupations, with a decline in middle- and low-skill jobs.[195] Without reskilling so that they can make necessary transitions, workers could either lose their jobs or experience declining wages, particularly if the transition happens

[191] *The consumer demand recovery and lasting effects of COVID-19*, McKinsey Global Institute, March 2021; and Raj Chetty et al., *The economic impacts of COVID-19: Evidence from a new public database built using private sector data*, National Bureau of Economic Research working paper 27431, November 2020.
[192] Diana Farrell et al., *The unemployment benefit boost: Trends in spending and saving when the $600 supplement ended*, JPMorgan Chase & Co., October 2020.
[193] The calculation includes taxes and transfers. See Sinem Hacıoğlu, Hoke Diego R. Kanzig, and Paolo Surico, *The distributional impact of the pandemic*, World Inequality Lab working paper 2020/24, November 2020.
[194] *A future that works: Automation, employment, and productivity*, McKinsey Global Institute, January 2017; *Jobs lost, jobs gained: Workforce transitions in a time of automation*, McKinsey Global Institute, November 2017; and *Skill shift: Automation and the future of the workforce*, McKinsey Global Institute, May 2018.
[195] *The future of work after COVID-19*, McKinsey Global Institute, February 2021.

when demand for workers is already low. By raising unemployment, lowering employment, or increasing inequality, this can dampen demand.

Accelerating digitization may also disproportionately put those with lower incomes under pressure as companies reorganize. Similarly, accelerated digitization and a shift toward remote working tends to favor high-skill, high-income workers. During the pandemic, low-income workers were most badly affected by lockdowns because they were overrepresented in sectors and occupations in which workers must physically perform their jobs. Governments supported such workers. For instance, in the United Kingdom, the government put in place a furlough scheme in which 80 percent of an individual's wages were paid from the public purse. Nevertheless, it is well known that long periods outside the labor force can produce economic scarring through loss of relevant skills or increasing mental health issues, among other effects.[196] Additionally, the estimated share of the workforce that cannot work remotely (less than one day per week) in the United Kingdom, the United States, and Spain, for instance, is 52, 61, and 63 percent, respectively.[197] If the trend toward increased remote working persists on a large scale, these workers will experience the most pressure to transition between occupations. Finally, permanent increases in remote work will tend to reduce demand for services related to commuting, traveling, or in-office work, such as cleaning, maintenance, or taxi driving, as well as demand for retail stores, restaurants, and other services in city centers. Jobs related to the delivery of these services are concentrated among low-skill workers who could therefore experience additional pressure on their incomes.[198]

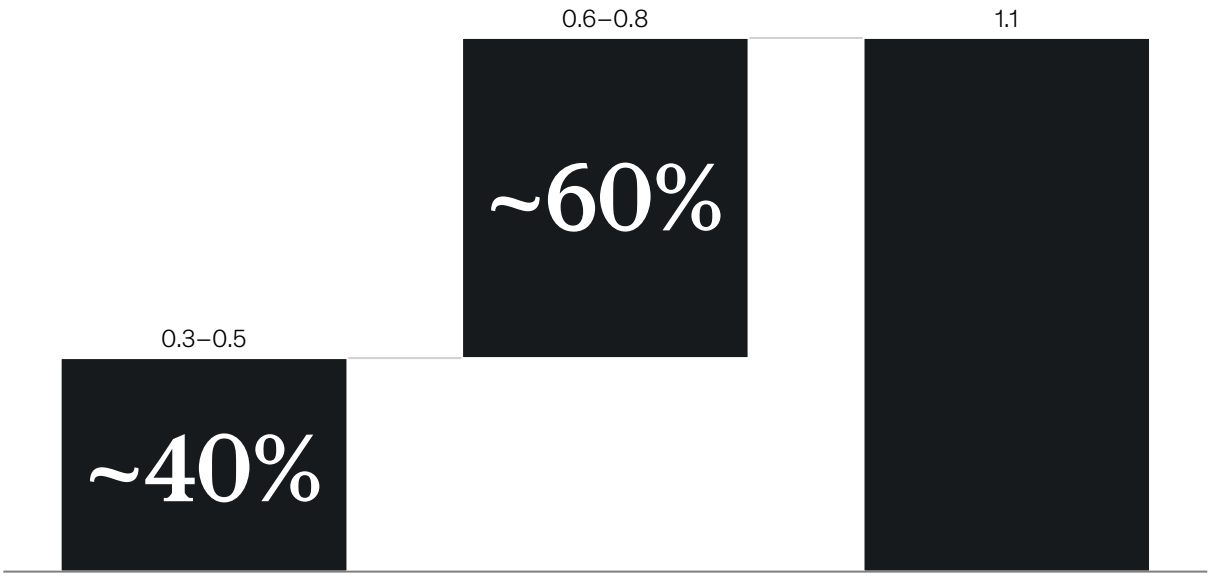
— **Superstar effects leading to increases in inequality, including from rising capital shares.** An increasing concentration of revenue and profit in a small group of successful firms—so-called superstar effects—can affect consumption in two ways. First, it can increase inequality as workers at leading firms enjoy growing wages while employees at other firms fall behind. Second, if superstar firms pull even further ahead, the labor share of income—the percentage of national income that goes to worker compensation—could decline even more, thereby dampening consumption. Previous MGI research showed that this phenomenon was responsible for about 20 percent of the reduction in labor share in the United States since 2000, a period in which three-quarters of the decline since 1947 was registered.[199] Superstar effects have been less visible in Europe, both before and since the COVID-19 crisis.[200] As noted, the pandemic may amplify an existing divergence in the adoption of productivity-enhancing drivers between superstar companies and others. SMEs were particularly hard hit by the pandemic. In September 2020, between 15 to 40 percent of SMEs in the United States, particularly in accommodation and food services, were still closed.[201] In the six large European economies highlighted in this research, between 9 and 13 percent of 2,200 companies surveyed in August 2020 said that they feared going bankrupt in the next six months, and one-fifth of responding companies said they might default on loans.[202]

[196] Olivier J. Blanchard and Lawrence H. Summers, *Hysteresis and the European unemployment problem*, NBER working paper number 1950, June 1986; and Antonio Fatás and Lawrence H. Summers, *Hysteresis and fiscal policy during the global crisis*, VoxEU and CEPR, October 2016.
[197] "What's next for remote work: An analysis of 2,000 tasks, 800 jobs, and nine countries," McKinsey Global Institute, November 2020, McKinsey.com.
[198] David Autor and Elisabeth B. Reynolds, *The nature of work after the COVID crisis: Too few low-wage jobs*, Brookings Institution, Hamilton Project essay number 2020-14, July 2020.
[199] *A new look at the declining labor share of income in the United States*, McKinsey Global Institute, October 2018.
[200] Thomas Philippon, *The Great Reversal: How America gave up on free markets*, Harvard University Press, 2019.
[201] *Global Economic Intelligence executive summary, October 2020,* November 2020, McKinsey.com.
[202] Jonathan Dimson, Zdravko Mladenov, Ruchi Sharma, and Karim Tadjeddine, "COVID-19 and European small and medium-size enterprises: How they are weathering the storm," October 2020, McKinsey.com.

Exhibit 18

About 60 percent of the potential acceleration in productivity growth could be denominator driven, at least in the short run.

Numerator vs denominator potential incremental productivity boost after COVID -19, 2019–24, percentage points[1]



	Numerator driven potential productivity growth[2]	**Denominator driven** incremental potential productivity boost[2]	**Total 2019–24** potential incremental productivity boost after COVID-19
Examples	• Store of the future • Modularization in construction • Adoption of electric vehicles, Connected Car	• Automation of workers in ICT, retail, banking, etc • Operational excellence	

1. We do not take into account longer-term dynamic effects; eg, we classify worker automation as driving productivity growth through reducing denominator but do not assess resulting price reductions or wage increases that can end up increasing numerator.
2. We classify productivity-enhancing levers into three groups: those creating numerator-driven productivity growth (eg, adoption of electric vehicles); those creating denominator-driven productivity growth (eg, worker automation); and mixed. Ranges come from assigning mixed levers into numerator or denominator group. We assign them 25%/75% between numerator- and denominator-driving, and vice versa, to create a "low-range" and "high-range" estimate for both components.

Note: Figures may not sum to 100% because of rounding.

Source: McKinsey Global Institute analysis

The pandemic and changes to the economic fabric it has prompted could depress already weak investment over the longer term

The pandemic weakened investment further. In the United States, private fixed investment in productive capital such as machinery, equipment, structures, R&D, and software stood nearly 3 percent lower in the third quarter of 2020 than in the fourth quarter of 2019. In Europe, for which only combined quarterly private and public fixed investment data were available, the decline was relatively comparable in Germany and France (4 and 5 percent) but significantly higher in Spain and the United Kingdom (11 percent).

While investment will inevitably at least partially recover from this collapse, a number of factors could be a persistent drag on investment. A weak macro and consumption outlook can reduce the need to invest. A shift to intangibles and superstar effects, as well as heightened risk aversion and hurdle rates, could decrease the investment intensity of production. Bankruptcies and a debt overhang can also reduce the ability to invest.

— **A weak macro and consumption outlook reducing the need to invest.** If they materialize, adverse conditions for consumption are likely to continue to limit private investment. Following the global financial crisis, the uncertainty and weakness of the economic outlook contributed to a slow recovery in the 2010s. In a 2017 MGI survey, 47 percent of respondents said their firms increased investment primarily because of expectations of higher demand.[203]

— **A shift to intangibles and superstar effects, as well as heightened risk and hurdle rates, decreasing the investment intensity of production.** High uncertainty increases the attractiveness of holding on to cash and increases both risk aversion and hurdle rates, all of which have a negative impact on investment. In the United Kingdom, 30 percent of respondents to a survey conducted in December said that COVID-19 was their largest source of uncertainty, compared with 8 percent for Brexit (at the time the survey was conducted, a UK–European Union trade deal had not been struck). Overall, nearly 30 percent of respondents said that uncertainty was "very high," up from 9 percent before the crisis.[204] Unsurprisingly, there is compelling and extensive evidence that economic uncertainty soared during the COVID-19 crisis and remained high in late 2020. Globally, the Economic Policy Uncertainty Index reached an all-time high in April 2020 before declining somewhat, but the index reading as of December was still 40 percent higher than at the peak of the global financial crisis in October 2008.[205] We do not know when such uncertainty will dissipate, but until it does, investment is not likely to revive. The hope in early 2021 was that the apparent success of a number of vaccine candidates would durably alleviate high uncertainty.

  Rising superstar effects can further lower rates of investment. On the one hand, these companies tend to have higher rates of return on capital, and therefore they need lower investment to generate the same return. On the other hand, if superstar firms pull even further ahead of others, competitive intensity could decline, and eventually this could weaken incentives to invest—for leaders because they are already in a strong position, and for laggards because they are too far from the leaders.[206]

  An accelerated shift to intangible assets—through digitization, for instance—may further reduce investment intensity overall, and it is likely that a large part of the shift toward intangibles will persist in the longer term.[207] First, intangible investments are skills constrained; firms may not find enough talent to make the desired investments in R&D and digital technology, for instance. Second, a shift toward zero-marginal-cost intangible investment could reduce the total volume of investment, with more investment by online retailers than their big-box counterparts, for instance. In contrast, this shift could lower prices and therefore boost consumption and demand elsewhere. As noted, the intangible economy—for instance, digital investments—accelerated substantially during COVID-19. In the United States, for example, the share of intangible investment (as measured by gross fixed capital formation) of total investment increased by one percentage point between the first three quarters of 2019 and 2020 to reach 29 percent of total

[203] *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.
[204] Decision maker panel monthly data, Bank of England, December 2020 release.
[205] Scott R. Baker et al., *COVID-induced economic uncertainty*, NBER working paper number 26983, April 2020.
[206] For a discussion and empirical testing on how market concentration and a shift to intangibles can reduce investment, see German Gutierrez and Thomas Philippon, *Investment-less growth: An empirical investigation*, Brookings Papers on Economic Activity, September 2017.
[207] Capitalized spending on intangibles as a share of revenue of a large sample of companies increased by 7.6 percentage points between 2000 and 2016. Corporate investment in intangible assets overtook investment in tangible assets in the 2000s in Europe and the United States. For a more detailed discussion, see *Globalization in transition: The future of trade and value chains*, McKinsey Global Institute, January 2019.

investment in 2020. The same trend was observed in all European economies, some of which experienced even faster increases. In France, for example, the increase was 2.8 percentage points, while in the United Kingdom it was 1.9 percentage points. All European countries started from a lower base than the United States.

— **Bankruptcies and debt overhang reducing the ability to invest.** High leverage built up during the pandemic could weigh on investment. Numerous firms increased their leverage, partly thanks to various forms of government support that was highly effective in preventing bankruptcies, as discussed. In the United States, for example, between the fourth quarter of 2019 and the third quarter of 2020, total loans on the balance sheets of nonfinancial corporations increased by 2.4 percent per quarter (or 7.3 percent in total) to reach $10.4 trillion, compared with a quarterly growth rate of 0.9 percent between 2007 and 2019.[208] In December, the OECD found that the number of firms anticipating a negative book value of equity and thus higher risk of insolvency had doubled in a sample of 14 European countries.[209] When government support inevitably tapers off, more firms—in particular, SMEs—may find it difficult to service their debt and may file for bankruptcy. Such loss of productive capacity and organizational capital could potentially harm investment for some time. Even if these companies do not go bankrupt, investment could suffer under the weight of accumulated debt.

Debates on the sustainability of public debt and policy choices will shape the path for public-sector investment and consumption

During the pandemic, governments gave unprecedented support to workers, businesses, and economies.[210] As of January 2021, the size of announced economic support packages in the United States, for example, was the equivalent of 19 percent of 2020 forecast GDP, including additional spending and forgone revenues due to tax deferrals, loans, and guarantees for households and firms.[211] In Europe, the relative size of economic support packages was 39 percent of GDP in Germany and as much as 42 percent in Italy, excluding the European Union's package of 5 percent of regional 2019 GDP. European countries favored balance-sheet interventions, such as debt restructuring and loan deferrals, and reinforced current employment support schemes such as temporary unemployment. The United States chose to support households and firms directly with cash transfers and tax reductions.[212] However, this support has been at the cost of sharply rising debt levels, and it remained to be seen, in early 2021, how long such support would continue, if and when it might taper off during 2021 and beyond, and whether governments would support or be a drag on demand overall.

Public expenditure, including government consumption but also monetary transfers to households and investment, surged by more than 49 percent in the United States, and by 30 percent in the United Kingdom, between the final quarter of 2019 and the second quarter of 2020.[213] In the third quarter of 2020, data suggested that a large share of the increase in government expenditure persisted, standing at 32 percent above the prepandemic level in the United States and 19 percent above in the United Kingdom. Other countries also registered a sizable increase. The main component of this public spending was discretionary fiscal measures, although automatic stabilizers also played a role.

[208] Non-consolidated financial balance sheets by economic sector, OECD.

[209] "Insolvency and debt overhang following the COVID-19 outbreak: Assessment of risks and policy responses," in *OECD Economic Outlook*, Volume 2020 Issue 2: Preliminary version, December 2020.

[210] Large-scale government intervention revived the social contract, even in the United Kingdom and the United States, where government intervention of this kind has typically been less prominent. See Anu Madgavkar, Tilman Tacke, Sven Smit, and James Manyika, "COVID-19 has revived the social contract in advanced economies—for now. What will stick once the crisis abates?," McKinsey Global Institute, December 2020.

[211] Fiscal Monitor Database of Country Fiscal Measures in Response to the COVID-19 Pandemic, International Monetary Fund Fiscal Affairs Department, January 2021, imf.org. Direct fiscal stimulus excluding loans, equity injection, and guarantees was larger in the United States than in Europe. It amounted to 17 percent in the US, 11 percent in Germany, and between 4 and 8 percent in France, Italy, Sweden, and Spain.

[212] For more on approaches in the United States and Europe, see Anu Madgavkar, Tilman Tacke, Sven Smit, and James Manyika, "COVID-19 has revived the social contract in advanced economies—for now. What will stick once the crisis abates?," McKinsey Global Institute, December 2020.

[213] U.S. Bureau of Economic Analysis and Eurostat.

This bold government intervention helped to avoid a collapse in demand, but at the cost of very substantial increases in public debt. In the United States, the increase was 21 percentage points between the final quarter of 2019 and the third quarter of 2020, taking the US debt stock of the federal government to 127 percent of GDP.[214] In Europe, the increase was more modest but still ranged from two percentage points in Sweden to 16 percentage points in France.[215]

In some countries, notably the United States, there was no sign in early 2021 that support was ending. In January 2021, US President Joe Biden unveiled a new $1.9 trillion package that included planned new direct payments to individuals, aid for state and local governments, and more funding to fight the pandemic.[216] Germany put in place a €1.3 trillion program of subsidies and grants to businesses at the start of the pandemic, adding a second package in June 2020. The 2021 budget, if passed, would nearly double the amount of new borrowing to €180 billion on top of the €218 billion added in 2020—the largest in the country's postwar history.[217] However, in both countries (and many others), policy makers began what is likely to be a persistent debate about how long such spending can continue given rising debt levels and potential inflation risks down the road. Clearly there will come a point at which large-scale government support will taper off as the pandemic recedes and attention turns to reducing high levels of public debt. It is also possible that governments may shift from the direct support that was typical during the pandemic toward a program of public investment, which was beginning to be discussed in the United States at the time of writing in early 2021. Given that interest rates may remain low for some time, it may be feasible for governments to raise their investment in order to stimulate demand.[218] Investment in broad areas such as R&D, infrastructure, and worker reskilling would not only support demand but also boost long-term productivity.[219]

The outlook for demand differs by sector, and worker transitions will be required

Demand crashed during the pandemic in 2020 in most sectors, but the size of the decline varied. In the United States, demand in the third quarter of 2020 in sectors such as travel and logistics was still about 22 percent below the level in the fourth quarter of 2019. Forecasts indicate that the postpandemic recovery will also be unequal across sectors, with some exceeding pre-crisis demand growth but others continuing to struggle.

Two implications stem from this. First, potential demand weakness would challenge productivity growth in various sectors through different channels. The lessons of the financial crisis may serve as a guide.[220] Previous MGI research found, for instance, that weak demand after the financial crisis adversely affected productivity growth in sectors such as automotive, financial services, and retail. In automotive, weak demand created excess capacity, low profits, and slower investment in equipment and structures. In the United States, light-vehicle production fell 47 percent between 2007 and 2009, while real investment rates dropped 5.4 percent per year between 2007 and 2010. When demand returned after the crisis, automakers in the United States had to hire and train new workers, slowing down productivity gains in the sector in comparison with companies that had kept most of their workforce, for instance in Germany.

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[214] Federal Reserve Bank of St. Louis.
[215] Eurostat.
[216] James Politi, "Biden to push $1.9tn stimulus for pandemic-battered US economy," *Financial Times*, January 15, 2021.
[217] Guy Chazan, "Germany frets about its coronavirus debt mountain," *Financial Times*, December 1, 2020.
[218] "Pandemic stimulus debt will 'come back to haunt us', warns OECD," *Financial Times*, May 13, 2020; and Oscar Jorda, Sanjay R. Singh, and Alan M. Taylor, "The long economic hangover of pandemics," *IMF Finance & Development*, June 2020, Volume 57, Number 2. There is a renewed debate in macroeconomics about the sustainability of debt given low interest rates. See, for example, Olivier Blanchard, "Public debt and low interest rates," *American Economic Review,* April 2019, Volume 109, Number 4; Jason Furman and Lawrence Summers, *A reconsideration of fiscal policy in the era of low interest rates*, Peterson Institute for International Economics, November 2020; and *Fiscal policy advice for Joe Biden and Congress*, Peterson Institute for International Economics virtual event, December 2020, piie.com.
[219] For a specific proposal on how to boost innovation and productivity, see, for example, John Van Reenen, *Innovation policies to boost productivity*, Brookings Institution, Hamilton Project policy proposal 2020-13, June 2020. For a broader proposal on how to restart American economic growth and a detailed account of the innovation and broad-based progress that occurred after the end of World War II, see Jonathan Gruber and Simon Johnson, *Jump-starting America: How breakthrough science can revive economic growth and the American Dream*, PublicAffairs, 2019.
[220] *Solving the productivity puzzle: The role of demand and the promise of digitization*, McKinsey Global Institute, February 2018.

Financial services experienced weak demand for credit alongside stricter regulation and slower growth in lending and deposit volumes due to deleveraging. In Spain, the United Kingdom, and the United States, profits in the banking sector declined 90 percent between 2007 and 2010. These three countries experienced the steepest decline in productivity growth due to declining value-added growth. At the same time, banks could not streamline their labor requirements due to large IT infrastructure and fixed costs, adversely affecting productivity growth in the sector.

In retail, weak demand contributed to a decline in sales growth of three percentage points, while cash-strapped consumers shifted to lower value-per-unit goods during the financial crisis. MGI research suggested that the shift to higher value-per-unit products contributed 45 percent to productivity growth between 1995 and 2000. As demand began to recover, low wages encouraged retailers to hire workers rather than investing in automation and other technologies, further reducing productivity growth.

The second implication is that sectors where demand growth falls short of potential productivity growth are likely to require significant worker transitions to sectors with higher demand (Exhibit 19). These fast-growing sectors will have different skill needs and geographic footprints. These issues constrained growth even prior to the crisis, and they may be exacerbated if growing skill gaps remain unaddressed and geographic mobility continues to decline.[221] Healthcare is an example of a sector in which expected demand to 2024 could exceed potential supply, and that therefore is more likely to attract workers than others. The situation is much more uncertain in other sectors like retail, construction, and automotive. If productivity growth exceeds demand substantially within each individual sector, these sectors will be more likely to increase employment less or even release workers who will need to transition to other sectors.[222]

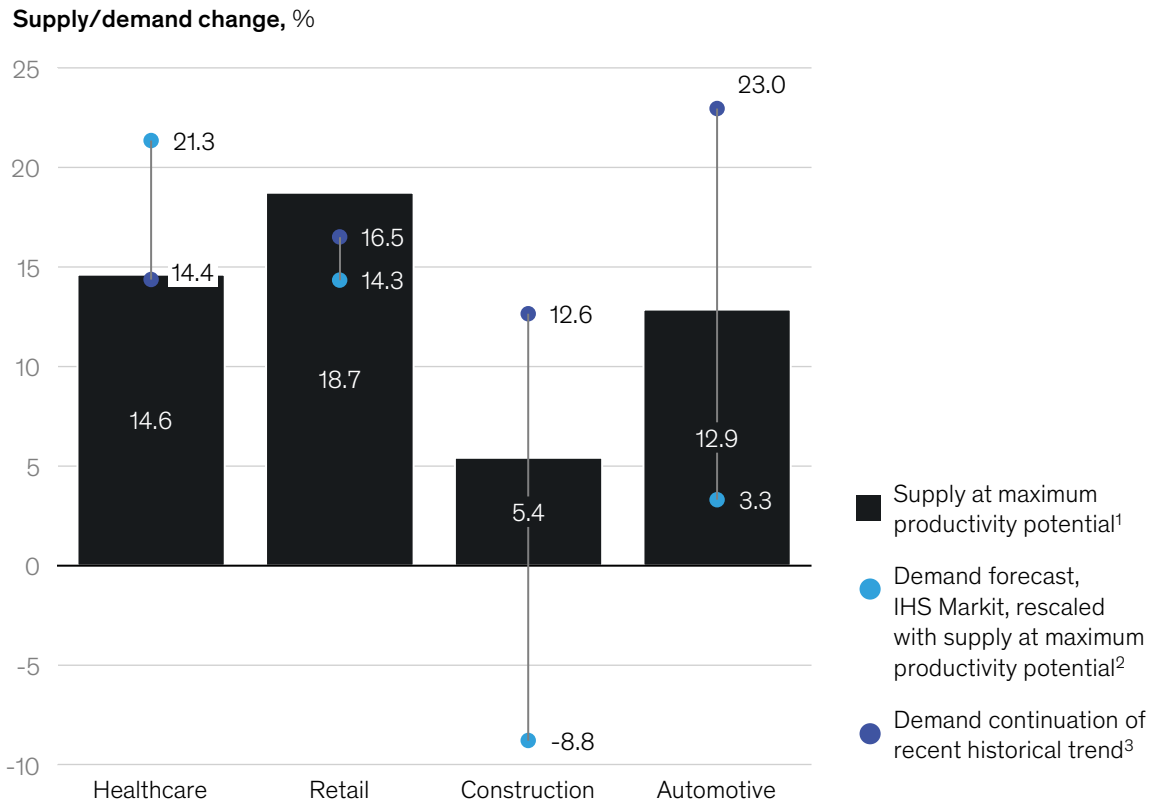
Sectors where demand growth falls short of potential productivity growth are likely to require significant worker transitions to sectors with higher demand.

[221] *The future of work after COVID-19*, McKinsey Global Institute, February 2021.
[222] This is a hypothesis based on the broadly accepted assumption that higher-productivity sectors tend to increase employment less, while increasing demand for other sectors and boosting overall employment. For a discussion of this phenomenon, see Box 6.

Exhibit 19

Significant worker transitions across sectors will be needed given differences in productivity growth potential and expected demand.

Demand and productivity potential, United States, 2019–24



Employment, 2019, million full-time equivalents	18.6	13.7	7.4	1.0

1. Based on historical sectorial productivity growth (compound annual growth rate, 2010–19) and sectorial acceleration of productivity due to COVID-19 crisis.
2. Demand projections (real gross value added, including domestic production and exports) from IHS Markit. Rescaled so that aggregate supply with productivity potential = aggregate demand.
3. Based on assumption of continuation of recent yearly growth in real value added, 2015–19.

Source: BEA; BLS; IHS Markit Comparative Industry; OECD; The Conference Board; US Federal Reserve; McKinsey Global Institute analysis

In the final chapter of this report, we turn to what businesses and policy makers might need to prioritize in order to align the stars for a healthy, broad-based period of economic growth when the pandemic dissipates and the disruption eases.

4. Collective action

Policy makers and businesses displayed considerable boldness in their response to COVID-19 and now need to bring the same attribute to crafting healthy postpandemic economies. Firms and governments must be on something akin to a war footing in which everything that needs to be done is done—whatever it takes. Once the health crisis is contained and economies are fully open, corporate and public decision makers need to work simultaneously on boosting and spreading innovation, addressing structural long-term drags on demand, and ensuring that potential productivity advances lead to higher incomes and consumption as well as investment.

In the short term, pent-up demand could produce a wave of consumer spending.[223] At the same time, government spending continues to play a major role in supporting economic activity. In early 2021, there was vigorous ongoing debate about whether government spending packages are sustainable and, indeed, whether the level of spending announced could even, if sustained, lead to a burst of inflation.[224] In the United States, the Biden administration announced a new $1.9 trillion relief package. Given the long-standing structural drags on demand we have discussed, while the exact size of support warrants serious debate, it appears important that public support is not withdrawn too early, and that governments continue to stimulate economic activity even into the medium term.

This is the time for collective action. While each individual firm will necessarily be focused on immediate pressures, the response to the pandemic only underlined the importance of active, engaged companies alongside bold policy. CEOs need to be an integral part of the solution to the disruption through the investments they make, the wages they pay, and the new products and services they offer. A sole focus on efficiency among businesses could undermine demand and therefore the markets they serve. Therefore, companies need to consider how to look beyond their own immediate needs, and ensure that their suppliers and customers recover, too. McKinsey research shows the benefits of leaning in during times of crisis.[225] Policy makers also have a range of interventions at their disposal to engage with businesses to steer to the right outcomes.

Our analysis suggests three interlocking questions for business leaders and governments to resolve: (1) how can innovation and other advances that can increase productivity growth be sustained and spread?; (2) how can action by firms that could boost productivity growth also support employment, median wages, and demand?; and (3) how can investment be increased—and directed to the right places?

[223] *The consumer demand recovery and lasting effects of COVID-19*, McKinsey Global Institute, March 2020.
[224] There is a renewed debate in macroeconomics about the sustainability of debt given low interest rates. See, for example, Olivier Blanchard, "Public debt and low interest rates," *American Economic Review*, April 2019, Volume 109, Number 4; Jason Furman and Lawrence Summers, *A reconsideration of fiscal policy in the era of low interest rates,* November 2020; and *Fiscal Policy advice for Joe Biden and Congress*, Peterson Institute for International Economics virtual event, December 2020, piie.com.
[225] "Sustainability's strategic worth: McKinsey Global Survey results," McKinsey & Company, 2014.

How can innovation and other advances that can increase productivity growth be sustained and spread?

In the period to 2024, our analysis suggests that supply potential could accelerate by about one percentage point per year. In our sample countries, if this potential were realized, it would imply additional per capita GDP in 2024 between about $1,500 (Spain) and $3,500 (United States).

The expansion of productivity starts within firms. Companies need to digitize; innovate in their own organizations, products, and services; boost their human capital; and adopt new operating models. But some companies may find it harder to meet these challenges by themselves than others. Smaller companies, which in combination employ large numbers of people, have fewer resources and capabilities, and less scale than large leading companies. Between 2001 and 2013, productivity rose by 3.6 percent among leading services companies—so called frontier firms, which represent the top 5 percent of global firms by productivity level—but lagging companies achieved productivity growth of only about 0.4 percent, according to the OECD.[226] To underpin strong long-term growth in an economic crisis as deep as this one, businesses must catalyze change across their entire supply chains and ecosystems.

— **How can sector disruption and innovation be sustained and accelerated?** Firms can start or continue to take the disruption imposed by the crisis as a trigger to press ahead much more boldly and quickly than in the past, with change they saw coming in their industry and company for quite some time. Our research shows how an acceleration of automation, digital channels, operational efficiency, and agile methods has gained momentum, and more firms should learn from that and act on those shifts. Financial players can ensure that financial instruments are in place to fund these investments, even if they are oriented toward the long term. Policy can support digitization, automation, and innovation. Innovation-based public procurement, direct R&D investment, tying support packages to required sector transitions (like a shift to e-mobility in automotive or to digitization or modularization in construction), and public-private partnerships to solve moon-shot challenges can accelerate innovation and business model shifts. Public leaders can also design their own initiatives to translate lessons learned during the pandemic on distance learning and telehealth into sustained innovation in education and healthcare. The crisis has brought home the importance of digital infrastructure and access for all households as well as our dependence on global flows of goods, services, data, and ideas.

— **How can advances spread beyond leading firms and across ecosystems?** Many companies are designing strategies that have an impact on their supply chains in the hope of emerging more strongly from the crisis, rather than optimizing their bottom line in the short term at the expense of their suppliers. Platform organizations in particular could think about how they can enable collaborative progress and innovation for their ecosystems and support a long tail of firms with lower technological capabilities to advance.[227] Ping An Good Doctor, for instance, has worked with many private companies and public-sector partners to provide online medical services.[228] Northrop Grumman surveyed its suppliers to understand pressure points and needs, accelerated payments to critical small and medium-size suppliers during the COVID-19 crisis, and helped suppliers interpret government regulations about critical infrastructure.[229] In China, Alibaba has helped its SME suppliers to capture export markets and is leading an ecosystem that has shared data and platform services, but without competition with platform-using

[226] Dan Andrews, Chiara Criscuolo, and Peter Gal, *The global productivity slowdown, technology divergence, and public policy: A firm level perspective,* OECD, 2016.
[227] Shameen Prashantham and Jonathan Woetzel, "3 Lessons from Chinese firms on effective digital collaboration," *Harvard Business Review*, August 10, 2020.
[228] Ping An Good Doctor, *Ping An Good Doctor issues 2019 Sustainable Development Report platform visits hit 1.11 billion during epidemic*, PR Newswire, February 17, 2020.
[229] Northrop Grumman, *Supporting our suppliers through COVID-19*, northropgrumman.com.

companies.[230] Companies can also form smart alliances with firms for quick access to, and the spread of, new capabilities and innovation. MIT launched MIT Solve, a marketplace for social innovation that routinely brings together technology entrepreneurs and a network of public, private, and philanthropic leaders to consider global challenges.[231] The potential benefits of superstars need to extend to other firms. To shrink or close the gap, non-superstar corporate executives need to invest in intangibles, run systematic and programmatic M&A, and develop a strategy to compete in the talent war—including hiring and, equally importantly, reskilling.[232] Policy makers can support healthy ecosystems, for instance by revising platform and competition rules, bankruptcy procedures, and product and labor-market regulations (most prominently in Southern Europe). They can also focus interventions on lagging companies, sectors, or regions, emphasizing public investment in geographic areas that have been stagnant or falling behind recently but have potential to revive. As an example, the UK government in the March 2021 budget approved a £520 million government scheme for SMEs that could help businesses access management training, technology advice, and discounted software.[233] Additionally, policy makers or business leaders can create or support platforms and associations that look after the prosperity of the business ecosystem, conduct research, and provide a forum for sharing best practices and networking.[234]

— **How can innovation be focused on the top line?** Firms could focus innovation explicitly on addressing latent demand and creating broad-based top-line growth, including through product and service development affordable for median- and lower-income households. Businesses could consider how current products and services be amended so that they offer additional value for customers (as autonomous driving will do in cars) and what entirely new offerings could create a new market (as the introduction of the smartphone has done). Where price elasticity is high, could businesses institute a step change in cost and price that boosts revenue (as no-frills airlines have done)? There are promising signs of innovation in how housing is delivered, for instance. This same approach applies to business-to-business firms. Particularly when certain technologies start maturing, tech suppliers can focus on developing products (or variants of products) suited to specific use cases of small businesses, working on sector idiosyncrasies to identify and develop the services business are looking for, and offering support services to help with adoption.[235]

How can action by firms that can boost productivity growth also support employment, median wages, and demand?

In our sample countries, lifting demand through a combination of consumption and investment to match additional potential supply could add up to six percentage points of GDP by 2024. Bolstering demand is not exclusively a remit for governments. Companies can grow productivity by cutting costs and displacing workers (reducing the denominator, representing hours worked) or by increasing real value added (the numerator, representing profits and wages). Economic theory suggests that displaced workers can move to other, more productive, growing firms and sectors. But this reallocation does require that, on balance, there is at least as much numerator growth in the economy as there is efficiency in the denominator. With the drags on demand we have discussed, this cannot be taken for granted in postpandemic economies. This increases the onus on firms to give extra management attention and resources to pursuing revenue and investment growth, not only cutting costs, and—crucially—ensuring that their workers have the necessary skills, as well

[230] *Alibaba launches 2020 Spring Thunder Initiative to give Chinese SMEs a leg up during COVID-19*, cnTechPost, April 7, 2020.
[231] MIT Solve website, solve.mit.edu.
[232] Tera Allas, Will Fairbairn, and Elizabeth Foote, *The economic case for reskilling in the UK: How employers can thrive by boosting workers' skills*, McKinsey & Company, November 2020.
[233] *Budget 2021: What you need to know*, HM Treasury, March 3, 2021.
[234] The Confederation of British Industry is an example of this kind of organization.
[235] *The UK's technology moment—why 2020 can be the year that changed our trajectory on tech*, Be the Business, September 2020.

as the wages to spend. For policy makers, a range of tools can support demand and after-tax income, including investment, wage-setting norms, and predistribution and redistribution.

— **How can business and policy leaders achieve rapid reskilling at scale to enable needed workforce transitions?** Reskilling is a pressing question for both the supply side and the demand side. On the supply side, broad-based productivity requires that workers be skilled, mobile, and available to productive firms. MGI research has persistently highlighted the need for many cross-sector transitions.[236] The educational system alone will find it difficult to match the scale and pace of the transition needed; businesses must do more. The pandemic appears likely to contribute to an acceleration in automation, particularly among vulnerable jobs, and make reskilling an even more urgent priority. As noted, in new research, MGI found that because of an acceleration of automation, an increasing number of low-skill workers could potentially be displaced and need to make work and skills transitions.[237] The risk is that without the right skills, those workers face unemployment or a squeeze on their wages, both of which would undermine demand. Among companies, Infosys, for instance, has developed employee training programs in the fields of machine learning, artificial intelligence, computer vision, and self-driving or flying cars.[238] On the part of the government, active labor-market policies can help marginalized groups secure new work opportunities, address mobility barriers such as noncompete agreements, and move across geographic boundaries. In the United States, for instance, an AI-powered network (Talent Exchange) is helping workers displaced by the coronavirus crisis.[239] The network helps employers understand how their workforce has been affected, enables employees to create profiles for hiring companies to see, and matches candidates with available roles. Attention could be devoted specifically to ensuring that reskilling programs cater to transitions into adjacent skills areas.

— **Could leaders revisit wage norms and wage setting?** A sustainable recovery will also face resistance unless median wage growth tracks productivity growth more closely than it has in the past, particularly in the United States. One area worth exploring may be adjusting the ways wages are set.[240] Some companies are using the opportunity to gauge and strengthen the financial condition of their most vulnerable workers. Charter Communication announced in April 2020 a plan to raise minimum wages to $20 over the next two years for its hourly workers.[241] Governments should consider looking at predistribution and redistribution policies. Specifically, education and reskilling are key to ensuring that workers benefit from productivity growth through increased wages, and both firms and policy makers have a role to play in ensuring affordable access to them. Other areas, such affordable healthcare and housing, are also important in raising disposable income and leveling the playing field for all workers to pursue labor-market opportunities.

[236] The latest MGI research that touches on this topic is *The future of work after COVID-19*, McKinsey Global Institute, February 2021.
[237] *The future of work after COVID-19*, McKinsey Global Institute, February 2021.
[238] Raghav Gupta, Ishan Gupta, and Thirumala Arohi, "'Learning' to succeed in a dynamic world," Infosys Insights, www.infosys.com.
[239] *A new AI-powered network is helping workers displaced by the coronavirus crisis*, McKinsey & Company, April 2020.
[240] Anna Stansbury and Lawrence H. Summers, *The declining worker power hypothesis: An explanation for the recent evolution of the American economy*, NBER working paper number 27193, May 2020.
[241] *Charter statement regarding plans to permanently raise minimum wage to $20/per hour over next two years for all hourly employees*, Charter Communications April 6, 2020.

How can investment be increased—and directed to the right places?

The past decade has shown that policy levers such as monetary incentives are not in themselves sufficient to spur private investment. The rise in corporate and high-income household savings potential has not fully translated to investment. From 2007 to 2017, US financial assets grew by $34 trillion—four times the cumulative nonfinancial investment of $8 trillion in this period.[242] Since the pandemic, investment has plummeted further while stock markets recovered. Companies and investors need to reconsider their approach to deploying capital for the long term, and to make environmental, social, and governance criteria central to their decision-making process. Governments, in turn, have several tools at their disposal to support investment directly or influence its allocation (for example, through externality pricing). For instance, in the United States, closing infrastructure gaps could produce an increase in annual investment equivalent to 0.5 percentage point of GDP.[243]

— **How can higher long-term focused private investment be achieved?** There is ample evidence that firms create more value when they focus their decisions and investments on the long term.[244] Companies need to consider generating value not only for shareholders but for other stakeholders, invest sufficient capital and talent in large, risky initiatives to achieve a winning position, construct portfolios that deliver returns exceeding the cost of capital, dynamically allocate capital and talent to businesses and initiatives that create the most value, and resist the temptation to take actions that solely boost short-term profits. Boards and CEOs are key in this process.[245] As noted, the COVID-19 pandemic has been devastating for many firms, but it has also caused shifts in the economy and created opportunities that companies can position themselves to grasp in order to both increase their financial performance and create value for society.

— **How can public investment be raised?** Policy makers can contribute to long-term investment beyond pandemic-related support. For instance, they can raise direct investment in high-priority, high-impact areas such as infrastructure, basic science, and skill building.[246] Unlocking public investment is a challenge given pressure on budgets exacerbated by costly support for economies during the pandemic. Recognizing public investment as a public wealth-building activity on a balance sheet rather than as a fiscal expense can help change this dynamic, as can the establishment of public wealth funds to make best use of existing assets.[247] New Zealand has been a front-runner in this regard for a long time.[248]

— **How can investment in sustainability be increased?** McKinsey surveys find that corporate executives expect sustainability to gain further importance and therefore could take advantage of access to capital and labor to make relevant investment in areas such as hydrogen, green aircraft, carbon capture, electricity storage, and the renovation of housing.[249] But private investment in these areas, or more broadly in areas related to the United Nations Sustainable Development Goals, requires transparent, sufficient, and stable pricing of externalities or regulatory mandates and incentives to achieve market returns. The question is how to deliver on this. Given recent innovation in some of these areas (for instance, falling solar power costs) and changing regulation, some opportunities are increasingly in the money for companies. Additionally, firms can work toward setting higher social standards, getting ahead of the regulatory process. Likewise, governments

[242] The gap between financial savings and investment can be explained as follows for this period: Public debt increased by $8 trillion, corporations raised an additional $2.8 trillion in bonds to finance $3.2 trillion in share buy-backs and equity retirement, and real asset valuations as well as market-to-book multiples soared. Data sources are OECD, 2020; U.S. Bureau of Economic Analysis, 2020; World Bank, 2020; Bank of International Settlements, 2020; International Monetary Fund 2020; Eurostat, 2020; central banks; and S&P Global Market Intelligence, 2020.

[243] *Bridging infrastructure aps: Has the world made progress?* McKinsey Global Institute, October 2017.

[244] Alex Edmans, *Grow the pie: How great companies deliver both purpose and profit*, Cambridge University Press, March 2020.

[245] Kevin Sneader, Sarah Keohane Williamson, Tim Koller, Victoria Potter, and Ariel Babcock, *Corporate long-term behaviors: How CEOs and boards drive sustained value creation*, McKinsey & Company and FCLTGLOBAL, 2020.

[246] Jonathan Gruber and Simon Johnson, *Jump-starting America: How breakthrough science can revive economic growth and the American Dream*, PublicAffairs, 2019.

[247] Dag Detter and Stefan Fölster, *The public wealth of nations*, Palgrave Macmillan, 2015.

[248] Dag Detter and Stefan Fölster, "Unlocking public wealth: Governments could do a better job managing their assets," *Finance & Development*, March 2018, Volume 55, Number 1.

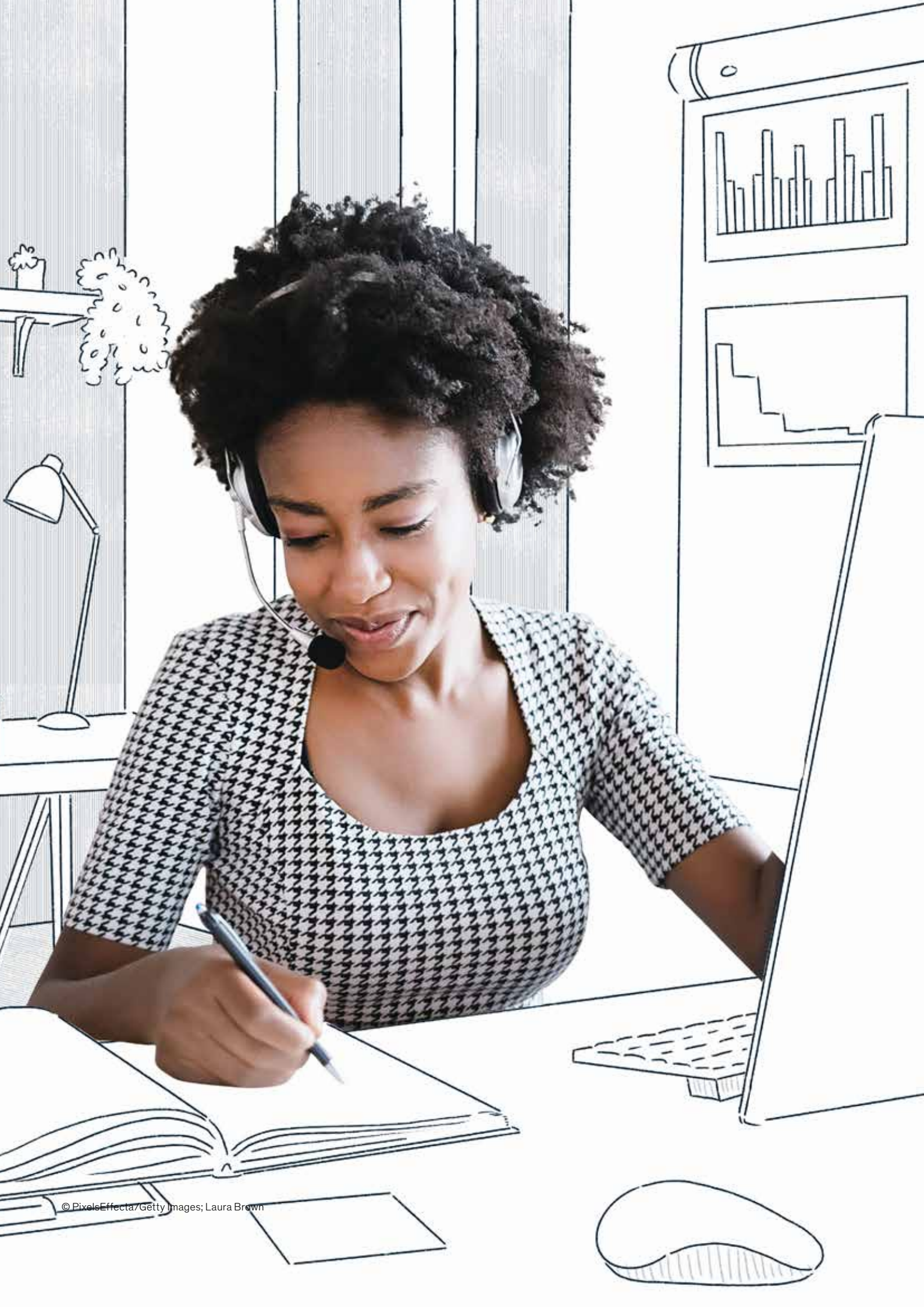
[249] "Sustainability's strategic worth: McKinsey Global Survey results," McKinsey & Company, 2014.

could look again at rules governing market externalities in order to unlock or redirect private capital and could explore co-financing options. Germany, for instance, is funding a research program for hydrogen and raising subsidies for electric vehicles.[250] In April 2020, BlackRock launched a new Global Impact Fund focused on addressing major world challenges, including advancing healthcare innovation, efficiency in water usage, preventing climate change, and quality education.[251]

— **How can more investment into essentials such as housing be achieved?** If households spend a rising share of income on necessities like housing—and that share is increasing—then they will have less to spend on other goods and services. Bringing down the cost of housing could thus increase households' purchasing power. Housing constraints are a powerful barrier that prevents workers from moving to high-productivity areas, undermining total economic growth.[252] But housing is also one of the largest areas of investment, and more supply is needed. Could governments make more land available and change zoning policies and building codes? Can firms embrace modern methods of construction to accelerate timelines and reduce cost? Google's parent company, Alphabet, sold $5.75 billion of corporate environmental, social, and governance bonds with the aim of funding organizations that support affordable housing, as well as supporting black entrepreneurs and SMEs deeply affected by the pandemic.[253] In 2020, the UK government unveiled a radical change in planning rules to allow empty high street stores to be converted into housing.[254]

Shifts in consumer and business behavior under the pressure of the pandemic offer hope that a more dynamic economy could emerge from the crisis with potential for a dividend in the form of faster productivity growth. However, business advances on potential drivers of higher productivity growth need to be more widespread, particularly in large sectors, and demand must be robust well after the initial spike in consumption that many expect once the health crisis is effectively managed. Notably, the very changes made by some companies that could deliver an acceleration in productivity growth could exacerbate structural weakness in demand and risk higher unemployment, economic stagnation, and higher inequality. Recovery in supply and demand needs to be simultaneous and sustained over the longer term. The boldness and speed with which businesses and governments responded to the pandemic now need to be deployed to craft a broad-based, equitable, and sustainable recovery. It has been done before, and it can be done again.

[250] *The National Hydrogen Strategy*, Federal Ministry for Economic Affairs and Energy, June 10, 2020; Elisa Miebach and Stefan Nicola, *Electric-car subsidies make Renaults free in Germany*, Bloomberg Green, July 15, 2020.
[251] *BlackRock launches new Global Impact Fund to advance UN sustainable development goals*, Institutional Asset Manager, April 16, 2020.
[252] Chang-Tai Hsieh and Enrico Moretti, "Housing constraints and spatial misallocation," *American Economic Journal: Macroeconomics*, April 2019, Volume 11, Number 2.
[253] Molly Smith, "Alphabet sells largest corporate ESG bond at record low yields," *Washington Post*, August 5, 2020.
[254] Gabrielle Garton Grimwood, *Planning for the Future: planning policy changes in England in 2020 and future reforms*, House of Commons Library briefing paper number 8981, March 10, 2021.



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