



## Chapter 1

# The Public Sector's Role in Economic Growth

The U.S. economy is among the world's strongest and most productive, but trends over the last several decades threaten to undermine its standing—and to diminish the living standards of most Americans. Since the 2001 recession, the United States has seen relatively weak economic growth, with income and wealth disparities at levels not seen in a century. Divisions along lines such as race, ethnicity, and gender persist.

These economic challenges have many causes. A common theme among them is the retreat of the U.S. public sector from its complementary role vis-à-vis the private sector in economic growth. Over the last four decades, neglect of critical physical infrastructure, from ports to the power grid, has left the Nation with bottlenecks and vulnerabilities that restrict growth and make the economy less resilient to shocks and shifts. The United States has cast aside its history as a global leader in public funding for education—from the high school movement to the G.I. Bill—and now lags its peer countries in early childhood education and job training. Underinvestment has, in particular, diminished the pace of growth in U.S. economic capacity—that is, the maximum sustainable amount of goods and services our economy can produce when unemployment is low and other resources are being put to full use.

This transformation of the U.S. public sector's role did not occur by accident. It reflected an economic philosophy which maintained that private enterprise would thrive only if government got out of the way; otherwise, public sector investment would “crowd out” the activity of the private

sector. Put to the test, these predictions did not deliver. Proponents of this philosophy had ignored some of the economics discipline's most celebrated ideas—ones revealing situations where the private sector cannot and will not substitute for the public sector. As a result, when the public sector stepped back, economic growth diminished and became less evenly shared. The private sector did not lose a rival; it lost a partner.

During the pandemic, infrastructure problems created by underinvestment became crises. The absence of reliable broadband Internet, for example, made remote education a challenge for millions of children and families, setting them back ([Auxier and Anderson 2020](#)). The capacity constraints of U.S. ports and other aspects of freight infrastructure snarled supply chains, harming U.S. manufacturers ([U.S. Department of Transportation 2022b](#)). Yet underinvestment had constrained U.S. economic capacity before the pandemic, and it would have continued to do so if the pandemic had not exposed these vulnerabilities.

When the public sector underinvested in people's health and education, the private sector was left with a weaker foundation on which to build, hire, and invest. When the public sector underinvested in innovation and basic science, the private sector had fewer ideas and technologies that it could apply to products in such industries as clean energy and biomedicine. By building a large, healthy, and highly skilled workforce, and by fueling technological progress, public investments can expand the capacity of the U.S. economy—and thereby sustain the long-run advance of the American standard of living.

The payoffs from public investment, however, are rarely immediate. Ideas take time to germinate into industries, as do children to mature into adults. This has two implications. First, the U.S. government must invest today if we are to benefit tomorrow, as the payoffs from investments take time to emerge. And if the government waits until the signs of underinvestment are fully revealed, it will have waited too long. There will be higher costs to replace infrastructure beyond repair, a more tumultuous transition to clean

energy, and a greater need for public assistance for adults instead of public investment in disadvantaged children. Second, the government's role in increasing the aggregate capacity of our economy can be challenging and requires sustained effort. Building bridges, running research labs, enhancing the power grid, and educating children to become productive adults entail complex, long-term investments. They require patient, capable institutions that plan beyond budget horizons for the design and delivery of public services. When the public sector's role is neglected, these investment aspects of the government's capacity are likely to deteriorate the most.

A core aim of the Biden-Harris Administration's economic policy agenda is to restore the public sector as a partner in long-run growth, with a particular focus on the economy's supply side—from physical infrastructure to the vitality of our workforce. This means, first, fixing what is broken in physical infrastructure. The Bipartisan Infrastructure Law, signed by President Biden in November 2021, makes a historic investment in transportation and utility systems—spending that will address decades of deferred maintenance of the infrastructure that keeps lights on, water clean, and people and goods flowing across the country. This law also upgrades infrastructure in several strategic areas—such as lead abatement, rural broadband, and electric vehicles. Such investments are important to make growth more robust, more widely shared, and more environmentally sustainable.

However, restoring the public sector to its full role in promoting growth involves more than physical infrastructure investment. Long-run economic growth also depends on the growth of productive skills and abilities among workers—what economists call “human capital”—and the pace of technological progress ([Romer 2019](#)). These factors together determine the capacity of the U.S. economy. The U.S. government could also do much more to support growth through investments in workers, children, and families. For instance, though early childhood education is typically free or available at very low cost in other developed countries, it remains financially

burdensome for a large share of American children born into lower-income families (Boushey, Barrow, and Rinz 2021). Investments in early childhood education, like other public investments in human capital, would raise long-run productivity growth as children and students grow up to become workers (Cascio 2021).

The fruits of economic growth must also be shared more broadly. Labor's share of income, once famously stable, has declined to historic lows in the United States, and the distribution of labor income has become more skewed to the top earners since the 1970s (Congressional Budget Office 2021). Public investments in physical infrastructure and human capital also help ensure that economic growth is more broadly shared by making sure that people have access to economic opportunities.

Two other ways to make growth more inclusive are tax policy and labor regulation. Some multinational corporations, for example, exploit the absence of effective international tax cooperation to shift where they report income and assets to tax havens, where tax rates are low and malleable. Establishing international standards and minimums can stop the global race to the bottom in corporate taxation, so that highly profitable companies pay for their fair share of the public investments and services they use. Stronger labor standards—such as a higher minimum wage, effective enforcement of wage-and-hour and occupational-safety regulations, and protections for workers' right to organize—will also help to boost workers' wages and working conditions.

The Administration's agenda could start to rebuild our economic capacity. According to an estimate by Moody's Analytics, passing additional legislation based on the President's policies, along with the Bipartisan Infrastructure Law and the American Rescue Plan, would lead to an economy that is about 1.5 percent larger in 2031 than it would have been without any of this legislation (Zandi and Yaros 2021). Economic projections from

the Administration’s Fiscal Year 2023 Budget find that passing it would raise the long-run annual growth rate by about 0.4 percentage point.

This introductory chapter explains why a strong and effective public sector is not only smart economics but also critical to putting the United States back on the path of robust, inclusive economic growth. It begins with a brief portrait of the U.S. economy before the COVID-19 pandemic—which, due in part to a depleted public sector, struggled with disappointing growth in its productive capacity. Each section then considers one of three complementary roles of the public sector: (1) ensuring macroeconomic stability; (2) addressing areas where the private sector fails to deliver (market failures); and (3) reducing inequality. It first explains, on a conceptual level, why government has a role to play in each of these areas. Next, it describes how the U.S. government performed in this role during the pandemic. Finally, it discusses what role for government remains unfinished.

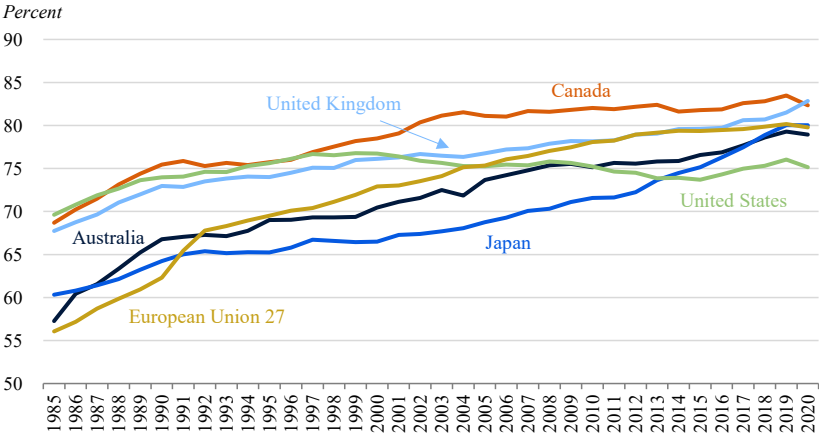
## Before the Pandemic

How strong was the economy in the immediate years heading into the COVID-19 pandemic? By some measures of economic performance, it was stronger than it had been in many years. Unemployment was low, and stock and home prices were soaring. Yet that sunny account of the late 2010s ignores other weaknesses in the economic data, especially the warning signs coming from measures that serve as economists’ best proxies for long-run growth in U.S. economic capacity.

Among these warning signs: U.S. labor force participation rates have dropped to some of the lowest in the developed world. Whereas in 1985, a larger share of prime-age American women participated in the labor force than their counterparts in Australia, Canada, the European Union, Japan, or the United Kingdom, U.S. female labor force participation has since been surpassed by all these countries or entities (figure 1-1).

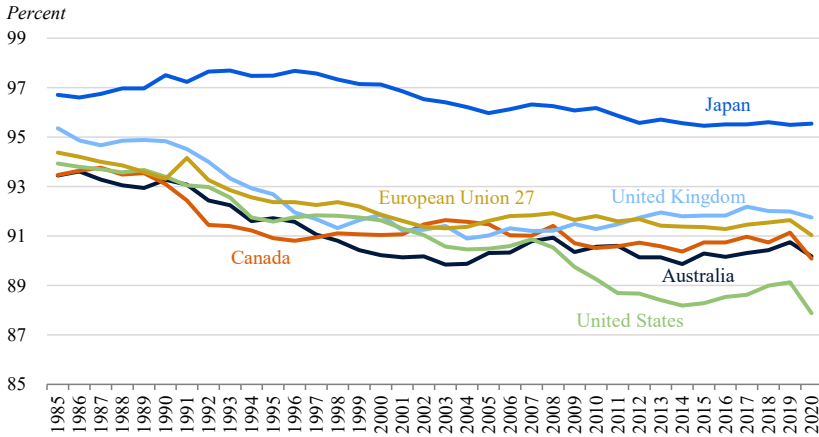
The decline in labor force participation among men is similarly staggering. In 1960, work among men age 25 to 54 years was nearly universal, with just 3 in 100 such men not working or looking for work ([Krueger 2017](#)). But, by 2019, nonparticipation among men of such ages had tripled, with more than 1 in 10 out of the labor force (figure 1-2). While this decline might have reflected changes in the gender division of household responsibilities, much of it appears unrelated to such shifts ([White House 2016](#)).

**Figure 1-1. Women’s Labor Force Participation Rate, 25 to 54 Years**



Source: OECD (2021).

**Figure 1-2. Men’s Labor Force Participation Rate, 25 to 54 Years**

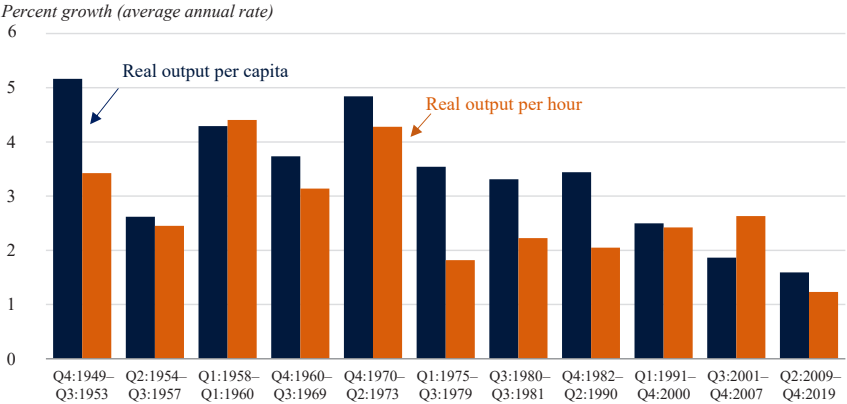


Source: OECD (2021).

The weakness in both male and female rates of labor force participation has directly diminished the growth of the U.S. economy’s productive capacity. With a smaller labor force, U.S. firms can hire fewer workers domestically and thus can produce less in the United States than they would if participation rates were higher.

The slow growth rates of output and productivity provide another grim perspective on U.S. economic performance before the pandemic. Comparing all U.S. economic expansions from start to end since 1950, there is none with a weaker average growth rate than the recovery from the Great Recession. Compared with the average for these expansions, growth in both

**Figure 1-3. Growth Rates in Economic Expansions**



Sources: Bureau of Economic Analysis; CEA calculations.

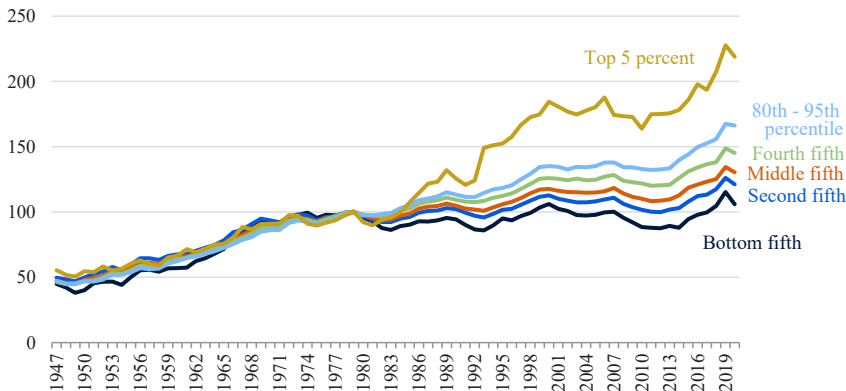
real output per capita and productivity (real output per hour) during the prepandemic expansion was less than half as fast (figure 1-3). Productivity growth provides an especially clear view on the slowdown in U.S. capacity growth, given that it adjusts for cyclical changes in unemployment and resource utilization.

Economic growth has not only slowed; it has also become less broadly shared. From the end of World War II until the late 1970s, real incomes roughly doubled for families in the bottom fifth of the income distribution as well as families in the top 5 percent. Yet after the 1970s, the gains from growth became far more concentrated at the top. Since 1973, the real median income of households in the bottom fifth of the distribution has risen by less than 15 percent, compared with growth of more than 100 percent for families in the top 5 percent (figure 1-4). Furthermore, other data from the U.S. Federal Reserve and the World Inequality Database show that the share of net wealth held by the top 1 percent of households is at or near record highs (Federal Reserve 2021; World Inequality Database 2021).

Signs of economic underperformance also appear in an array of other indicators. Over the last few decades, U.S. life expectancy at birth has slowly fallen behind that in other high-income countries (OECD 2021). It is now the lowest in the Group of Seven, with little net increase over the last decade. Furthermore, inequality and underinvestment in health are linked to infant mortality (Chen, Oster, and Williams 2016), which has also remained higher in the United States than in its peer countries since the 1980s (figure 1-5). Maternal mortality rates are also higher in the United States than in any other developed country (Declercq and Zephyrin 2020). Many analysts have also blamed economic stagnation for a surge in so-called deaths of despair related to alcohol, drugs, and suicide (Case and Deaton 2020).

**Figure 1-4. Growth in Average Family Income, by Income Group**

Index (1979 level = 100)



Sources: Census Bureau; CEA calculations.

Note: Income is in dollars adjusted by the Consumer Price Index for all Urban Consumers, retroactive series, using current methods.

To account for simmering discontent beneath a seemingly booming economy requires a more nuanced picture of the Nation’s economic health. The prepandemic economy was indeed at or approaching full employment for the first time in 20 years. But while the U.S. economy benefited from cyclical gains, the structural foundations for long-run inclusive growth were not being maintained. Accommodative macroeconomic policy could not substitute for everything else that the public sector should do as a partner of private enterprise.

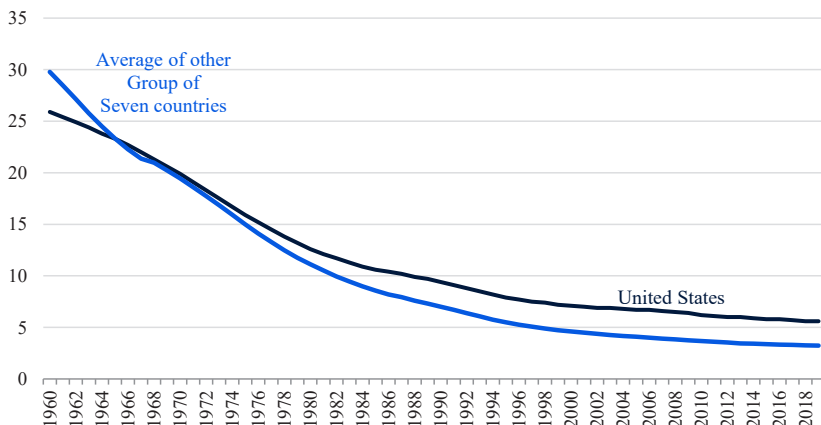
What is needed now is an effective partnership between the public and private sectors. The very existence of private business relies on functions that only the public sector can provide, ranging from an institutional legal framework to national security to reliable infrastructure. However, these basic government functions do not exhaust the complementary roles of the public sector in promoting economic growth through greater productive capacity, and in ensuring that well-being flourishes alongside growth.

These functions are, in some ways, troublingly easy to neglect: The damages wrought by underinvestment accumulate slowly, and the task of public investment is inherently more demanding than a tax cut. But when these functions are neglected, government becomes less capable and less responsive to economic change. At the onset of the COVID-19 pandemic, for example, the lack of administrative infrastructure to channel support to businesses meant that the Paycheck Protection Program was far costlier and less well-targeted toward businesses most in need of rescue than similar programs in other high-income countries (Autor et al. 2022). The bill for public sector underinvestment eventually comes due in the form of less effective government.



**Figure 1-5. Infant Mortality**

*Deaths per 1,000 live births*



Source: World Bank.

## Ensuring Macroeconomic Stability

Although the COVID-19 pandemic has been the worst global outbreak of disease since the influenza pandemic of 1918, societies are also often hit by other aggregate shocks, including recessions and swings in prices of critical commodities such as oil and staple foods. These shocks are economy-wide, sudden, and—especially in the case of epidemics—at once rare, costly, and hard to forecast. As such, they may be difficult or impractical for individuals themselves to prepare for.

An important function of government is to help insure society against such risks. For example, countercyclical monetary and fiscal policies are essential for boosting demand, output, and employment in depressed economies. Moreover, there are reasons to think that appropriate countercyclical policies raise living standards on average, instead of purely stabilizing the economy around its long-run growth path. When capacity is already being underused, as in a recession, the private sector faces weaker incentives to invest in more capacity, potentially limiting longer-run growth (DeLong and Summers 2012). Even if these so-called hysteresis effects are weak or absent, countercyclical policies may be able to raise the long-run level of output by reducing the amount of time spent below the economy’s capacity level, as in Milton Friedman’s famous “plucking” model of business cycles (Dupraz, Nakamura, and Steinsson 2021; Friedman et al. 1964).

### *Macroeconomic Stabilization during the Pandemic*

At the onset of the pandemic, the loss of jobs and income threatened hardship for millions of families and bankruptcies for small businesses.

A massive public policy response likely prevented the pandemic’s public health crisis from creating a prolonged and spiraling economic one.

The government provided the equivalent of an economy-wide insurance policy against the pandemic—with expanded unemployment insurance, support for temporarily shuttered businesses, aid to State and local governments, and Economic Impact Payments (EIPs, which were often referred to as “stimulus checks”). This response, as former Council of Economic Advisers Chair Christina Romer argued in a recent paper with David Romer, can be thought of as roughly enacting the “pandemic insurance” policy that families and businesses would have wanted to buy themselves, if such insurance had existed (Romer and Romer 2021).

Although there has been a larger public focus on discretionary fiscal policies like EIPs, much of what the government “did” to prevent a catastrophic pandemic-induced economic crisis happened without Congress or the executive branch taking any affirmative action, through a set of policies known as “automatic stabilizers.” For instance, when workers are laid off, they can file for unemployment benefits and can typically collect up to 26 weeks of assistance as they search for work. Such spending eases those workers’ hardships and, when many workers lose their jobs at once (as in a recession), has a macroeconomic impact of preventing a cascading decline in income and spending (Kekre 2021). In crises, a program called Extended Benefits automatically adds weeks in certain states when the unemployment rate reaches certain metrics. As discussed in box 1-1, Congress did take important actions to make unemployment insurance (UI) more generous and more widely available during the pandemic, reflecting weaknesses in the current system, but some of the UI system would have been triggered without Congressional action. For instance, almost 25 percent of the increase in UI payments in 2020 relative to 2019 was due to “normal” UI programs (regular benefits and extended benefits). Though this increase may not have been enough to support workers during the pandemic, or even amid a normal recession, it does speak to the importance of ensuring that future policy includes robust “automatic stabilizers.”

Monetary policies adopted by the U.S. Federal Reserve System also play a crucial role in macroeconomic stabilization. As reviewed in a recent paper by former Fed Vice Chair Richard Clarida and coauthors Burcu Duygan-Bump and Chiara Scotti (2021), the Fed’s efforts to halt and reverse the economic crisis sparked by the pandemic took several forms. First, the Fed implemented its conventional policy toolkit with unprecedented speed. It cut its benchmark nominal interest rate to zero, provided forward guidance that its zero-rate policy would remain until “the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals,” and announced \$700 billion in asset purchases of U.S. Treasuries and mortgage-backed securities.

### **Box 1-1. Unemployment Insurance during the Pandemic**

Unemployment insurance (UI) is an important component of the U.S. safety net, providing workers with income amid job loss that is out of their control. With UI, workers can continue to receive a portion of their wages and support their families as they search for new jobs. UI is also an automatic stabilizer (Kekre 2021). When the economy suffers a downturn, increased UI payments lift the economy, preventing a spiraling descent in consumption and output. Indeed, during the Great Recession in 2008, UI kept millions of Americans out of poverty while also saving millions of jobs (West et al. 2016).

However, the COVID-19 pandemic, and the unprecedented job loss it precipitated, put the UI system to the test and exposed underlying weaknesses. The current UI system is fragmented—jointly funded by the Federal government and States, but primarily administered by States, which, within broad standards, set their own eligibility criteria, benefit levels, and benefit durations. And as the nature of work has evolved even before the pandemic began, UI has not kept up. For instance, workers who are self-employed, including independent contractors, are ineligible for UI. As the labor force has changed and grown tremendously in the past few decades, the UI taxable wage base has not grown with it (Vroman and Woodbury 2014).

Expansions of UI enacted during the pandemic allowed the system to provide appropriate relief during a widespread national crisis, while strengthening the system’s ability to support workers and stabilize the economy. The Federal Pandemic Unemployment Compensation and Pandemic Emergency Unemployment Compensation programs set nationwide standards in benefit amounts and durations that accounted for the unprecedented labor market challenges the pandemic posed. Meanwhile, at its peak, the Pandemic Unemployment Assistance program made benefits available to nearly 15 million workers ineligible for traditional UI (Bivens and Banerjee 2021).

The pandemic also highlighted a need for investment in UI systems and broader UI policy reforms (Bivens et al. 2021). In the summer of 2021, roughly 40 percent of workers receiving their first UI payment reported having to wait at least 3 weeks for it (U.S. Department of Labor 2022). Delay times in application processing and distribution of safety net polices can put financially vulnerable families in an even more precarious situation. Future economic downturns may require again extending UI benefits to currently excluded workers, suggesting a role for reforms that would incorporate them.

In the subsequent weeks and months, the Fed established additional programs to safeguard liquidity in financial markets and to encourage banks to lend to small businesses and municipal governments, many of which

found themselves unable to borrow just when they most needed credit to survive. Finally, the Fed worked with banks to complete two rounds of stress tests focused on understanding the impact of the pandemic on banks' capital positions, creating transparency that, as in the 2008 financial crisis, had the goal of raising investor confidence about the readiness of U.S. financial institutions to weather the crisis (Morgan, Peristiani, and Savino 2014).

These policy actions helped to prevent not only another Great Depression but also another Great Recession. That is, through a response that was responsive to the scale and nature of the pandemic-induced crisis, the Fed's actions helped to avert an even larger economic catastrophe and to fuel a postcrisis recovery that to date has been far stronger than after the 2008 financial crisis.

The greatest challenges in years to come may arise with little warning. Just as the government buttressed the macroeconomy during the pandemic, so too must it be able to guide the economy through unanticipated shocks in the future. Social insurance programs that protect workers, families, and businesses from severe hardship play a central role in macroeconomic stabilization (McKay and Reis 2016). Unemployment insurance and the Supplemental Nutrition Assistance Program (SNAP) proved to be powerful countercyclical policy levers, shoring up household resources throughout the unforeseen demands of the pandemic (Rouse and Restrepo 2021). In the face of historic spikes in joblessness and hunger, some government aid was automatically assured. Recent updates to the Thrifty Food Plan will crucially reinforce the stabilizing power of SNAP in future recessions (Bauer 2021).

## Addressing Market Failures

Although the private market adequately provides goods and services in many instances, there are textbook cases in which it does not. These situations constitute “market failures,” which occur when individual actors—such as households or businesses—do not achieve efficient outcomes on their own. Market failures are a pervasive feature of real-world markets. Left unaddressed, they inhibit the efficiency and capacity of the economy.

One well-known example of a market failure is when the consequences of private decisions spill over onto people who were not party to those decisions, a phenomenon economists call “externalities.” The choices of industrial factories over how much to spend on equipment to reduce their emissions, for example, matter for everyone who breathes the air and drinks the water near these factories. And yet, when making such decisions, private firms have incentives to control emissions only to the extent that they affect their bottom line, likely emitting more than is desirable for society as a whole. Government involvement can improve outcomes through

policies that compel factories to account for this social damage in their decisionmaking.

Even the need for macroeconomic stabilization can be characterized as a form of market failure that stems from price rigidities, incomplete insurance markets, and externalities from shocks to aggregate demand. Market failures can also arise when people are credit-constrained. When these credit constraints inhibit people's ability to pay what something is worth, this inability to meet costs may incorrectly signal that the good or service has no long-term value. One notable example of this is childcare and education: just because families cannot meet the true costs of these services at this point in their lifecycle does not mean they are not valuable, hence motivating public involvement.

Furthermore, efficient markets require buyers and sellers to be informed about the quality and prices of the goods and services traded. When participants are uninformed, markets struggle to yield mutually beneficial trades between buyers and sellers. For instance, in the market for health insurance, people buying it know more about their individual health status than the insurance companies, which causes these markets to provide inadequate coverage, out of fear that only unhealthy people will choose to buy adequate coverage. Finally, markets may not reach efficient outcomes when production and sales are highly concentrated in one or a handful of companies. A dominant position gives such companies an incentive to price their goods and services above their cost, to innovate less, and to take other anticompetitive actions to entrench their position and to extract monopoly rents from buyers.

### *Market Failures during the Pandemic*

The pandemic has shown that people's behaviors may accelerate or slow the spread of the virus. Testing, mask-wearing, social distancing, and vaccination all benefit more than just the people doing those things, producing beneficial health externalities for everyone with whom these people come in contact. Governments have taken several steps to encourage or require these pro-social behaviors during the pandemic, including the American Rescue Plan's funding for the national vaccination campaign and free COVID-19 tests. The Federal Government, and many State and local governments, also mandated mask-wearing indoors to reduce COVID-19's airborne spread. In addition, many State and local governments put in place temporary indoor capacity limits to encourage increased social distancing and implemented vaccine mandates for certain activities. The Federal Government has also funded the development and distribution of vaccines, given that vaccinations benefit many beyond vaccinated individuals themselves (see box 1-2).

## Box 1-2. Effective COVID-19 Vaccines as Public Goods

The life-saving impact of COVID-19 vaccines illustrates the importance of an important public good: basic scientific research. One consideration that makes such research a public good is that one use of knowledge—for example, to cure a given disease—does not take away from other potential applications of the same knowledge. In the case of COVID-19 vaccines, the central scientific breakthroughs were the result of decades of publicly financed research against other viral threats, including Ebola, MERS, Human Papillomavirus, and Human Immunodeficiency Virus (Harris 2021). The Biomedical Research and Development Authority, for example, was a key funder of research on messenger RNA, the vaccine platform eventually used in the Moderna and Pfizer vaccines. Public investment was also crucial in the final step of developing the COVID-19 vaccine: Richard G. Frank, Leslie Dach, and Nicole Lurie conclude, reviewing a variety of estimates, that the U.S. government invested between \$18 and \$23 billion in COVID-19 vaccine research and development and spent about \$12 billion more on advance purchases of the vaccines. The United States also spent \$20 billion on the vaccination campaign, according to analyses from the Kaiser Family Foundation (Kates 2021) and the U.S. Federal Emergency Management Agency (2021).

Researchers have estimated that, without a vaccination program, there would have been approximately 1.1 million additional deaths and up to 10.3 million additional hospitalizations in the United States from December 2020 through November 2021 (Galvani, Moghadas, and Schneider 2021). Calculating the cost per life saved suggests that public spending on vaccines was remarkably cost-effective. In particular, assuming the COVID-19 vaccines would not have emerged without public investment, the cost of this investment was between \$45,000 and \$50,000 per American life saved.

By comparison, some U.S. government agencies typically consider spending to be cost-effective if it costs around \$11 million per life saved—indicating that half of a cent of spending on COVID-19 vaccines saved as many lives as \$1 of spending on other U.S. policies (U.S. Department of Health and Human Services 2021; U.S. Department of Transportation 2021). Such thresholds, referred to as the “value of a statistical life,” are widely used to evaluate life-saving regulatory policies, from car safety to power-plant emissions (Viscusi 2018). Even these estimates, however, greatly understate the true cost-effectiveness of vaccine spending, as they do not account for the millions of lives saved abroad, those saved after November 2021, and those yet to be saved by COVID-19 vaccines, nor the avoided costs of hospitalizations, illnesses, and work absences. Taken together, these considerations suggest that public investments in COVID-19 vaccines were likely the single most cost-effective policy response to the pandemic.

An important special case of externalities relates to “public goods”—goods and services, like national defense and some forms of infrastructure, that cannot be depleted by one person’s use and that benefit people whether or not they have paid for them. If left to the private sector to provide, public goods are undersupplied, as people can individually opt not to pay and to free ride on the willingness of others to pay. However, if everyone tries to free ride, there are no public goods to enjoy. Government spending on public goods can ensure that they are adequately provided and can thereby raise the economy’s productive capacity (see box 1-2).

Emergency government assistance for small businesses during the pandemic can also be viewed as a policy response to market failures, as former Council of Economic Advisers Chair Joseph E. Stiglitz has argued (Stiglitz 2021). Many small businesses, for example, have insurance policies against “business interruption” to cover revenue losses due to fires, floods, or other disasters that are no fault of their own. These policies largely do not cover pandemics, which left the 41 percent of small businesses that temporarily closed in late April 2020 without coverage against revenue losses, putting them at risk of closing their doors forever (U.S. Census Bureau 2022). Grants and loans to small businesses, such as the Paycheck Protection Program and the Restaurant Revitalization Fund, addressed this lack of insurance coverage by directly providing a form of business interruption insurance.

### *Market Failures Beyond the Pandemic*

Market failure is a unifying theme in making the case for public investment in infrastructure, child health and education, and clean energy. This subsection explores these areas of concern.

*Infrastructure.* There is much evidence that the United States lags far behind its competitors in supplying the essential inputs to economic capacity. U.S. infrastructure provides several examples. The World Economic Forum’s *Global Competitiveness Report* found in 2019 that, out of 141 countries, the United States ranked 13th in quality of overall infrastructure, 17th in quality of road infrastructure, 23rd in electricity supply quality, and 30th in reliability of water supply (Schwab 2019). A separate ranking of global ports by the World Bank and IHS Markit found that no U.S. port made it into the top 50 globally, and just 4 are in the top 100. By comparison, of the top 10 ports, several are in China. The Federal Communications Commission (FCC 2018) has also ranked the United States 10th among developed countries for broadband speed and connectivity. In transporting goods and services, in connecting workers around the country and globe, in transforming technological progress into productivity gains, the United States is not at the frontier.



The public sector has an important role to play in building and maintaining the stock of physical infrastructure, which complements private capital investment. Though the private sector can adequately supply the economy with most physical capital—factories and offices, for instance—infrastructure projects, such as transportation systems, are far less suited to private development. Their construction often requires legal authority to use property to overcome holdups by individual landowners. Furthermore, some of the social benefits of these projects may stem from increases in innovation, economies of scale, and labor mobility—factors that private developers would not consider in their investment decisions, leading to underinvestment (Ramondo, Rodríguez-Clare, and Saborío-Rodríguez 2016; Perla, Tonetti, and Waugh 2021).

The supply chain disruptions during 2021–22 have illustrated the critical importance of fast, efficient transportation for economic growth and have highlighted the cost to the United States when government does not invest adequately in transportation infrastructure. When these systems are strained, they may become bottlenecks for the rest of the economy, causing cascading shortages, delays, and price increases (Bernstein and Tedeschi 2021; Helper and Soltas 2021). In mid-December 2021, 71 percent of U.S. manufacturing small businesses reported delays with their domestic suppliers (U.S. Census Bureau 2022). Facing higher shipping costs, and unable to promise timely deliveries, these manufacturers have been put at risk of losing sales to international competitors and being forced to cut jobs and investment (Hummels and Schaur 2013; Clark, Dollar, and Micco 2004; Hornbeck and Rotemberg 2021).

*Children.* Another large body of evidence documents how investments in children can have positive effects throughout the life cycle and on society at large (Almond, Currie, and Duque 2018). Education boosts workers' productivity and wages in the long run, while reducing adult mortality and incarceration, thereby lifting the economy's overall capacity (Card 1999; Oreopoulos and Salvanes 2011). Child health interventions, such as the provision of adequate nutrition, similarly have lasting effects on both medical and nonmedical aspects of well-being (Bailey et al. 2020). The returns to such educational and health investments have been shown for children of all ages, from newborns to young adults (Hendren and Sprung-Keyser 2020), suggesting broad benefits from investments in early education and childhood programs as well as in elementary and secondary schools.

However, the private costs of childcare and health care are increasingly burdensome and must be paid upfront, even as the rewards are reaped in the future (Council of Economic Advisers and Office of Management and Budget 2021). Many of these benefits accrue in large part to society, rather than just to the family itself—such as through higher tax receipts, less crime, and lower spending on public assistance (Hendren and Sprung-Keyser



2020). Furthermore, the quality of childcare is often variable and difficult for parents to ascertain (Mocan 2007). These considerations point to the possibility that families are unable to invest in children relative to the long-run benefits of these investments for society as a whole.

Government can help ensure that children receive high-quality education and care early in life through measures like direct public provision and subsidies. Despite strong evidence for the benefits of early education, only about half of three- and four-year-old Americans are enrolled in preschool, and children of lower-income families are much less likely to be enrolled in preschool than children of higher-income families (National Center for Education Statistics 2021; Cascio 2017). Improving pay for caregivers and instituting standards for care would raise quality across the country, which may also raise the long-term payoff from these programs by increasing their effectiveness (Banerjee, Gould, and Sawo 2021).

The past decades of underinvestment in children mean that the United States is not well prepared for current and future demographic changes. The aging workforce and the resulting increase in the number of retired workers suggest that growth in human capital per worker, and by extension growth in productive capacity, will slow unless the United States reverses underinvestment in our future human capital, as we discuss in chapter 4.

*Climate change.* Climate change caused by pollution presents another economic challenge. Each polluting activity contributes to global warming and environmental damage, but polluters do not individually bear the costs associated with their pollution. Already the economic damages from storms, floods, droughts, and wildfires have risen to over \$100 billion per year in the United States (National Centers for Environmental Information 2022).

The mirror image of this problem is underinvestment in clean energy, as private actors bear the upfront costs of transition investments but cannot themselves capture all the long-term social benefits. Government can correct these externalities by helping to ensure that the private costs of carbon and other greenhouse gas emissions, as well as the private benefits of clean energy, correspond to their long-term costs and benefits for society. Replacing subsidies for fossil fuels with subsidies for clean energy investments, such as electric vehicles, helps align these private and social incentives.

Adapting the Nation's energy systems for the future is not a task that can be achieved by individual households, businesses, or industries alone. Consider a consumer in North Dakota wishing to purchase an electric vehicle. According to the Department of Energy, North Dakota has a total of 138 public and private electric vehicle supply equipment ports (Alternative Fuels Data Center n.d.). That is one charging station per 510 square miles, which is equal to or beyond the distance that any electric vehicle currently sold in the United States can drive on one charge (Wallace and Irwin 2021).

Meanwhile, California has one charging station for each 4 square miles of land in the state (Alternative Fuels Data Center n.d.). A key challenge in electric vehicle infrastructure is coordination between vehicle buyers and charging-station suppliers: Neither wants to be the first to invest, creating a chicken-and-egg problem that delays the transition to electric vehicles (Li et al. 2017). This suggests a role for government in undertaking upfront investments in infrastructure, and thus allowing all Americans to take part in the energy transformation.

## Reducing Inequality

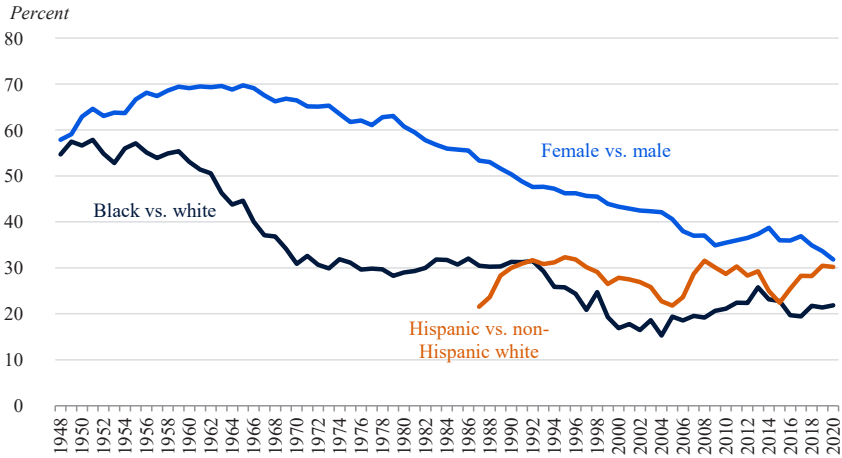
Both economic efficiency and equity are important goals. But there is no guarantee that efficient economic outcomes are equitable ones. Governments have a role to play in ensuring that the benefits of economic growth are shared when they would otherwise go to a fortunate few—and in spreading the costs of economic dislocations, such as trade adjustment and technological change, when they would otherwise wreak concentrated harm on particular local economies and groups. Another important, if difficult, task for government lies in confronting the ongoing legacies of de jure discrimination that many minority groups face, from labor market disadvantages to residential segregation (Rothstein 2017).

### *Inequality Before and Beyond the Pandemic*

The U.S. economy has long featured substantial inequalities in income, wealth, and other economic outcomes among individuals and families. These inequalities reflect variations in opportunities, earnings ability, preferences, bargaining power, and luck—along with structural divisions by race, ethnicity, class, gender, sexual orientation, and other markers of difference.

Income inequality can be explained by two economic trends: the decline in labor’s share of national income, and rising earnings inequality among workers. From 2000 to 2019, labor’s share of income in the U.S. nonfarm business sector fell 6 percentage points, from 63 percent to 57 percent, according to Bureau of Labor Statistics data. In addition, labor earnings growth since the 1970s has been strongly tilted toward the best-off households (Congressional Budget Office 2021). Since the distribution of nonlabor income (i.e., payments to capital and business owners) is even more unequal than that of labor income, the decline in labor’s share and the increase in earnings inequality have both contributed to rising inequality in overall income. The fall in the labor share and the rise in earnings inequality reflect many contributing causes—among them, shifting relative supply and demand for skills, changes in public policies like top tax rates and antitrust enforcement, and changes in labor market institutions such as

**Figure 1-6. Gaps in Annual Earnings by Race, Ethnicity, and Gender**



Sources: Bureau of Labor Statistics; CEA calculations.

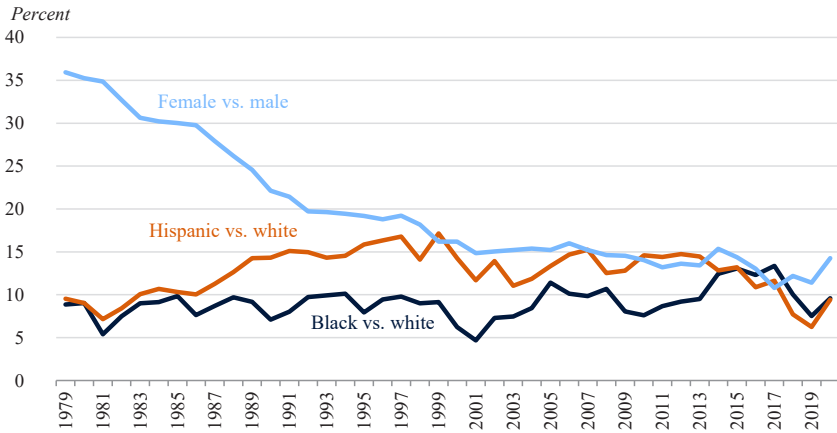
unions (Furman 2016). Collectively, these economic shifts and institutional changes have undermined worker power, especially that of the most vulnerable workers, for the benefit of top earners and the owners of capital and businesses.

At the same time, gaps by race and gender have been highly persistent. There has been strikingly little progress in closing gaps in hourly or annual earnings by race and ethnicity over the last 20 years, and progress in closing gender gaps has slowed over the same period (figures 1-6 and 1-7).

While these economic disparities have proved persistent, policy action and legal efforts against discrimination have been important in driving the progress that did occur. Critically, the reduction in racial and ethnic inequality has been “episodic” rather than “continual,” reflecting identifiable shifts such as the Civil Rights Act of 1964, the Fair Labor Standards Act of 1966, and the tight labor market of the 1990s (Donohue and Heckman 1991; Derenoncourt and Montialoux 2021; Baker and Bernstein 2013). Improvements in school quality after the landmark U.S. Supreme Court decision in *Brown v. Board of Education* were another important contributor to the compression of racial and ethnic earnings gaps (Card and Krueger 1992).

Research also suggests that past antidiscrimination policies not only benefited minorities but also expanded the overall capacity of the U.S. economy, as discrimination prevented the economy from making full use of the potential of all Americans. According to one analysis, between 20 and 40 percent of all U.S. economic growth from 1960 to 2010 can be explained by reductions in discriminatory barriers by sex and race (Hsieh et al. 2019). Although women and racial and ethnic minorities are now more able to enter

**Figure 1-7. Gaps in Average Hourly Earnings by Race, Ethnicity, and Gender**



Sources: Bureau of Labor Statistics; CEA calculations.

high-earning occupations like law and medicine, occupational segregation remains an important contributor to income disparities by gender, race, and ethnicity (Cortes and Pan 2018; Weeden 2019). Overall, occupation and industry segregation account for about half of the gender pay gap as of 2011 (Blau and Kahn 2017). After the rapid advance of women in the workplace during the 1970s and 1980s (figures 1-6 and 1-7), progress in reducing gender disparities in the labor market has been slow in recent years.

A key factor behind the remaining gender gaps, much recent research has argued, is how household responsibilities are typically divided within heterosexual couples, especially those with children. In the United States, women’s employment and earnings fall immediately upon the birth of their first child and remain 20 to 30 percent lower, even 10 years after childbirth. Worldwide, larger “child penalties” occur in countries and regions of countries with more traditional gender norms (Kleven 2021). Other research has suggested that the lack of fair and predictable work schedules may be a barrier to maternal labor force participation. Women are less willing to accept higher-paying jobs with longer commutes than men, likely because of their greater home and care responsibilities, and gender pay gaps are smaller in occupations that can accommodate flexible work hours (Barbanchon, Rathelot, and Roulet 2021; Goldin 2014). Though norms and a fundamental economic force—specialization in either paid or household work—push women and men to make different life choices, government could do more to accommodate caretakers, typically women, who want to manage both family and career, such as through paid leave and subsidized child care (Boushey 2016).

## *Inequality in the Pandemic*

The COVID-19 pandemic laid bare vast, alarming economic disparities. Many higher-earning workers, for example, continued in their jobs through telework, while 80 percent of job losses after the pandemic were concentrated in the lowest quarter of wage earners (Gould and Kandra 2021). Women bore the brunt of school and childcare closures by picking up additional care responsibilities, and labor supply among mothers of young children remained depressed even two years into the pandemic (Goldin 2021). Furthermore, analyses that have parsed U.S. economic data by race, sex, ethnicity, and education have found weaker pandemic recoveries in labor force participation among women with compounding sources of disadvantage, such as Hispanic and non-Hispanic Black mothers or mothers with less than a bachelor's degree (Tüzemen 2021).

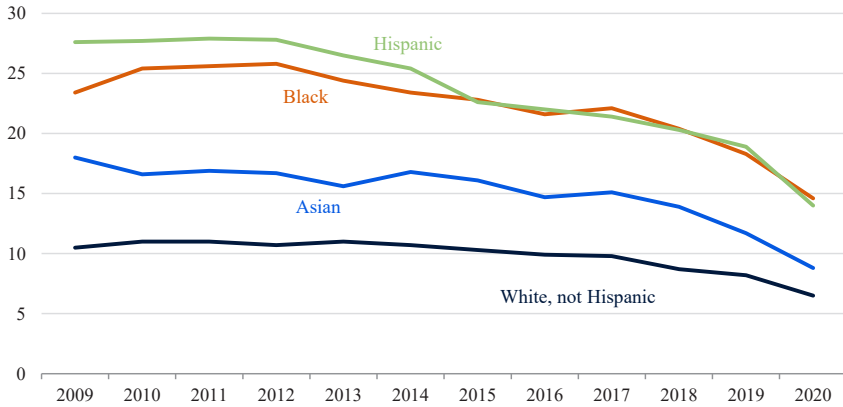
The government's pandemic response aimed to prevent its costs from falling heavily on specific groups of workers. Several programs provided targeted relief to pandemic-affected industries—such as air travel, hotels, and restaurants—as well as to their workers. In addition, the government patched several holes in the safety net that, if they had been left unaddressed, would have exposed millions of families to pandemic-related hardships (Wheaton, Giannarelli, and Dehry 2021).

One of these patches was the expansion of unemployment insurance to cover “gig” workers and others who are typically ineligible for such benefits, such as the self-employed and people with limited work histories, through Pandemic Unemployment Assistance (see box 1-1). A second patch to the safety net was in housing policy: The government forbade banks and landlords from foreclosing upon or evicting families, and it provided relief with the Emergency Rental Assistance Program and Homeowner Assistance Fund. Third, school closures during the pandemic meant that the nearly 30 million children who received free or reduced-price school lunches before the pandemic needed other forms of nutrition support—a safety-net hole patched with the Pandemic Electronic Benefits Transfer program (Economic Research Service 2022).

These safety net patches, along with other policies such as the expanded Child Tax Credit, helped to reduce poverty to its lowest level on record, despite the pandemic and recession. Official estimates for the year 2021 will not be released until late 2022, but in 2020, the poverty rate fell to 9.6 percent from 11.8 percent in 2019, according to the Supplemental Poverty Measure, which accounts for the resources that many low-income households receive from the government (Fox and Burns 2021). Declines in poverty were even larger for particular racial and ethnic groups, with the supplemental poverty rate among Black and Hispanic Americans falling by 3.7 and 4.9 percentage points, respectively (figure 1-8). The decline in the

**Figure 1-8. Poverty Rate by Racial Group**

*Percentage of population*



Source: Census Bureau.

child poverty rate was equally dramatic, dropping by almost 3 percentage points and projected to fall even further in 2021 (Wheaton, Giannarelli, and Dehry 2021). The data illustrate the importance of public assistance in preventing pandemic hardships, because the poverty rate, as measured by the Official Poverty Measure—which does not reflect the increase in transfers—rose by a full percentage point to 11.4 percent in 2020 (Shrider et al. 2021).

## Conclusion

Economists have long understood the myriad ways in which government action in the economy can promote growth and well-being, fulfilling the public sector’s role as a partner of the private sector. Ensuring macroeconomic stability, investing in public goods, addressing market failures, and reducing inequality are just some of the functions that markets cannot do alone—or do too little in the absence of government. When governments fulfill these roles, they are not interfering in the market or crowding out private enterprise; they are creating, protecting, and expanding markets and their potential to produce an inclusive and prosperous society.

These complementary functions of government were on prime display during the COVID-19 pandemic. The health costs and risks of viral transmission meant that basic person-to-person interactions carried social implications, motivating a host of U.S. government policies to reduce these risks: physical distancing, subsidized testing, mask requirements, and public investment in vaccines and treatments for COVID-19. And just behind the public health crisis loomed a potential economic crisis, one that portended hardship for tens of millions of people who had lost jobs or income—a crisis that the U.S. government successfully alleviated with aggressive monetary

and fiscal responses that sustained aggregate demand and strengthened the safety net throughout the pandemic. The U.S. response to COVID-19 has been intentional in recognizing and undoing the pandemic's unequal effects across our society—with progressive direct cash assistance, targeted support for workers in the industries most affected by the pandemic, and investments in broadband access and vaccine outreach to serve rural and other disadvantaged communities.

The partnership between public and private sectors worked during the pandemic and has the potential to contribute to increased future economic growth. As the remaining chapters of this *Report* discuss, understanding the role of government is important in assessing economic policy options. A policy agenda to fulfill these roles can improve U.S. economic outcomes and expand U.S. productive capacity, both now and over generations to come.

Chapter 2 provides an overview of the economy over the past year, focusing on how this recovery differs from past ones. The chapter discusses fiscal and monetary policy support, pandemic issues, inflation, and labor force participation. The macroeconomic forecast underpinning the Administration's Budget is also presented.

Addressing the pandemic-induced economic downturn has been a shared priority for countries around the world. Chapter 3 analyzes the U.S. economy in a global context, examining other countries' paths toward recovery, inflation trends, and labor markets, as well as shifts in international trade and their impact on the U.S. trade deficit. The chapter then discusses principles for a U.S. international economic policy that promotes economic resilience and generates benefits that are shared broadly across American society.

Human capital—or the knowledge, skills, health, and other valuable resources embodied in an individual—is a critical component of economic growth. However, the accumulation of human capital has slowed in recent years. For instance, life expectancy only rose by less than half a year in the decade before the pandemic, and the education levels of the current generation of young adults have grown only slightly compared with their parents' generation. Chapter 4 discusses education, workforce development, and health (several of the major components of human capital), and explores public investments that would support the development of these forms of human capital, and policy changes that could allow human capital to be used more productively and expand U.S. economic capacity.

Even when people develop strong human capital, countervailing forces can keep them from successfully utilizing it. For example, since the late 1990s, concentration has increased in about 75 percent of U.S. industries, and research shows that about 60 percent of U.S. labor markets are highly concentrated, likely reducing wages and the quality of working conditions (Grullon, Larkin, and Michaely 2019; Azar et al. 2019). Chapter 5 discusses

the forces that inhibit competition—and why it is critical for long-run growth to address monopsonies (a lack of competition among employers or other buyers of goods and services); monopolies; and racial, ethnic, and gender discrimination. In addition, chapter 5 examines how persistent inequality may reduce economic efficiency and capacity growth, particularly through its effects on labor market outcomes, talent allocation, innovation, and incentives for human capital investment.

For decades, experts have warned that U.S. supply chains were fragile and thus vulnerable to shocks like extreme weather and global disturbances. However, it was not until the pandemic highlighted existing weaknesses that “supply chain” became a household term. Chapter 6 describes the evolution of the supply chain and discusses issues linked to firms’ increased reliance on outsourcing and offshoring. In critical industries, supply chain resilience has national security implications. In other industries, the complexity of supply chains can make it difficult for firms to coordinate their private planning and decisionmaking, suggesting a role for policies such as industry standards and information aggregation and dissemination. The chapter then provides examples of Administration proposals that would help to address these issues, strengthening supply chains’ resilience and innovation.

Chapter 7 discusses climate risks and the global progress in mitigating these risks by transitioning to clean energy. Then it outlines the factors holding back the energy transition and policies that can cost-effectively accelerate the transition. The chapter explains the economic rationale underlying Federal climate policies to smooth the energy transition for U.S. domestic industries and vulnerable communities. Specifically, the chapter describes the opportunities and challenges of government interventions to support domestic clean industries and place-based policies for economic development in fossil-fuel-dependent communities.





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