

2024	1995	1966	1937	1908	1879	1850	1821	1792	2
2023	1994	1965	1936	1907	1878	1849	1820	1791	2
2022	1993	1964	1935	1906	1877	1848	1819	1790	

2021	1992	1963	1934	1905	1876	1847	1818	1789	
2020	1991	1962	1933	1904	1875	1846	1817	1788	
2019	1990	1961	1932	1903	1874	1845	1816	1787	

2018	1989	1960	1931	1902	1873	1844	1815	1786	
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2017	1988	1959	1930	1901	1872	1843	1814	1785	
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2016	1987	1958	1929	1900	1871	1842	1813	1784	
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2015	1986	1957	1928	1899	1870	1841	1812	1783	
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2014	1985	1956	1927	1898	1869	1840	1811	1782	
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2013	1984	1955	1926	1897	1868	1839	1810	1781	
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2012	1983	1954	1925	1896	1867	1838	1809	1780	
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2011	1982	1953	1924	1895	1866	1837	1808	1779	
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2010	1981	1952	1923	1894	1865	1836	1807	1778	
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2009	1980	1951	1922	1893	1864	1835	1806	1777	
------	------	------	------	------	------	------	------	------	--

2008	1979	1950	1921	1892	1863	1834	1805	1776	
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2007	1978	1949	1920	1891	1862	1833	1804	1775	
------	------	------	------	------	------	------	------	------	--

2006	1977	1948	1919	1890	1861	1832	1803	1774	
------	------	------	------	------	------	------	------	------	--

2005	1976	1947	1918	1889	1860	1831	1802	1773	
------	------	------	------	------	------	------	------	------	--

2004	1975	1946	1917	1888	1859	1830	1801	1772	
------	------	------	------	------	------	------	------	------	--

2003	1974	1945	1916	1887	1858	1829	1800	1771	
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2002	1973	1944	1915	1886	1857	1828	1799	1770	
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2001	1972	1943	1914	1885	1856	1827	1798	1769	
------	------	------	------	------	------	------	------	------	--

2000	1971	1942	1913	1884	1855	1826	1797	1768	
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*The Economic Crises That Shaped Globalization*

# SEVEN CRASHES

# HAROLD JAMES

# Seven Crashes

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The Economic  
Crises That Shaped  
Globalization

Harold James

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## Acknowledgments

This book is an outgrowth of the Covid-19 pandemic and the dramatic change it wrought in everyone's lives, and in geopolitics. I had been thinking about globalization and its discontents for over thirty years, and became intrigued by the way that there are historical reversals, as in the Great Depression, but also new phases of intense interconnection. The Covid crisis seemed to me to hold analogies with previous moments—the mid-nineteenth-century famines and revolutions, or the supply shocks of the 1970s—when globalization was reimagined and reconfigured.

My initial reflections appeared in the form of articles, one more academic, “Seven Transformative Crises from European Revolution to Corona: Globalization and State Capacity” (*Financial History Review* 27, no. 2 [2020]), and the other for a general audience: “Globalization's Coming Golden Age: Why Crisis Ends in Connection,” *Foreign Affairs*, May/June 2021. I should also like to thank the organizers of several seminars and conferences at which I presented parts of the arguments advanced here, including David Bell at the Davis Center for Historical Studies and Markus Brunnermeier at the Bendheim Center for Finance in Princeton; Piroska Nagy and Erik Berglof at the LSE Institute for Global Affairs; Wolfgang Quaisser at the Akademie für Politische Bildung; Piotr Pysz at the Konrad Adenauer Foundation Warsaw; Liz Mohn, Wolfgang Schüssel, and Joerg Habich at the Bertelsmann Stiftung Trilogue; and Raphael Gross and Nike Thum at the Deutsches Historisches Museum, Berlin. Catherine R. Schenk and the Economic History Society honored

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## Introduction: How Prices Shape Globalization

A connected world is breaking apart. Acute food shortages produce famine, infectious diseases spread among an undernourished population, social unrest flares up, political systems are challenged and destroyed. The attention of the world focuses on particular geographic hotspots: some dominate the geopolitical imagination, the eastern Mediterranean, the Dardanelles. The passage between the Black Sea and the Mediterranean assumes a global significance, a thin needle that connects the grain producing areas of autocratically controlled central Eurasia to hungry or starving consumers. Sound familiar? This scenario has replayed regularly over the past two centuries: at the end of the 1840s, in the First World War, and of course in 2022. In the 1970s, the Middle East became the focus of an intense global debate about energy security. The traumas engendered by inadequate food or energy supplies, fears that they are controlled by hostile or malign or simply completely alien powers, the challenges that the coordination of effective domestic and foreign policies pose to governments: these constitute the fundamental drivers that make humans more willing to reimagine how human ingenuity, and new techniques, may be used to solve problems and connect peoples across the world. Crises which at first sight look as if they are purely devastating, bringing death and destruction, prove to be transformative. This book sets out to tell the story of how the transformation proceeds, and also how it is understood—or better, how it revolutionizes thinking and reconfigures the story of globalization.

What drives globalization, the increased economic and political interconnectedness of the world, and what are its vulnerabilities? It is common to think of the globalization phenomenon as an inexorable self-driving process, a peculiar feature of contemporary civilization, fueled by technical change in what is sometimes called, in a term popularized by the economist Simon Kuznets, Modern Economic Growth.<sup>1</sup> In reality, though, interconnectedness is an uneven and erratic development, shaped by collective responses to disruptions and crises. In those moments, prices—or the attempts to suppress them—generate the signals that guide the reactions. Their yoyo movements may confuse and disorientate: they prompt new ways of thinking—sometimes productive, sometimes dangerous.

The disruptions often start with small and initially apparently trivial incidents, such as the appearance of the fungus *phytophthora infestans* in mid-nineteenth-century Ireland, or of a new Covid virus in Wuhan in late 2019, or, for that matter, the assassination of an Austrian archduke in 1914. The economists Ian Goldin and Mike Mariathan described this problem as globalization's "butterfly defect."<sup>2</sup> The way the subsequent crises escalate out of control should be reminders to pay attention to how small events need to be understood. They also illustrate quite how hard it is to evolve a framework for such understanding.

This book will argue that new institutions—market innovations, but also states that are stronger and extend their capacities—generally arise out of responses to a particular kind of disruption: supply crises. The result changes the way people conceive of interactions—or of the economic process. These supply crises are moments when fundamental items such as food or fuel become scarce, prices rise, and new channels of production and distribution are required. A central question for politics is how to respond to the challenge of dramatic price movements. The yoyo moves lead to revolutions in government, as well as in business organization. Some systems are so rigid that they are completely destroyed by the economies of shortage: the brilliant Hungarian economist János Kornai strikingly demonstrated how scarcities, and the hoarding and dysfunctionality that they prompted, undermined and finally destroyed centrally planned (communist) economies.<sup>3</sup>



The response to the Covid-19 crisis exemplifies the conundrum inherent in thinking about the direction or linearity of the globalization dynamic. Initially it looked as if the pandemic fragmented the world, destroying multilateralism, tearing up complex cross-border supply chains, and in this way reversing globalization. The interruption of normal commerce at first depressed prices as supply chains shut down; then as demand for goods replaced demand for services, shortages appeared and prices surged. Prices showed a whiplash or bullwhip effect.<sup>4</sup> Countries became locked in clashes for scarce resources, and some—Russia in particular—tried to exploit their grip over supplies of energy and foods. Then war disrupted production further, and in 2022 the world harvest was reduced, food supplies fell, and major scarcities appeared.

The biggest countries seemed to be beating a retreat. China looked less to export-led growth than to a new model in which domestic consumption would be the driver of the economy. The United States turned in on itself and, even after a new presidency in 2021 which rhetorically embraced multilateralism, left the Trump-era tariffs substantially in place. Russia turned aggressively to confront not just Ukraine but the whole international economic and political order. Smaller countries, by contrast, continued to depend on trade for essential goods: food, but also complex engineering and electronic products, as well as medical and pharmaceutical supplies.

The experience of history, however, is that some sorts of globalization crisis lead to more, rather than less, globalization: they produce a new energy for communication and innovation. There is thus a major uncertainty hanging over today's politics: what will Covid do to globalization? Ever since the 2007–2008 Global Financial Crisis, indications have proliferated that globalization might be reversing, or moving into stasis or slow-motion “slobalization.” Globalization was often supposed to act principally on wages and prices—producing constant deflation by bringing large numbers of new workers into a global workforce and devaluing the activities of traditional blue-collar manufacturing workers in the rich countries. There followed a populist backlash against migration and trade, and countries tried to limit financial flows. Countries of immigration worried about effects on wages and labor markets, while countries

of emigration lamented a brain drain that would deprive their societies and their tax systems of ~~expensively~~ educated individuals. In economies with widespread job losses, trade appeared to many people as a zero-sum game, with imports destroying livelihoods. Capital movements were condemned as being potentially wild and destabilizing, and the policy-making community responded with plans to manage them. Twelve years later, the coronavirus, a global threat, magnified the challenge to globalization. Many populist or antiglobalist politicians immediately concluded that globalization was to blame.

Recognizing that pandemics or climate change are global threats should produce coordinated global responses. Crises appear to emphasize how globalization must be guided or managed. Skeptics will quickly point out that reality is often more complex. Covid often prompts people to think first in terms of a national self-interest: America First. But policy-makers will also look over their shoulders and see and compare what other countries are doing, and perhaps what they need to learn. Countries immediately embarked on a race to be first with a vaccine in order to secure a longer-term scientific and technical ascendancy: vaccine nationalism then drove the United States, the United Kingdom, Russia, and China to clash more nakedly, but also generated bitter conflicts within the European Union. The turn to trade protectionism and heightened competition between powers set the scene first for the aggressive use of energy supply as an instrument of blackmail, and then for Russia's attack on Ukraine in 2022. Other global challenges, too, initially provoke a new nationalism and protectionism. Even climate change, like Covid-19, might be used to build new strategic advantages: in particular, northern countries—Russia especially, but also Canada and Norway—may be beneficiaries of warmer temperatures and easy navigation through the Arctic. In consequence, geopolitics appeared to be omnipresent in the wake of the pandemic, in the response to the war in Ukraine. A geopolitical mindset limits the capacity to produce coordinated responses; and globalization in consequence appears to be on the defensive, on the retreat.

Is it? How far will the pushback continue? Coordination, the cooperative interaction of governments, certainly becomes harder. There is thus a need to rely on other, privately produced dynamics that may hold the

world together. But will those new initiatives be sufficient to solve major supply constraints?

### Modern Economic Growth

Globalization in an economic sense involves the flow of goods, labor, capital, and also ideas across national frontiers. Such flows respond primarily to knowledge about scarcity, classically expressed in terms of price signals. The world before modernity was regularly disrupted by severe supply shortages, most frequently and dangerously of food, in response to vagaries of the weather, other natural events, but also the devastation caused by human conflict. The future was uncertain, and guarding against the shortages required intelligence or supernatural assistance: as when Joseph responds to the pharaoh's dream of seven healthy cows eaten by seven ill-favored and lean-fleshed cattle by arguing that storage needed to be built up in the years of plenty to cope with the coming seven years of adversity. Or when Moses leads his people from the fleshpots of Egypt, when they need nutrition and the prophet tells them that God will rain bread from heaven.

The phenomenon of population movement is old—there is some archaeological evidence from classical antiquity of links between the eastern and western parts of the Eurasian landmass.<sup>5</sup> But in a modern sense it developed, with quantitatively much more substantial movements, from the middle of the nineteenth century. It plays a vital role in the models used to describe Modern Economic Growth, or MEG. It is quite striking that the term “economic growth,” let alone MEG, was hardly used before the 1940s, when it became popularized in part as a social science counterpart to a “cybernetic-system view,” which in the natural sciences was best exemplified by the engineering of a nuclear chain reaction. The world then became a “series of objects or systems that could be modelled, predicted, and manipulated.”<sup>6</sup> There were consistent interactions and feedback loops—and they moved across the boundaries that demarcated states and empires.

The key point of the new vision of the economy was that capital and labor can be substituted for each other in the standard form of the growth

model, in which output is driven by a function that combines proportions of capital and labor with a coefficient expressing technology improvements. In the 1950s, Moses Abramovitz and Robert Solow elaborated growth models that would be corroborated by the work of John Kendrick: these analysts found a remarkable surge in productivity in the twentieth century, which they attributed to technology improvement.<sup>7</sup> These growth models were then extended, especially by Paul Romer, to suggest ways in which technology was endogenous to the growth process, rather than an external *deus ex machina* that explained mankind's transformation. Technology was applied and adapted through "intentional actions taken by people who respond to market incentives." The number of interacting people was crucial to the process, and a larger stock of human capital would thus produce more growth. Consequently a widening of that stock, by free international trade, pushed the growth process.<sup>8</sup>

In the nineteenth century, the fundamental push was generated by the comparison of returns on mobile factors (labor and capital), but also on the immobile factor, land. Characteristically in the globalization of the second half of the nineteenth century, people (the labor force) moved to where labor was scarce and wages correspondingly high and land cheap, in areas of settlements: with the largest flows to the United States, Canada, Argentina, and Australia. By contrast, Europe had expensive land and lower wages, especially outside Britain. An aristocracy, with massive political influence, wanted to keep things that way. The movements of people drove higher output, but also eventually raised wages in the countries of emigration, and the cost of living fell. And then emigration occurred from poorer countries. The lands of settlement or immigration also experienced a shortage of capital, with higher returns to capital, and capital also flowed in large quantities in order to expand production at the frontier of cultivation through investment in infrastructure, construction, equipment, and so on. The preponderant share of British capital exports went to the Americas, Australasia, and Russia.<sup>9</sup> The result of this globalization was a convergence, limited in the nineteenth century because it basically operated only in temperate parts of the world suitable for European-style farming. Technology appeared limited in its applicability, and in particular could not be transported easily to parts of the world with high populations, low wages, and low educational attainment as

measured by western standards. In this set up, capital and labor regularly flowed together as a combination that powered development, but not everywhere in the world.

That early age of globalization is thus quite distinct from a more modern pattern, in which products are manufactured in complex supply chains that span the world, and information technology allows easy transfers.<sup>10</sup> Higher education levels now meant that technology could permeate more easily. Hence in the late twentieth century the globalization process was more geographically generalized as capital often moved to areas with low labor costs and a potential for a large productivity catch-up. But even here there was an often-noted paradox, in that capital did not always flow to poor countries, and in some cases rich countries (especially the United States and the UK) became major capital importers.<sup>11</sup>

A central feature of the growth model is the assumption of a general rate of technical change. But it might be objected that discovery is a random process, though with more scientists and experimenters there are likely to be more innovations, and on a broader front, over a long time frame. The critical difficulty lies in the application of technology. In practice, there was often a long gap between a potentially transformative innovation and its wider useful diffusion. Matthew Boulton and James Watt produced a better steam engine in 1776, but the first railroad in Britain, the short Stockton-to-Darlington line, opened only in 1825 to connect collieries to the North Sea, and the first steamship, the paddle-driven *SS Great Western* of Isambard Kingdom Brunel, crossed the Atlantic in 1838. So it was only in the middle of the nineteenth century that railroads opened up interior spaces all over the world, and steamships carried goods globally. Orville and Wilbur Wright flew a powered heavier-than-air machine in North Carolina in 1903, but it was only really in the 1960s that the jet aircraft opened the way to large-scale transportation. Aniline was isolated in 1826 by Otto Unverdorben, but only in 1854 did the reduction method developed by Antoine Béchamp allow the large-scale production of dyestuffs. Medical or pharmaceutical uses took longer, with a derivative synthesized in 1908, sulfanilamide, having extensive antibacterial uses. Some other medical discoveries required even more time to be extended across the world: Edward Jenner developed the practice of vaccination against smallpox in 1796, but it was 1977 before smallpox

was completely eradicated. And Jenner's son, sisters, and wife all died of tuberculosis, a disease for which a vaccine (Bacillus Calmette—Guérin, BCG) was first used in 1921.

The long durations in which new innovations are developed and applied might be changed by new political constellations. One revolutionary driver, for instance, the container ship, was developed in the 1950s, but only had a significant impact on shipping costs and practice in the 1970s because of changes in the regulation of carriers and their interactions with shippers. Big disruptions, notably wars, limit trade, but also drive an intense search for quick solutions—such as the synthesization of nitrate production for both explosives and crop fertilizer in the First World War, and the development of penicillin in the Second. It is thus wrong to simply assume that the dissemination of technology is a steady, even-paced process. It is distinctly shaped by government priorities: choices as to why certain products matter: railroads, steamships, aircraft, vaccines, and so on.

What is true for technical development also applies to financial innovation. Thinking about new approaches, new financial instruments or forms of organization, often develops slowly over long periods of time; but then suddenly price signals indicate the possibility of extraordinary profits, and the necessity of new thinking and radical innovation.

The problem might be considered more generally. Globalization and Modern Economic Growth constituted a nexus, with limits to global interchange regularly slowing down and hindering development. Growth came with a promise of abundance. The beginning of Henry James's late masterpiece *The Golden Bowl* evokes the history of empire and its material products, placing the United States in a continuity with the imperial power projection of nineteenth-century Britain and ancient Rome. A Roman prince is introduced to us, shopping in London: "The Prince had always liked his London, when it had come to him; he was one of the modern Romans who find by the Thames a more convincing image of the truth of the ancient state than any they have left by the Tiber. Brought up on the legend of the City to which the world paid tribute, he recognised in the present London much more than in contemporary Rome the real dimensions of such a case." James's prince stopped now and then "before a window in which objects massive and lumpish, in silver and gold, in the

forms to which precious stones contribute, or in leather, steel, brass, applied to a hundred uses and abuses, were as tumbled together as if, in the insolence of the Empire, they had been the loot of far-off victories.” But the violence of connectedness is not just about carrying products over distances. People are producing, becoming more productive in globalization. Jeff Bezos told his shareholders in his final letter as Amazon’s CEO: “If you want to be successful in business (in life, actually), you have to create more than you consume. Your goal should be to create value for everyone you interact with. Any business that doesn’t create value for those it touches, even if it appears successful on the surface, isn’t long for this world. It’s on the way out.”<sup>12</sup> If everyone would create more than they consume, there would be permanent surpluses.

Human interactions also awaken needs and desires that globalization promises to fulfill, thus ending the cycle of scarcity. That is the promise that Henry James’s fittingly named Prince Amerigo is meditating. If everyone wants to satisfy their needs or desires, there are shortages: and shortages prompt a new push for more globalization to supply the unmet needs.

### Ideas about Connections

One of the most persistent debates in the analysis of globalization is the extent to which it is shaped by ideas. In a simple version, many people assume that the mid-nineteenth-century surge of globalization was driven by powerful, rhetorically gifted men who took the message of the great original thinkers Adam Smith and David Ricardo on comparative advantage and popularized and familiarized it. This was, after all, still the age of Napoleon, in which a “Great Man” theory of history, propagated by prophets such as Thomas Carlyle, flourished. Richard Cobden and John Bright’s Anti-Corn Law League looked like the model for a political mobilization behind a distinct economic model—free trade and laissez faire. In the late twentieth century, Milton Friedman and Friedrich Hayek were supposed to be the drivers of a new neoliberal globalization. However, economists are generally quite skeptical of these claims for the intellectual influence of economists and prefer interest-driven explanations.<sup>13</sup> Historians also push back against the Great Men theories: they

point out that the reforming nineteenth-century British prime minister Robert Peel was operating in a predemocratic system, but still needed to respond to quite straightforward economic interests and deal with a clash between landowners and agrarians who depended on the tariff to maintain their income, and employers and workers who saw the tariffs imposing costs.<sup>14</sup>

Reflections on the limits on intellectual influence led the economist George Stigler to complain, "Why, when the economist gives advice to his society, is he so often and so coolly ignored? He never ceases to preach free trade—although the sermons are getting less frequent—and protectionism is growing in the United States." And he went on to conjecture: "I believe, on the contrary, that if Cobden had spoken only Yiddish, and with a stammer, and Peel had been a narrow, stupid man, England would have moved toward free trade in grain as its agricultural classes declined and its manufacturing and commercial classes grew. . . . The repeal of the Corn Laws was the appropriate social response to a shift of political and economic power."<sup>15</sup> Indeed, Stigler went on to argue that the fact that economists are not so numerous, or so expensively equipped with research facilities, as cancer researchers indicated a quite correct social estimation of their usefulness: "I must also concede that if economists are being used efficiently, their impact on policy will be small. Remember my estimate that our research bill in economics is perhaps one-quarter of a billion dollars, and considerable parts of this are spent in support of economists with conflicting views. Those who believe that economists are more important than this meagre standard by an order of magnitude, must believe that society is seriously underinvesting in economics."<sup>16</sup> Stigler wrote that in 1976: at a moment when economists had become more influential in giving policy advice because of the Keynesian revolution, but before the popularization of financial services and the increase in financialization drove large numbers of private-sector firms to employ economists (and economists consequently became better remunerated).

A good way of thinking about the dynamic of influence is to contemplate when and how long-term trends arise and how they may be interrupted. There may be great historic movements: Modern Economic Growth, or the related phenomenon of a centuries-long ("suprasecular") downward tendency of real interest rates ( $r$ ) to fall.<sup>17</sup> These megatrends suggest obvi-



ous “laws” that can be formulated in terms of just two variables: in this case the upward movement of growth and the downward movement of interest rates. Globalization pushes up growth rates ( $g$ ), while at the same time political modernization, institutional reforms, and the growth of representative governments with property-owning legislatures make for a greater stock of safe assets, and consequently a lower rate of return ( $r$ ). The English financial revolution of the late seventeenth century created a model that could be imitated, and lower secure rates then also reduced the costs of other types of capital, though that might be subject to quite varying risk premia.<sup>18</sup>

Influential theories of stagnation or capitalist catastrophe, from Karl Marx to John Maynard Keynes, included arguments about the falling marginal return on capital as more capital accumulated. Keynes described a decline in the marginal efficiency of capital. And Marx had picked up this thinking from an even older and more influential tradition, Adam Smith’s and David Ricardo’s reflections on the stationary state.

The nature of the long-run dynamic is rightly a key element of any assessment of future prospects, but it has always been elusive and problematical. Marx famously failed to elucidate his law of the falling rate of profit, in his words “the most important law from a historical standpoint,” and “a law which, despite its simplicity, has never before been grasped and, even less, consciously articulated.”<sup>19</sup> Marx started to rethink the question of falling profits, and in 1868 wrote to Engels: “If we consider the enormous development of the productive forces of social labor in the last thirty years alone as compared with all previous periods . . . then the difficulty which has hitherto troubled the economist, namely to explain the falling rate of profit, gives place to its opposite, namely to explain why this fall is not greater and more rapid.”<sup>20</sup> Shocks suddenly arise and force a reevaluation of previous conclusions about the long term. Would-be interpreters of the big trends are thus always compelled to shift the focus of their attention.

One particular problem concerns what indicator we think we should measure as  $r$ : the inflation-adjusted (real) return on safe assets such as government bonds of strong industrial countries? The marginal cost of capital? Or average returns on capital that have already been sunk into investments? Analyzing the long-term trends of average return has led to

an influential formulation about the rate of return on capital, pointing to higher and higher levels of accumulation (“producing infinite accumulation”): that became the subject of a famous analysis by Thomas Piketty.<sup>21</sup> Piketty’s average rate is consistently higher than marginal rates, especially in eras of decline or stagnation: perhaps because in fact it is largely concerned with returns on land or real estate that might properly be thought of as the rents for scarce locations: the middle of Paris or New York or Silicon Valley or Shanghai.<sup>22</sup> The phenomenon was the major driver of inequality in the nineteenth century, and again at the end of the twentieth century: Piketty sees the rise of inequality proceeding at an even faster rate in the twenty-first century.<sup>23</sup> His version of  $r > g$  may simply be a reflection of a globalization that pushes up land values, especially in globally connected centers (and indeed, his measures of inequality fall during the deglobalization phase of the mid-twentieth century). Thus he insists that even technical progress, which might be thought of as the triumph of human ingenuity or human capital over the cold types of dead capital that constitute his definition (land, buildings, or financial capital), will drive a need for more buildings, agglomerations, patents that will drive up the returns on capital. In this view, humanity will not be rescued by the “caprices of technology.”<sup>24</sup>

It is worth thinking about these caprices of technology more closely. The long term does not always prevail. The relationship between interest rates and growth shifts radically in periods of crisis and uncertainty. The real return on capital becomes unstable in moments of very large price movements. Considering developments *sub specie aeternitatis* is a luxury of philosophers, but the large-scale vision of the major trends is not always helpful in telling individuals or entrepreneurs what technologies they should take up. Especially at moments of crisis, we are uncertain about the future, its meaning and direction. Bankruptcy is decided not by the long-run viability of an idea or business concept, but by an ability to meet immediate financial requirements, or by the way assets and liabilities in a balance sheet are interpreted. It is precisely at the moments of doubt and hesitation that individuals, governments, and markets are open to influence by persuaders: powerful analysts, interpreters, and rhetoricians who can provide some light, and who claim to know the future. The responses then help to shape the way the future develops: at such a moment

there are multiple possibilities or trajectories. If we consider these in static terms, we will think of multiple equilibria. Keynes wrote of how “the uncontrollable and disobedient psychology of the business world” determined the marginal efficiency of capital.<sup>25</sup>

Over the past centuries, the course of globalization has thus been shaped by the way countries respond to crises, economic shocks that are often accompanied by the appearance of financial crisis. In these dramatic shocks, every expectation about normalcy, or about the smooth continuation of existing trends, is stood on its head. The most obvious historical break in the upward trajectory of every intensified globalization was the painful deflation of the interwar Great Depression, which intensified belligerent nationalism and zero-sum thinking. It is immediately tempting to see in many contemporary developments echoes of the 1930s. But it is not just the interwar slump that led to a rethinking of what globalization is about, whom it hurts, and whom it benefits.

### Demand and Supply

Not every crisis destroys or reverses globalization. On the contrary, some dramatic watershed events led to more rather than less globalization. In the 1970s, the oil shocks altered the policy paradigm. Initially more protectionism appeared as a response to big trade deficits in industrial countries, and as a remedy to exposure to global risk. The Cambridge Department of Applied Economics under Wynne Godley became a base for advocates of a siege economy. But instead of limiting trade, the policy community shifted to deregulation, disinflation, and more openness, with center-left governments leading the way: Jimmy Carter in the United States, James Callaghan in the UK, Helmut Schmidt in Germany.

Crisis and interruptions and shocks come in quite different forms. As a result, analysts who think that they are all alike, or are all variants of the same phenomenon, are likely to fall into a trap of false equivalences. Many historical accounts of crisis thus warn against the tendency of economists, like generals, mistakenly to fight the last war, with necessarily inappropriate instruments.<sup>26</sup>

To see how some crises stimulate further integration, it is helpful to go back to the beginning of the modern era of globalization. The surge of

interconnectedness in the nineteenth century started as a response to a shock: the harvest failures, famines, and then financial and business collapse of the mid-1840s. Europe then experienced a continental wave of revolution in 1848. Marx had given a powerful analysis of how global integration was driving the world and producing vulnerability and exposure. But the economic shock of the 1840s did not reverse the course of integration. Instead prices rose, trade expanded, governments reduced tariff barriers, capital surged, and people moved across continents in response to the experience of misery but also to the promise of new prosperity.

Why do some shocks foster globalization, while others seem to reverse globalization? Some people will describe the trajectory in terms of intellectual fashions—the victory of the free-trade economics of David Ricardo and John Stuart Mill in the mid-nineteenth century, or of the so-called neoliberalism of Milton Friedman and Friedrich Hayek in the 1970s. But the question about the influence of theoreticians only leads to another question: why policy is open to particular influences at certain moments.

The more plausible explanation for thinking about the aftereffects of traumas lies in the character of the shock. Not all crises are the same. In particular, we should distinguish between supply and demand shocks. Economists analyze the influences on key indicators—output and prices—by differentiating between influences that affect aggregate supply and factors that shape demand.

A supply shock changes the ability of producers to make goods that add to overall output, and directly affects prices or quantity inputs or production technology. A negative shock reduces inputs and increases prices. A positive shock increases inputs and lowers prices. The supply shocks thus move the equilibrium price level and equilibrium output in opposite directions.

By contrast, a demand shock affects spending by buyers, whether individuals, businesses, or governments. It might be expected to affect output and production: a positive shock leads to more economic activity, a negative one diminishes activity. But in this case, equilibrium prices and output move in the same direction: up when the demand shock is positive, down when it is negative. Financial crises, when they emerge out of a malfunctioning or ill-constructed or badly regulated financial system,

are simply negative demand shocks, destroying the ability of individuals and businesses to buy products, and pushing down both prices and production. The course of globalization was interrupted by two serious, very negative, demand crises, in each case brought about and amplified by financial turbulence: the Great Depression of 1929 to 1933, and the Great Recession after the 2007–2008 financial crisis.

Conversely, moments of radical innovation in financial services produce a sugar or adrenaline rush: prices and production move up. Sometimes financial crises may also result from negative and positive supply shocks, both of which generate excitement on the part of innovative entrepreneurs (and frequently also fraudsters—and it is difficult to tell the difference except after the event). Then the picture gets blurred as elements of both the supply shock and the demand shock are present, and our ability to draw simple lessons from price movements and behavior is reduced.

Negative supply shocks may just be temporary, in which case we may expect a short surge in inflation, then a deflationary interlude, and a relative return to normalcy or the preshock pattern of price behavior. They may be persistent, with expectations that the price of the scarce good will be permanently high: modeling of that scenario suggests that the long-term effect, after an initial spike, on underlying or core inflation would be a small augmentation. Finally, the shock may be the beginning of a long-term continued upward movement in the price of the scarce good, and in this case the modeling would suggest that the core rates of inflation continue to rise.<sup>27</sup> All modeling efforts of this sort assume that there is a clearly discernible pattern: however, the big historical shocks that shifted the course of globalization were quite different. They were not normal or predictable events. They brought substantial dislocations. Their outcomes were uncertain. They caused profound political trauma.

In these circumstances, the responses by intelligent people trying hard to see what the future might hold actually transformed the structure of production and distribution. The radical character of the shock spurred a search for alternatives: new products, but also new mechanisms to move goods. In the two major episodes covered in these pages, the 1840s and the 1970s, supply problems prompted a transportation revolution. It was not that the transformative technologies, the railroad and the container ship, were completely novel. The uncertainty and the political disruption

pushed, or eliminated barriers to, a much wider implementation that would transform the supply problem by radically reducing transport costs.

The character of the shocks impacts the way they change attitudes about integration, or globalization. Modern globalization began in response to a very abrupt negative supply shock, in particular the response to the traditional problem of premodern economies, harvest failures and crop disease leading to mass hunger. Food prices, along with prices of other necessities, shot up, consumption fell back. The negative shocks also radically transform distribution networks: small intermediaries are eliminated, often with a substantial initial cost to general well-being. In many crises of this kind, it is the same sort of suppliers who are vulnerable: shopkeepers in the famines of the 1840s, or in the First World War, small shops and restaurants in the pandemic that erupted in 2020. They are often blamed for the problem, and at the same time their business model collapses and they fail.

The negative supply shocks of the mid-nineteenth century and then in the 1970s produced the most obvious globalization surges, as measured by the metric of the relationship between international trade and production (see Figure I.1). But the shock of the First World War also constituted a restriction of supply: there were food shortages in belligerent European states previously dependent on transatlantic shipping routes that were now restricted by economic warfare, but also a lack of rubber, of nitrates, of non-ferrous metals. That shock too pushed a brief restoration of world trade in the 1920s.

In the twentieth century, the Great Depression, which led to a deglobalization push, was primarily a demand shock. People interpreted the catastrophe as poverty in the midst of plenty: there was an oversupply of grain (and other commodities) that drove down prices. The policy answer was demand management. Governments needed to generate more demand and push up prices. The intellectual response was that capitalism and the market had failed. The curse of underconsumption might be remedied if governments could somehow engineer a rise in consumption.<sup>28</sup>

The case of the 1970s, when a new wave of globalization and innovation in international governance began, is more complex. It can be considered as a negative supply shock, but one which originated as a result of roaring global demand. Supply and demand shocks can be linked: in this case, a large positive demand shock in the 1960s, fueled in part by

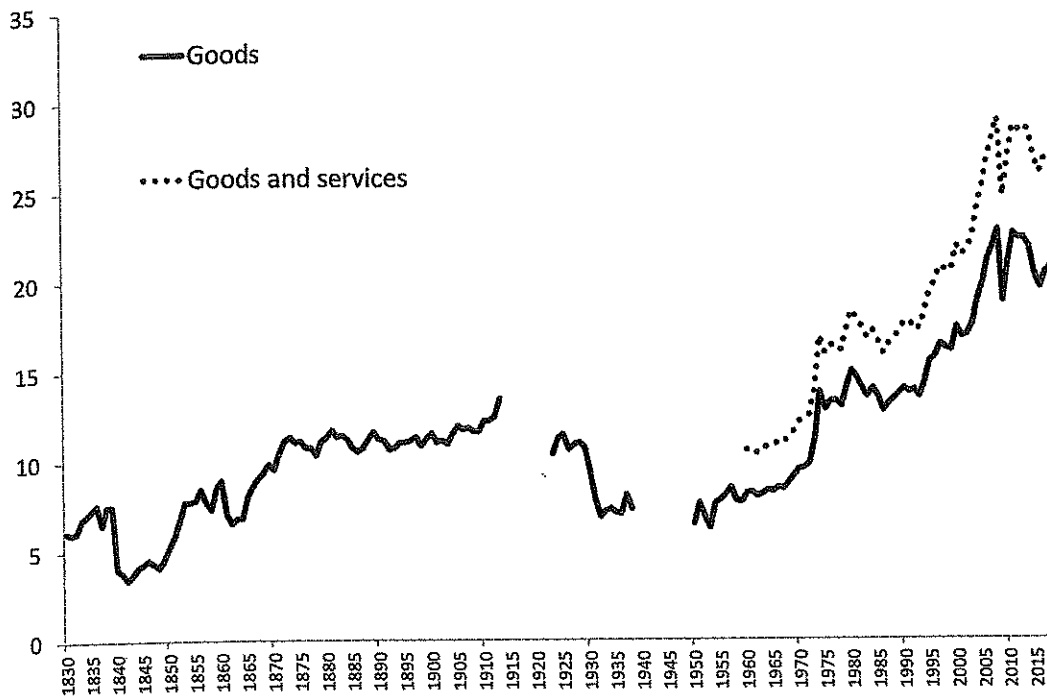


Figure I.1. Ratio of global exports to GDP (percent) (Source: Luis Catão and Maurice Obstfeld, Introduction to Catão and Obstfeld, eds., *Meeting Globalization's Challenges: Policies to Make Trade Work for All* [Princeton: Princeton University Press, 2019])

monetary measures in the United States, triggered shortages of commodities, and then action by commodity producers to restrict supply in order to raise prices through monopsonistic action. Some of the supply constraint came from old-fashioned causes, with bad weather reducing crop yields or inducing harvest failure. The most striking case of a control of supply, which then served as an attractive model for other commodity exporters to emulate, was the oil cartel OPEC. Large oil price hikes in 1973–1974, and then again after the overthrow of the shah and the 1979 Iranian Revolution, combined with supply restrictions to produce scarcities: the problems of the 1840s made a comeback. There were all-round shortages—of food, of oil—followed by competition for resources. At the time, it was sometimes thought that the supply constraints were once-only effects, that the harvest failure would not be repeated, and that the oil cartel (and other attempted producers' cartels) would weaken. But then governments in rich countries tried to postpone the needed adjustment to a new structure of relative prices by pushing expansion further, and in this way generated persisting rather than temporary inflation.

In today's post-2020 version of a supply shock, shortages of food but also of some key elements of supply chains (from glass vials for storing and delivering vaccines to laptops and computer chips) are returning. The problems posed by a collapsed Covid-19 economy are not a consequence of inadequate demand, but rather follow directly from governments across the world shutting down economies in order to protect their medical infrastructure from being overburdened.

In these modern negative supply shocks, the shortages are limited to particular sectors of the economy, in a range of intermediate goods needed for production. At the center of the First World War shortages were supplies of munitions, specifically shells, as well as food. In the 1970s it was petroleum, with a surge in demand for fuel-efficient cars and improved household heating systems. In the post-2020 scenario, first medical equipment, some pharmaceutical products and vaccines, then electronic components, notably chips (producing "chipagedon"). Shortages then have a way of escalating, as supply constraints induce more production problems, and interconnected networks are strained and disintegrate. The scarcities trigger competitions, bidding wars, between different countries for the scarce products. The discussion on how to adapt to scarcity quickly becomes a debate about how allocation is best managed: through experts or technocrats, or through popular and democratic mechanisms. A demand for more popular control emerges. In the First World War, discontent turned into a revolutionary wave that surged from Russia and eastern and central Europe westwards; in the 1970s it brought a crisis of ungovernability; today it drives a debate about government competence and the failure of technocrats. There are often short-lived controversies, about issues such as the supply of maize to Ireland in the 1840s famine, or the supply of steel for shells in the First World War, or petroleum in the 1970s, or vaccines and semiconductors today. The specific problems may well be solved, but the powerful sentiments that they evoke remain as a long-standing feature of the political imagination.

The persistence of anxieties and beliefs about shortages is a response to the overwhelming character of the shock. In the midst of despair, only wild, utopian solutions look as if they stand any chance of success.

Entrepreneurs are wrong-footed in the supply shocks. Financiers, who dream of new combinations for adjusting to the future, come into their



own. The uncertainty invites bold spirits to take bets; and in order to do that, they need to conjure up a narrative, a vision of future reality. They hype their products, ideas about a new ordering of world politics and economics, in order to convince. Very often, when that turns out not to correspond to subsequent developments, the visions look not just false but fraudulent. The heroes then turn into fragile humans whose bluff has been called. The following pages pay attention to these apparently magic figures, who end in disgrace and shame: Bethel Henry Strousberg in the middle of the nineteenth century, Ivar Kreuger in the twentieth, and Lex Greensill in the twenty-first.

In supply shocks, governments face the same problem as entrepreneurs: the need to project a vision without knowing what will be the reality of the future. The consequence is that the competence of governments is also frequently questioned. The 1840s and the 1970s led to major crises of legitimacy. In the 1840s, autocratic reactionary governments were blamed. In the 1970s, there was a widespread notion that democracy had failed or (according to a celebrated book by Jean-François Revel) was dying, that industrial societies had become ungovernable, and that autocracies would soon have the upper hand.<sup>29</sup> All that doubt about democracy has returned since 2020—because of another negative supply shock, which the Chinese government initially appeared to handle more effectively than its western competitors.

For some observers of the Covid-19 pandemic, it is populist governments (or “illiberal democracies”)—those led by Donald Trump, Boris Johnson, Vladimir Putin, Jair Bolsonaro, Narendra Modi, Rodrigo Duterte—that have profoundly mismanaged the crisis. They took a populist stance on the benefits of lockdowns as an immediate containment measure, and rejected expert or “technocratic” advice. Even in rich countries where the crisis looks as if it has been well handled—in Germany or Japan—there is a surge of protest. Before the storming of the U.S. Capitol on January 6, 2021, the German Reichstag had been attacked, in August 2020. Large numbers of people are desperately looking for new leadership and new visions.

As political leaders are looking for ways out, money offers an easy path. Inflation is an obvious immediate answer to supply shocks. More money in more pockets generates the impression that resources are available to

deal with scarcity. In the bidding wars, more resources might follow from more money. That result is of course in part an illusion, as the outcome drives up prices. There are also sequencing effects, with the first winners being able to establish a hold on a particular resource. Those gains then evoke new demands, and new allocations. Initial policy actions may lead to an inflationary spiral, especially if there are powerful groups that demand that governments provide yet more relief. The twentieth-century adaptation to negative supply shocks was thus much more inflationary than the nineteenth-century response. After the 1840s, there was both an expansion of metallic money (after the California Gold Rush of 1849 and the Australian equivalent in 1851) and a growth in bank money as many new credit institutions were created. The First World War was also a supply shock, as governments shut down civilian manufactures in order to concentrate on military production. Widespread inflation was the result. The 1970s, after the supply shock, was the decade of the Great Inflation. Inflation made it apparently easier to respond to the supply shock, and greased the wheels for investment and innovation.

Such inflations superficially stabilize societies, but also increasingly appear as a threat in themselves. They push interest groups to mobilize and organize more, and to lobby in the hope of getting a greater share of monetary and fiscal resources. The extent of that mobilization threatens to pull society apart, and the end result is to destabilize rather than stabilize. Indeed, it might be argued that it was the beginning of an international inflation in the 1960s that pushed the oil producers to organize themselves so effectively. Higher levels of inflation thus eventually generate a pushback against the inflationary consensus. The monetary experiments and the globalization they promoted as a consequence may generate a new ordering framework. After the growth surge of the 1850s and the 1860s, the world turned to internationalize the gold standard as adopted in Britain. After the inflation and liberalization of the 1970s, policy-makers groped for a new solution to monetary disorder and found it domestically in inflation targeting and internationally in a new pattern of institutionalized cooperation, through bodies such as the G-5, then the G-7, the G-20, and so on. The experience of crisis molds the course of globalization for a long time, dictating its fundamental rules and processes.

There is a pattern to the systematic response of a globally connected world: a greater challenge to existing authority, more currency instability, more inflation—but also more globalization. The response will eventually require a complete rethinking of global rules. States face tasks that are increasingly complex and multifaceted, and their bureaucratic capacity is strained. How do economic shocks affect the mental map, the imagination of how the world works? How do expectations and then behaviors change?

### Prospects

The following pages examine seven critical moments, but also look at the way they were imagined and interpreted by figures who shaped the response and behavior of subsequent generations. The negative supply shock of the 1840s generated the material for Karl Marx to develop a theory of how capitalism would collapse. Then there was the positive supply shock of the 1870s, following from the transformation of transportation through the steamship and railroad bringing lower grain prices. The crisis theories of a generation earlier were succeeded by a new vision, the acceptance of the views of a trio of subsequently influential writers in Britain and the French- and the German-speaking world. William Stanley Jevons in Manchester and London, Léon Walras in Lausanne, and Carl Menger in Austria, simultaneously but quite independently of each other, developed a new theory of value and an individualistic approach to economic decision-making. None of these nineteenth-century figures made policy or directly influenced decisions—both the theorist of collapse and the exponents of the marginal revolution were marginal men. But they shaped the imagination of the future.

The twentieth- and twenty-first-century figures examined in this book by contrast were all academic economists, but they also played a significant part in public life, and many of them were also policy-makers. Karl Helfferich was a prominent German economist who produced the major textbook on money (translated into English and several other languages) defending the gold standard against what he regarded as crankish critics, and then became a politically well-connected banker. In the First World War, he became Secretary of the Treasury (that is, finance minister), and

planned a system of war financing that he believed followed from his monetary theory. He would avoid costs to Germans by—as he put it in a memorable phrase—hanging the lead weight of the billions around the necks of the defeated powers. After the lost war, he misunderstood completely the character of the gathering German inflation and hyperinflation, engaged in savage polemics against the leading politicians of the early Weimar Republic, and contributed a stabilization plan that aimed at ending inflation. He never understood the extent to which the First World War was a supply shock. His name is synonymous with what is now called “fiscal dominance.”

John Maynard Keynes became famous as a critic of reparations after the First World War, then as a critic of orthodox fiscal and monetary policy during the great demand shock of the Great Depression, and finally played a major role in rebuilding a viable international economic order after the Second World War. A crucial and foundational role in his thinking was played by the experience of the First World War, which he also applied to the Second: his internationalism in the 1940s looks like a dramatic contrast with his stance in the 1930s but is in fact consistent; he thought demand management in wartime was essential in order to avoid the inflationary collapses that plagued and poisoned Central Europe.

The 1970s constituted a major supply shock, in which dependence on petroleum was briefly used by a cartel of oil producers to attempt to remake the world, and other commodity producers attempted to imitate the Middle Eastern producers. Eventually the world moved to greater global integration in order to secure more and more robust sources of supply. One way of absorbing the supply shock was to accommodate greater inflation, but it soon became apparent that high levels of inflation undermined the social coherence of the major industrial countries and set one organized group against another. The answers generated by Milton Friedman and Friedrich Hayek to that inflation as well as to the wider social malaise set an agenda for a new wave of globalization.

The 2007–2008 Global Financial Crisis generated a negative demand shock comparable only to the Great Depression in the major economies of the North Atlantic, while largely sparing the powerful new emerging market economies. The answers generated by central banks, and notably the Federal Reserve under Ben Bernanke, were remarkably successful in

avoiding a general collapse, or a repetition of the Great Depression. But they also created an apparently impossible exit problem: how could the policy measures be unwound? Each attempt at unwinding produced new shocks, such as the “taper tantrum” of 2013, when the Federal Reserve debated reducing its security purchasing program and interest rates began to rise. Consequently the policy community became hooked on what had been intended as a short-term remedy.

The Covid-19 crisis has aspects comparable to previous negative supply shocks. Lockdowns and travel bans interrupted supply chains. Going into the crisis, there was an intellectually dominant interpretation, associated above all with Larry Summers, of the future as lying in a great stagnation with low growth and increased income inequality, as a long-term negative demand shock. Theories of secular stagnation, with sustained low productivity growth and shortfalls in demand, conjured up the world of the 1930s and the Great Depression. This was importantly a misdiagnosis of the Great Depression: as well as a demand crisis, the middle years of the twentieth century brought a technology-driven transformative shift that would reconfigure supply and production.

The mindset that then confronted the worst (or at least the sharpest) economic crisis for hundreds of years in 2020 looked to a repetition of the demand shocks of the interwar period. Faced with the expectation that interest rates would remain at low levels for a very long period of time, big fiscal stimuli packages looked like a free lunch. But then a new problem emerged, and Summers was one of the first to grasp the extent of the new danger. There was not really a replication of a demand shortfall—just a temporary abstention from demand during lockdowns. The pandemic and above all the lockdowns imposed by governments produced quite quickly some of the classic signs of a supply shock: commodity prices rose, as supply chains were interrupted and scarcities appeared. Commentators (as in the 1970s) believed they could identify a new cycle of rising prices.

In the circumstances of the supply shock, space opened up for a new economic interpretation, one that focused less on thinking about aggregates than on the micro-adjustments being made on a very local and particular basis. The large-picture view looked out of date, a relic of twentieth-century economics. The most innovative approach to

economics then looked instead on how unparalleled amounts of data and previously unavailable computing power could be made to speak and produce an interpretation or a vision of the future. Economists such as Harvard's Raj Chetty began to push a broader methodological shift in economics.

Letting data speak always seemed like a dream—that had been part of the vision already in the nineteenth century of Marx as well as William Newmarch or Stanley Jevons. In the past, however, analysts always used their prior assumptions and beliefs to impose some order on their data. Now big data and artificial intelligence (AI) combined to conjure the possibility of creating simultaneous multiplicities of competing narratives.

The various shocks have long-lasting effects, with responses that were conditioned by one particular set of circumstances continuing to affect policy responses even when the original circumstances have completely changed. Additionally, when people experience a particular dramatic moment of uncertainty, they look to the past for guidance or lessons. So we also reinterpret past moments in the light of present exigencies. Art historians have an analogy for this, when they consider not only the influence of Raphael on De Kooning, but also the influence of De Kooning on Raphael, or at least on the way that modern viewers will receive their impression of Raphael. The philosopher Arthur Danto consequently wrote of a “retrospective enrichment of the entities” of art history: in the same way, the experience of the 1970s or of 2020 changes our view of the 1840s.<sup>30</sup>

We might derive seven lessons of the seven crises:

1. The turning points of globalization in a world that is industrialized and interconnected do not resemble each other. Each moment of crisis challenges individuals, businesses, and governments in new and unprecedented ways, and leads to a redrawing of the mental map.
2. The lessons drawn from a previous crisis often stand in the way of generating effective solutions to a new problem.
3. Negative supply shocks make for an awareness of the importance of global supplies.
4. Negative supply shocks also lead to price rises; governments often respond by allowing an inflation which they hope will allow their citizens to think that they may obtain more resources.

5. Negative demand shocks push in the direction of national self-sufficiency or even autarky.
6. Negative demand shocks tend to be deflationary.
7. Inflation can be an attractive way of tackling (adjusting to) the immediate consequences of supply shocks, but it does not and cannot tackle the underlying problem of how to obtain reliable and secure resources, over large geographic distances.

The problems of globalization—coordination between very large numbers of independent agents—remain. Governments cannot run away from them. Voters in democracies, but also citizens in nondemocracies who will demand to exercise more voice, need to think about how the uncertainty can be turned into an opportunity rather than a threat.

## Conclusion: The Next Great Globalization

Supply shocks make and then remake globalization. They teach lessons. Negative shocks over the past 200 years revealed profound shortages—not of what we might possibly want, but of what we really need: food in the 1840s; food, fuel, and munitions in the great twentieth-century world wars; petroleum and energy in the 1970s; and then medical security in the age of Covid and military security in the age of Putin. It wasn't that such problems had not existed in the past: hunger and famine following from bad weather and harvest failures were regular occurrences in the premodern world. And wars were endemic. But by the nineteenth century, technologies and methods of communication existed that could be harnessed in providing solutions. In each case of meeting the supply shock, a large part of the task was a logistical one: how people in acute difficulties could be supplied with necessities. That raised challenges for every sort of organization: the way business was conducted (and financed), and the way governments delivered services. A radical rethink of communications and connections was required.

The dislocations immediately create apparently contradictory responses, in part because people, classes, and regions are affected so disparately, in part also because there is so much that is unknowable. The awareness or even a supposition of different chances and various outcomes leads to suspicion and loathing of the profiteers of shortages, wars, inflations, and pandemics. Unknowability can also generate the belief that a severe disruption must be temporary, that business as normal will resume soon,



that the war will be over by Christmas, that pandemics will fizzle quickly and be contained, like SARS or Ebola. On the other hand, the immensity of the challenge suggests that only the most fanciful of outcomes will bring relief: wonder weapons, armies of robot workers, applications of machine or artificial intelligence.

In the first instance, the response to the challenge of finding new supplies, a reaction to the signals generated by price increases, stimulated a further development of technology. Karl Marx, commenting on the disasters of the 1840s and their political aftermath, when Europe seemed to stabilize and new polities were created, saw this point very clearly. Large-scale technical changes, involving the replacement of fixed equipment by improved machinery, were "mainly enforced through catastrophes or crises."<sup>1</sup> That enforcement was almost always not a question of inventing completely new technologies, but of applying and developing existing methods. The steam engine and its applications to transport were well known by the 1840s, the container ship and the computer by the 1970s, or nanotechnology, mRNA vaccines, and artificial intelligence applications by 2020. Suddenly, however, these techniques became much more relevant, and their transformative potential could be realized. The crisis generates a new thinking about how the world and human technologies fit together; and some older ways of thinking (for instance about monetary stability and how it may be readily achieved) look obsolete. But the vision of the new is often painful.

Shortages produce higher prices; they do not intrinsically generate inflation. But governments, faced by shortages, initially see inflation as a way of absorbing the shock of the new, of helping to protect momentary losers in the process of change, or even of promoting more production and productivity in order to overcome supply bottlenecks. The assumptions that the policy response is based on can lead to the compensation mechanism becoming deeply entrenched and producing high inflation, as in the 1970s, or even hyperinflation, as in the aftermath of the First World War. A general boost to prices helps to paper over cracks and reduce the immediate possibility of financial distress. Later the insight sets in that a structural break requires an adjustment of relative prices; and perhaps that too is easier when all prices rise.

The crises that shocked globalization were in practice always major learning opportunities, though the chances were not always realized. The changes should be seen as jolts to complacency. Recall Schumpeter's question, "How do things become different?" and the answer: "when something fundamentally new occurs in the world we are confronted by an enigma."<sup>22</sup> The learning, however, is not just about particular techniques, but about ways of going about business and government. Other countries and cultures often provided a model. The 1851 Great Exhibition taught even self-assured Britons that they might profit from ideas and methods of the apparently cruder or more "backward" United States or Germany. The 1970s brought home to self-satisfied American automobile producers that their cars were not as efficient as ones made in Japan, a country that in the 1960s had been ridiculed as making knock-off products that were crude, colorful, and cheap. And the 2020s? The Covid crisis exposed deep fissures and tensions in many societies. There were questions about who suffered and how burdens were distributed. Generating an effective vaccine response required tackling profound inequalities and differences of outlook, which were directly reflected in differing rates of vaccine uptake. The challenge highlighted the attractions for the United States of previously derided European social security systems. But it also shed a new light on the potential offered by use of personalized data on smartphones in China to combat public health crises.

Learning is often associated with mistakes, humiliations, and defeats. Germany and Japan were twice remade as a result of a perception of military inadequacy: in the nineteenth century, after Napoleon's victories and the appearance of Commodore Matthew C. Perry's black ships in Tokyo harbor, and then again after 1945. Russia's major nineteenth-century reforms, starting with the abolition of serfdom, were triggered by defeat in the Crimean War. After another defeat in the war with Japan (1904–1905), a new wave of reforms started. Will the humiliation of Russia in its brutal and mismanaged attack on Ukraine in 2022 launch a similar reform process? Military defeat shows up the importance of thorough reform and intelligent emulation, in order to catch up with and surpass strategic rivals. Conversely, it is often argued that British inflexibility and the inability to achieve effective constitutional reform were a consequence of

not losing wars.<sup>3</sup> The mechanism of how defeat prompts learning may not just be a psychological one: the economist Mancur Olson argued that the post-Second World War German and Japanese miracles were a result of the destruction after defeat of inefficient institutions that had advanced particular sectional interests and stood in the way of a pursuit of an overarching national good.<sup>4</sup>

Learning is not always popular, especially when it involves assuming or appropriating solutions from other cultures. An influential analysis of the malaise of the post-1989, post-Soviet world suggests that Central Europeans and Russians felt that an “age of imitation” devalued their own emotional and historical experience. Stephen Holmes and Ivan Krastev developed a model of how imitation poisons the political culture.<sup>5</sup>

The Covid shock gave a lesson of a different and specific sort across the world. The world’s two largest economies were hit. The internal growth model of the mid-twentieth-century United States and China’s Great Leap Forward looked less attractive to other countries that necessarily depended on complex supply chains. China had the opposite lesson, which it had already begun to learn in the Global Financial Crisis: it could not rely on being a dynamic exporter driven by export-led growth, and Xi Jinping had already moved earlier with the Belt and Road Initiative to political control of trade and economic linkages. European countries were taught harsh lessons about the difficulties of coordinating vaccine supply and public-health provision. Emerging markets, and even more the world’s poorest countries, saw how the lack of fiscal space constrained the ability to give an effective crisis response.

Economists often respond to demand shocks by thinking in large aggregates: the titanic figure, who set the model for the economist as doctor or healer, was John Maynard Keynes. Larry Summers is his modern equivalent. But supply shocks work differently, and economists responding to supply uncertainties are a rather different breed. Like Jevons, Walras, Menger, or Hayek in the late twentieth century, but also Chetty today, they are concerned with minutiae, disaggregating information, and decentralizing policy responses. Prices are needed to provide individuals—consumers but also entrepreneurs—with information on how to respond to shortages: the unavailability of grain in the 1840s, or of carbon energy in the 1970s, or of computer chips today. Sometimes, as in the First World

War, political authorities tried to respond to market prices by simply suppressing them, but that made the information they contain useless as a guide to future action. The environment of shortages is an uncomfortable one for economists who think in terms of aggregates, as those aggregates are incapable of telling anyone how scarce resources can be distributed. Boosting overall demand just makes distributive conflicts more intense. To take an obvious example from the pandemic: monetary and fiscal stimulus have no capability to increase the supply of vaccines, or of the technologies required to develop and deliver them.

Precise counting (nano-economics) is thus required in order to release creativity: to unleash the productive capacities that will overcome the supply challenges. Globalization thus becomes a story of crashes, calculating, and creation.

The crises were also about reimagining politics and political order. It would be a mistake to think of the new political figures as simple “globalists.” The reaction to the crisis in the first place was cast as strengthening the nation, but it succeeded in introducing globalization as it were through the back door. In the aftermath of the 1840s crises, Emperor Napoleon III, German chancellor Otto von Bismarck, as well as Bismarck’s Japanese equivalents, the statesmen Ōkubo Toshimichi and Itō Hirobumi, remade politics, with a new insistence on the way in which the state could guide—but not control—the forces that made for economic development. They all developed a strong sense of the way in which national identity—in Japanese, *kokutai*—laid the basis for a successful practice of government. Napoleon III thought in terms of his uncle’s *gloire*, Bismarck of Germany’s self-assertion as a great power. The First World War produced a new style of government interventionism, best described as war socialism, in order to make a complete patriotic mobilization.

In response to the malaise of the 1970s, Ronald Reagan and Margaret Thatcher remade politics too. They were not really globalists either, rather aiming at national strengthening, but they also saw the importance of latching onto global opportunities. The driving idea was to focus on what governments could do effectively, and to slough off inessential tasks that made government less effective (because too interventionist). They wanted strong governments, and thought that previous governments had been weak because they tried to do too much in too many areas of life.

They also thought that foreign-policy assertiveness, in the Cold War or over the Falkland Islands, was a convenient and demonstrative way of signaling competence and resolve.

All these attempts at remodeling government were inevitably flawed, and they needed to be undone by successor governments. The remodelers were inherently quite autocratic, and many people quickly tired of the autocracy or the authoritarianism. In the nineteenth-century case, there were repeated assassination attempts against Napoleon, Bismarck, and Prince Itō. Their politics soon looked outdated. That was true also of the aftermath of the First World War, when many people tried to find a way back to "normalcy." Also after the Reagan and Thatcher revolutions, many political figures began to look for a lighter and less heavy-handed, but perhaps even more globalized, version of the same approach: Clintonism and Tony Blair's New Labour were versions of this modified and democratized approach, and were subsequently derided as "neoliberal" in a new wave of backlash.

There are circumstances in which, perhaps uniquely, in a big and technically well-developed country, state efforts at coordinating research and productivity produce a surge of productivity growth. Such was in particular the case in the unique circumstances of the mid-twentieth-century United States, whose productivity development followed an inverse U to the shape of globalization: American productivity surged as globalization waned, producing circumstances in which, from the 1950s, globalization could be seen simply as imitating the United States. But that set-up is not a usual rule, and it followed from the peculiar circumstances of the world's interwar deglobalization.

Crises push more, and more technically transformed, globalization not simply because of a need for commodities or goods that are complex and produced a long way off. Given the urgency of the supply question, that challenge might be answered by an attempt—at least in big, technically sophisticated countries—to make production more autarkic. The deeper attraction of the globalization process lies in the offering of large numbers of different experimental fields: how can particular challenges be mastered? Borrowing or appropriation of technologies and management approaches helps to ensure that knowledge is tweaked and used in new ways: and then there is more borrowing.

The capacities of technology to transform will push up productivity and raise growth ( $g$ ). That should make public expenditure more affordable—but only when it is directed efficiently and effectively. The transformation directly raises the question of whether governments can deliver services competently: there is a need for a revolution in government.

Entrepreneurs are also attempting to institute new methods of control, using or devising new forms of property, using legal forms often derived from foreign templates: the joint stock corporation in the mid-nineteenth century that made possible the realization of the railroad and the steamship revolution; or the offshore financial corporation in the 1970s. Political power will be a critical issue in reshaping views of property at the same time as entrepreneurs try to use extended notions of property and control in an effort of transformation. Is there today a “need” to break holds on intellectual property? Is an assertion of authority—a new authoritarianism and compulsion—required? We can see that issue in Xi Jinping’s rediscovery of Mao Zedong’s 1950s advocacy of “common prosperity,” the Chinese state’s bid to rein in Jack Ma, or Vladimir Putin’s pledge that “the Russian people will always be able to distinguish true patriots from scum and traitors [i.e., westernized oligarchs] and simply spit them out like a gnat that accidentally flew into their mouths.”<sup>6</sup> But it is the same dynamic that drove governments to try to control the excesses of a Jay Cooke or a Bethel Strousberg.

Past campaigns and historical sensitivities find continual echoes in the present. For instance, the Chinese government campaign against the tech giants criticizes an entertainment culture that destroys physical and psychological well-being. Young people are addicted to gaming, which produces an intellectual blunting as well as a physical myopia. Tencent is peddling “spiritual opium.”<sup>7</sup> The government’s mobilization explicitly evokes the destruction of China’s social and political order in the nineteenth century by imported opium in the century of humiliation. History can be used here, as it is in Putin’s Russia, to spread distrust and to create the impression that the past—and the future—is inexorably and inevitably a story of conflict between nations, in which a gain for one necessarily comes at the expense of losses for the other.

Such claims may be tested by analysis and data. Welfare criteria may thus provide a test of how government control is exercised, by whom, and

for whose good. The general good is also at the heart of the discussion of whether patent protection restricted the capacity of countries all over the world to raise their production of Covid vaccine. The counterargument was that producing the vaccine did not just depend on the right formula, which could be easily copied, but on a much more extensive set of practices and interactions. There may, for instance, be an excessive protection of intellectual property, in particular as a consequence of U.S. legal development since the last years of the twentieth century, which interpreted computer programs as patentable products rather than generally true algorithms.<sup>8</sup> Thinking about reform, or a better dissemination of ideas, immediately raises the issue of how to learn. Learning is the major outcome of the crises of globalization, and we need to think of ways in which we can learn more effectively.

The major social and economic issues that were put at the forefront in the latest challenge, the 2020 Covid shock—the initial fear of further deflation and then the alarm at surging inflation—were not really immediately concerned with the globalization process. For decades, citizens in rich countries had worried about rising costs of education, health care, care for old people (a rapidly rising demographic), and housing. Each of these areas was put under great strain by the pandemic, with both short- and long-term consequences. Education was disrupted, with schools and universities closed because of the danger of contagion. Learning moved into a digital format, but some (more disadvantaged) students found access impossible or problematic. Inequalities of life circumstances were thus amplified. Health care was immediately overwhelmed by the levels of severe infection and mortality. There were also likely long-term consequences of the crisis-related neglect of other conditions, undertreatment of chronic conditions, and the absence of diagnosis of new morbidities. Old people in care homes were infected as patients were moved out of hospitals. The crisis shone a fiercely critical light on the management of old-age care and made many aging people reluctant to think of such homes as their future. Cramped and poor-quality housing facilitated the spread of disease. Large numbers of more prosperous people fled from inner cities and looked for more space in new locations where they might work remotely.

In these areas of crisis and challenge, technology offered possibilities of improvement or escape. In each case, the solution is not restricted by national frontiers. For education, there was wider access to electronically available high-quality instruction. For health care, there were telemedicine and the application of AI to assess public-health challenges. Education and health care, if delivered digitally, could come from the opposite side of the world. For the care of the elderly, there was more discussion about how IT (and robots) might be used to help more people stay in their own homes. And for housing, new prospects opened up for digital nomads, who could work remotely from across the world. Technology, and globalization, in combination gave powerful answers, as they had in past crises. The lesson then was as simple as it is now: globalization improved lives.

The combination of technical and geographic change always required competence, and that demanded adaptation and learning: looking to a future, by learning from a dismal past. In the gloom of 1919, Keynes had feared that “[a]ll this makes it increasingly probable that things will have to get worse before they can get better.”<sup>9</sup> But we learn most when the present is most dismal.



1945	1966	1987	1998	1879	1880	1881	1792
1917	1930	1929	1907	1872	1840	1880	1791
1914	1918	1973	1914	1789	1812	1815	1773

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