Economic Progress and its Discontents.

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Since at least the seventeenth century, Europeans have been committed to the concept of "progress." Until then, most thinkers had seen history as a process cycling up and down but with no clear direction or trend. As the book of Ecclesiastes famously had it: "The thing that hath been, it is that which shall be; and that which is done is that which shall be done: and there is nothing new under the sun." Marcus Aurelius in his *Meditations* echoes a similar sentiment "all things from eternity are of like forms and come round in a circle, and that it makes no difference whether a man shall see the same things during a hundred years or two hundred, or an infinite time."

Ancient civilization seems to provide very little evidence that its thinkers believed in progress. Ironically, Greek scientists and Roman engineers had a great deal of logical and mathematical ability, and an impressive understanding of materials. Their many achievements in mathematics, astronomy, and medicine are too well-known to need to be elaborated. But in terms of technological advances, the achievements of classical civilization were modest relative to their intellectual sophistication. This was in large part because their scientists and philosophers had

little interest in the practical needs of farmers, artisans and sailors. The Greek term *banausos*, associated with manual labor, was regarded as pejorative, and captured the enormous chasm between people who knew things and people who made things. Aristotle himself, in his *Politics* displays his contempt for people engaged in production and the manual crafts, and suggested that *banausic* arts and occupations are those that render the body, soul, or mind of a free man unfit for the exercise or practice of virtue — they are literally deforming. He suggested that in the best kind of state such people should be excluded from citizenship.

If there was anything that explains the miracle of modern economic growth it is that in medieval Europe slowly but certainly that gap between theorists and practitioners began to close, in part thanks to monasteries. Monks were the intellectuals of the time, but they believed that physical work was a virtue, and that innovation was a way of illustrating the wisdom of the creator. They were, as the great historian Lynn White put it, the first intellectuals in history to get dirt under their fingernails.

Still, as long as that gap was there, the likelihood of breakthroughs in industry, agriculture, or transportation was low. Perhaps for that reason, any serious belief in human progress in civilizations is hard to find. A belief in historical progress does not come naturally to us — most civilizations seem to have had very little hope that life would ever get better — at best they believed, as my Jewish forefathers did, that at the end of history there would be some cosmic and abrupt "coming" that would make everyone's life better. But rarely did they believe in a gradual, incremental,

cumulative process in which life would improve one small step at a time, year by year, generation after generation.

All this began to change more rapidly in the period that European Historians call "early modern," roughly book-ended between Columbus's voyages and the death of Isaac Newton in 1727. By the eighteenth century, most of the intellectuals known as *philosophes* in the Age of Enlightenment believed in progress in one form or another. This belief consisted of three different components: First, that progress was *possible* and that indeed it had occurred in the past and was still occurring. Second, that it was *desirable* — not quite the same thing — because it would improve the state of humanity and the quality of societies in which people lived. And third, in the age of Enlightenment intellectuals created a detailed *agenda* how to bring it about. Of course, not every *philosophe* was committed to these ideas in this exact form, but slowly it became the dominant theme in European thought.

A good representative is a highly influential French intellectual, now little known outside France, named Bernard LeBovier Fontenelle (1657-1757). In 1688, Fontenelle published a short essay titled *Digression sur les Anciens et les Modernes* in which he postulated that scientific progress, and the economic progress that will go with it, were not just *possible* but in fact *inevitable*. He asserted that in his age a truth (*justesse*) ruled that had been hitherto unknown, and predicted that in the future it would go much further, and that one day the current generation would themselves be *anciens* and it would be fair and reasonable for posterity to outdo them. His notion was built on the Baconian idea that the collaboration and cross-fertilization of people who knew things (*savants*) and people who made things (*fabricants*) was crucial to

progress, and that what they produced would be cumulative and thus progress was inevitable. His pamphlet was part of an intellectual movement that emerged in the seventeenth century and reached its zenith with late-Enlightenment writers such as Turgot and Condorcet. Fontenelle was no towering original intellect, but he was eloquent, well positioned, and influential. He became secretary of the *Académie des Sciences* in 1697 and held that position for more than four decades.

As we realize today, the problem with the Enlightenment program of improvement is that it was never made quite clear *what* will be improved, and *for whom*. Presumably, *economic* improvement may seem comparatively simple at first blush: who could object to a higher income, to reduce or even eliminate poverty, and discoveries that improved economic welfare? But a closer look shows the pitfalls of the program for economic improvement as well. Would we prefer a high *average* income, or one which is lower but more *equally distributed*? Would we want more public goods such as better roads and schools or more private goods such as SUV's? Who would look after those people who were harmed in some way by disruptive innovation? In economics we sometimes postulate a mythical figure, the "omniscient benevolent dictator" who maximizes social welfare by allocating resources optimally. In history we have no such illusions.

Of course, once we leave economics, it gets worse. In the early twentieth century some of the most progressive and highly educated thinkers in society committed to the kind of social engineering they thought they had learned from enlightenment thinkers, and adopted a pseudo-science they called eugenics. Inspired by the works of Darwin, Mendel, Spencer, and Galton, eugenics felt that social

improvement implied somehow better individuals and sought to breed superior humans through selective reproduction, encouraging those considered superior to procreate while sterilizing the "unfit". The United States led the early application of eugenicist ideas to policy, resulting in the passage of eugenic sterilization laws in thirty-two states. More than 60,000 individuals were forcibly sterilized as a result. Nazi Germany drove this misbegotten idea to even lower depths of depravity. The belief in progress can and did badly misfire.

But let me stick with what economists know and that is economic growth. The great progressive thinkers of the Enlightenment had no doubt of where growth was to come from: the growth of what they called *useful knowledge* — an understanding of natural phenomena and regularities that could be harnessed to increase material well-being. Although the precise and formal connections between technological progress and economic growth were only fully recognized by late-nineteenth and twentieth century economists, the intuition that innovations and higher productivity would improve the material condition of humanity seems obvious enough.

The Enlightenment program of material progress was a monumental success, beyond the wildest dreams of its propagators. Western Europe in the nineteenth century and beyond experienced what is now widely known as the *Great Enrichment*, during which every indicator of living standards rose by orders of magnitude, life expectancy ended up doubling, and every good and service consumed by humans, from red wine to dentistry to long-distance travel, became immeasurably better, cheaper, and more abundant. The sudden acceleration of economic growth and material welfare was triggered by what is now known as the *Industrial*

Enlightenment. Its effects were so dramatic and so abrupt that scholars have relied on metaphors capturing abrupt change such as "take-off" and more recently of a "hockeystick." Especially after 1850, when the full effects of "the invention of invention" started to be felt throughout the economies of the West, material life improved not just for the rich but for the great majority of working people.

What could go wrong? Economic growth driven by technological progress is disruptive and destructive. It throws out the old and augurs in the new, hence the Schumpeterian term "creative destruction." It has one further drawback: the full effects of a radically novel technology are by definition never wholly known in advance. Such is the nature of innovation: the full costs and benefits are by definition unknowable when the innovation first emerges. Hence there is always the Rumsfeldian dilemma of "unknown unknowns," that is, unanticipated consequences will eventually emerge that may call into question the benign achievements of innovation. These phenomena are sometimes known as "bite-back" effects, after a famous book published by Edward Tenner in 1997.

Examples are easy come by. The widespread use of *asbestos* as a miraculous building material in the first half of the twentieth century is striking. Its popularity was primarily due to its many desirable properties such as fire resistance, sound absorption, tensile strength, and low-cost. It was especially heavily used during the decades after WW II. Only in 1964 were the full health risks of asbestos recognized (by a crusading New York doctor named Irving Selikoff), and a whole generation had to repair the damages at an astronomically high cost. Another example is the introduction of *tetraethyl lead* (TEL), a neurotoxin, as a gasoline additive in the

1920s to improve engine performance. The substance caused widespread brain damage and behavioral problems, and no amount of lead absorption can be considered “safe”. For fifty years or so, many millions were exposed to the baneful effects of lead additives. Many other technological advances that were supposed to make life better, from the Haber-Bosch nitrogen fixing process that kept Germany in the War after 1914 to the advances that made sugar so widely available later turned out to have quite serious bite-back effects — in the case of sugar quite literally, as sugar-caused tooth decay became endemic.

Enlightenment optimism is now sorely tested by the worst and most unanticipated side-effect of technological progress, the “mother of all bite-back effects” —climate change. There is little debate among economic historians that the burning of fossil fuels was one of the central components of modern economic growth and the technological progress that drove it. While there is some disagreement on whether the use of hydrocarbons as a fuel was a *necessary* condition for economic growth or whether decent alternatives were available, the obvious fact remains that for most of the history between 1700 and 2000 carbon-based fuels were the chief source of energy behind the world economy — they were widely available, cheap, and the engines that drove their use in energy generation had been perfected, whether they were diesel, gas turbines, or 4-stroke gasoline engines. They were known to have other bite-back effects, such as air pollution, traffic and mining accidents, dependence on some states with disagreeable governments and so on.

Only in the past decades, however, have we come to realize fully the true threat of climate change, which is that carbon dioxide in the atmosphere serves as a

greenhouse gas. By now the threat is becoming a reality. The signs of global warming are everywhere. More than three decades ago, *the Economist* magazine asked rhetorically whether if the internal combustion engine had from the start been charged its full environmental cost, it would have been adopted at all. The same question could be asked about the steam engine. My Northwestern colleague Diego Känzig with his coauthor Adrien Bilal have recently argued that the economic costs of global warming are much higher than was previously thought. If their calculations are even remotely right, the magnitude of the threat to our living standards and the political ramifications implied are larger by an order of magnitude than what we have feared till now.

Is there a fix? Essentially two classes of solutions exist. One is political: a cooperative agreement like the 1987 Montreal protocol that banned certain refrigerants that threatened the earth's ozone layer is in principle feasible. In a decentralized and competitive world economy a high level of international trust and enforcement are needed to ensure that nobody cheats. After all, for each single actor — whether a nation or a firm — cheating makes sense if their impact on the environment is small but the expected profits from cheating are large. If everyone thinks that way, the agreement will unravel quickly. Such trust on a global level is exceedingly unlikely in today's conflict-ridden world. Free riding and opportunistic behavior are hard enough to control within a single country — on the international level it seems remote indeed.

For that reason, I submit to you that our *only* hope is *more*, not less ingenuity. In the past, we have been able in many cases to reduce the biteback effects with

technological solutions or "fixes." The effects of sugar on our teeth were met by water fluoridization, and leaded gasoline was replaced by unleaded fuel. Even obesity, driven in part by excessive sugar consumption, can now be reduced by new appetite-reducing drugs such as GLP-1. Human ingenuity is the best remedy for bite-back effects. To be sure, such remedies may themselves have bite-back effects, which may require further remedies and so on — such are the messy dynamics of technological change.

If you want a more specific example, here is one: A major product of the chemical industry is called PVC's, or polyvinyl chlorides, used in a wide range of consumer goods, from plumbing to shoes to shower curtains. The bite back effect here is that it is dangerous to manufacture, and employees involved in its production were at an elevated risk of cancer. The exposed employees of the main manufacturer, B.F. Goodrich, were shown to have developed elevated rates of cancer. Consequently OSHA capped exposure at 1 part per million (ppm) over an 8-hour workday; whereas average exposure at the time was close to 500 parts. As you might expect, a coalition of firms including B.F. Goodrich resisted strenuously and sued OSHA over the new standard limiting employee exposure to the stuff. Firms in the industry whined that the standard was "technologically and economically infeasible" and predicted job losses and market share losses to overseas competitors. But they lost. The U.S. Court of Appeals ruled for OSHA, holding that the agency "is not limited to issuing standards based solely on devices already fully developed," and recommending that the plaintiffs develop new technologies in order to comply. In short, the firms were told to "come up with a technological fix, or else." Within a year of the lawsuit, B.F. Goodrich miraculously developed a new PVC manufacturing process that met the standard.

After the firm patented its “vinyl chloride monomer stripping process” and licensed it to other PVC manufacturers, vinyl chloride-related cancers in the industry were virtually eliminated. The new process automated away some operational tasks, cut employee exposure, and, according to a B.F. Goodrich publication, increased the raw material efficiency of PVC manufacturing. In short, when the system is incentivized enough, there is a high likelihood that a technological fix can and will found.

What the planet needs, with rapidly growing urgency, is the mother of all technological fixes: a way of producing energy that dominates fossil fuels in every dimension: cheaper, cleaner, safer, easy to store and transport, and user-friendly. Solar- wind- and geothermal energy is increasingly replacing hydrocarbons and end up being cheaper and safer as an extra bonus. Moreover, in recent years, nuclear fusion finally looks more and more like a reality that is now above the horizon, if only slightly. If we at long last come up with that fix, we may have saved our planet and the bipeds that control it.

Oddly enough, much of the technological knowledge for such a fix (excepting nuclear fusion) already exists: wind power and water power are remarkably low-tech; solar power has experienced a spectacular decline in cost in the past decade. Nuclear power, as France has shown the world, can easily provide most of the electricity needed. Producing hydrogen from water through electrolysis has been known since 1800. Geothermal energy, too, is in principle a simple technology despite some hairy technical issues in drilling and engineering when applied to Enhanced Geothermal Systems.

Whatever is going to be the dominant technology that will arrest the planet's slide into climatic cataclysm, one thing is for sure: it won't be cheap. Much of the world's electric grids and the transportation fleet will have to be replaced. Rising sea levels will require costly dikes and protective berms. Major infrastructural investments will be inevitable, and someone will have to pay for them. If we do not carry these investments out, however, much of the economic progress since 1950 may become undone.

It is for that reason that I find the recent fashionable ideology of "de-growth" to be not only unreasonable but actually dangerous. A substantial number of influential authors are arguing that we don't need all this growth and progress. For instance, here are three books that are arguing this in one form or another: *Degrowth* (2018) by Giorgos Kallis; *Less is More: How Degrowth Will Save the World* (2021) by Jason Hickel; and *The Economics of Degrowth* (2025) by Timothee Parrique. This view, of course, is not new. Even during the Enlightenment itself, there were people who said, wait a minute, all this economic progress isn't good for anything. The most famous of these doomsters was Jean-Jacques Rousseau, but there were others like Johann Georg Hamann in Germany, less well-known than Rousseau but just as much a cantankerous whiner as well as a brilliant and original thinker — the latter is more than you can say about their modern counterparts. When you read these three de-growth books, and you make a list of what they are really saying, you might think "I've seen this before". E.J. Mishan's *The Cost of Economic Growth*, came out in 1967. Pulling out my somewhat dusty copy, I must say, compared to these other three authors, Mishan had almost all of it already sixty years ago, and he knew a lot more economics than they do.

To come up with the resources that pay for saving the planet, we need more, not less growth. To be sure, we need a different kind of growth. This takes me back to one of the fundamental questions in the literature of economic growth. One question is simply *how much* growth is taking place, measured by the annual increase in GDP per capita. Another is *what kind* of growth is occurring: is it mostly inexpensive mass produced goods that are accessible to all, or upscale luxury goods whose clientele are mostly wealthy? Do we want more guns or more butter? More SUV's or more solar panels? Clearly, in free market economies, in which consumer sovereignty rules alone, the system produces what people need, want and can afford. But in the modern world, policy is equally important.

There are times, however, that growth takes place driven by what is known as *focusing devices,* a concept due to the late economic historian Nathan Rosenberg. Technological progress may be steered into directions that reflect an acute concern or a bottleneck felt by the state or by a large segment of the population, and research efforts will be concentrated into solving what is regarded as an "urgent need" or even an emergency. The importance of such focusing devices in economic growth has to date not been fully recognized. Yet it is clear from the historical record that in many cases such a sense of urgency permeated both the authorities and society at large, and this created the kind of environment of concentrated efforts in which the problem could be solved. To be sure, nothing guarantees the success to such a concentrated effort. But if a solution was not too remote from the technical capabilities of society, such a concentration of mental and financial efforts would pay off and create remarkable breakthroughs.

A famous example from the past is the measurement of longitude at sea. As is well-known, mariners from Columbus on had a big problem: they could determine their latitude at sea, but had no way of measuring longitude accurately. As can be imagined, this often led to disastrous shipwrecks. The worst and most famous one of those was that of the hapless English admiral Cloudesley Shovell, who struck the reefs off the Scilly Islands near the Cornwall coast in 1707. The British lost four large ships and 1,500 sailors including the admiral. The shock stimulated the British to concentrate their efforts on solving the problem by establishing the Board of Longitude to promote a technique of determining longitude while at sea, offering a large financial incentive. Many dozens of scientists and artisans tried their hand at the challenge. In the end, the board paid a large sum to clockmaker John Harrison, whose clocks eventually helped solve the problem.

A comparable focusing device can be seen in Germany in the years before 1914, when the government and the army's general staff realized that their dependency on imported nitrates (from South America) made them vulnerable to a blockade by the British navy. Nitrates, after all, were the main input in fertilizer and explosives, and without a steady supply Germany would either lose the war or starve, whichever came first. German scientists focused on a technique that could "fix" nitrogen from the atmosphere, and the problem was solved in 1912 mostly by a chemist named Fritz Haber and then made industrially practical by a chemical firm, BASF led by an engineer named Carl Bosch. Whether they did Germany a favor by making it possible for Germans to keep fighting for four and a half years remains to be seen, but the nitrogen-fixing process made it possible for the world's farmers to feed today's 8.3 billion people instead of 1914's 1.8 billion, and feed them a lot better. A third case of

focusing devices being instrumental in promoting a major technological breakthrough was Project Manhattan that developed nuclear weapons during World War II. The story is too well-known to need recounting.

The point is that climate change ought to serve as a focusing device on a global level. Every nation on earth should harness its best scientists and engineers to deal with it, both by slowing down and possibly reversing its most dangerous effects and by coming up with ways to adapt to our changing environment at a faster pace than we have ever had to adapt to any environmental change. Yet the odd thing is that we may not actually do so. The reason is what behavioral economists call "salience." People respond well to events that are dramatic, visible and impressive, and very salient events tend to trigger a much stronger response than events with comparable consequences but which are less dramatic. A good example is the attack of 9/11, which was played and replayed scores of times on every TV screen in the US and much of the world. The event killed 3,000 people, which was horrendous, but about as many people were killed in traffic accidents in *one month* that year. Yet there was no policy response to these traffic deaths comparable to the far-reaching response to the attack on the world trade center. The difference between the two was the salience of the 9/11 attack (amplified by the wanton callousness behind it). But in terms of sheer human cost, traffic accidents and gun violence outpaced terrorist attacks by orders of magnitude. Yet the Bush administration became obsessed by the "war on terrorism" with the consequences we all know.

The problem with climate change is that it is not sufficiently salient. Its advance is relentless but insidious. Much like the proverbial frog in the slowly heated vessel,

the annual increments are almost imperceptible, and it's the cumulative consequences that are frightening. The latest data put the rise of global mean surface temperature since the late 1970s at about 0.18–0.20°C per decade. To some this means that it seems a threat that is too far-off to worry about. Moreover, because it is highly uneven both across space and across time, it is easy to dismiss it as a "hoax" or, more reasonably, something that is so far in the future that right now we have other, more urgent, priorities. As Boyle Roche, a famous Irish comedian, asked many years ago: "what has posterity ever done for us"? Another issue is that many developing countries feel that they are asked to make an effort to fix something that the rich industrialized countries caused by their irresponsible and improvident use of fossil fuels while enriching themselves. If they were to agree to costly compliance, wouldn't they be suckers on a global scale? True enough, but fairness should bow to urgent expediency, especially because many of the developing economies are much less resilient to climate change than the industrialized world.

Moreover, unlike the Covid epidemic, climate change can be demonstrated only with statistical tools and advanced scientific instruments and the full description of the dangers requires technically-informed expert opinion. The worrisome element is that public opinion has in recent years become more skeptical of the assessments and warnings of experts. Although the reputations of scientists still rank relatively highly among the various groups polled by Pew Research, trust in them has declined. It is therefore easier for opportunistic politicians to dismiss and belittle the dangers, by pointing to cold weather days or other irrelevant and misleading information as evidence to the contrary.

The odd thing is that in some ways people have actually become more concerned about climate change: polls show that the US public is increasingly persuaded that climate change is a major issue: Gallup polls shows that in 2026, 44% of Americans worried "a great deal" about climate change, up from 25% in 2011. Moreover, according to the Yale Program on Climate Change Communication, 72% believe that climate change "is happening" and the vast majority of those believe that human activities are to blame. And yet, it is clearly a low priority for voters, ranked way below cost of living, immigration, health care, and crime. It gets rarely even mentioned in election campaigns. It suffers from what political scientists call a "salience gap." There is even evidence that some Democratic strategists are engaging in "climate hushing" — downplaying climate in campaign messaging despite widespread concern because they believe cost-of-living issues have greater electoral impact.

The world thus finds itself in a deeply ironic dilemma: it seems as if it needs some kind of dramatic and catastrophic climate-related event to get its political leadership (and the public opinion behind it) to truly focus on the threats of climate change. In other words, we need to suffer some serious pain to avoid an even bigger pain. There may be some kind of "tipping point" at which the dilatory consequences of climate change increase abruptly. One is reminded of the famous remark by Ernest Hemingway's exchange from *The Sun also Rises:* "How did you go bankrupt?" Bill asked. "Two ways," Mike said. "Gradually and then suddenly." Here it is worth to note the important work of the Swedish-born climate scientist Johan Rockström, director of the Potsdam Institute for Climate Impact Research. Rockström has argued that there are certain boundaries to the earth's ability to contain various environmental "insults"

inflicted on it by anthropogenic activities. Once these are crossed, the planet may become substantially less hospitable for human civilization. Somewhat similar is a recent essay in *The Economist* by eminent physicist Tim Palmer, who noted that "it is possible that we may shortly pass a kind of tipping point where the dynamical effects of climate change have become so strong that persistent anticyclones will soon become overwhelmingly likely each and every summer. If this is the scenario we now face, we do not have the luxury of adapting to the new climate normal in the coming decade or two. We must somehow adapt immediately." Yet they, too, are not sure whether these will show up immediately as salient disasters that can trigger focusing devices. The real question then becomes: when the really catastrophic costs show up, will it be too late?

Rockström reasonably likens costly climate policy to buying insurance. We don't know when a disaster will happen or even if in the end it will happen at all and what exact form it will take. However, there surely is a serious risk that some kind of catastrophe will happen, and hence buying insurance is sensible. Most people do. The difference, again, is salience. We have all seen hundreds of fires, floods, car crashes, earthquakes, and similar events on our TV screens. They are salient, and hence we respond to them by buying insurance. What has to happen to our weather to make climate change sufficiently salient?

To repeat, then: insurance is expensive. And the higher the probability and the greater the possible damage if the event occurs, the more expensive it gets. In the simplest terms, to pay for this "insurance" we need *more*, not *fewer* resources. But it gets worse: the world's economy today is threatened by a process that tends to reduce

economic growth automatically whether we want it or not. That process is demographic: GDP per capita, by its very nature, depends on productivity, that is, output per worker. However, it also depends on how many people actually work relative to the population. As the population is ageing, both because of lower birth rates and because of increasing life expectancy, the number of non-working seniors increases, and hence GDP *per capita* may fall even if GDP *per worker* increases as technology gets better. Moreover, the longer survival of seniors is expensive: medical costs for people over 65 is more than twice than that for people of working age, and geriatric care tends to be labor-intensive. In all industrialized countries, people over 80 constitute the fastest-growing age group. One could argue that this is the *good* news, not the *bad* news. But either way, there is no debate that it is expensive and will become more so in the next decades. .

Here, too, political solutions are in principle available but politically probably unfeasible. Attempts to put off the retirement age and keep people in their sixties working are running into stiff political resistance — just ask Emanuel Macron. The other solution to deal with old-age care is to rely on immigrant labor — in the US roughly 28–30% of direct-care workers (home health aides, nursing assistants, personal care aides, etc.) are foreign-born. But with the growth in anti-immigrant policies both in the US and in Europe, that solution is running in serious political headwinds. The answer will have to be automation that saves labor: a combination of advanced robotics, AI, and material science can create machines that can replace personal care providers and nurses in many of their tasks. While some of the features of the "human touch" may still remain hard to emulate, robots are easily endowed with infinite patience, docility, stamina, loyalty, and tolerance to provide high quality care

to even the grumpiest and most demanding of the elderly without complaining or sudden absences. Empathy and kindness and even love can be simulated.The application of robotics and AI to geriatric care are still in its early stages, but as the needs increase, progress is likely to speed up. However, designing and building these machines will require resources, and again, more growth and better technology are called for if we don't want our parents and grandparents to be left on their own.

Ladies and Gentlemen, the human species has been on a wild techo-ride for millennia, as innovation after innovation disrupted business-as-usual. Since the Industrial Revolution of the eighteenth century this ride as become much faster. It is hard to deny that both its speed and its direction should create worry. Bite-back is common, and in some cases disastrous. Yet, while technological progress is never riskless, the risks of technological stasis in the face of a changing environment are far more troubling. Getting off the roller-coaster of economic history mid-ride is not an option.

Thank you.