GROWTH

A HISTORY AND A RECKONING

DANIEL SUSSKIND

This book gives us a vivid account of the past, present, and future of economic growth, showing how and why we must continue to pursue it while responding to the challenges it creates.

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For Grace, Rosa, and Saul

Life can be wonderful as well as terrible, and we shall increasingly have the power to make life good. Since human history may be only just beginning, we can expect that future humans, or supra-humans, may achieve some great goods that we cannot now even imagine. In Nietzsche's words, there has never been such a new dawn and clear horizon, and such an open sea.

—Derek Parfit

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INTRODUCTION

> The power to become habituated to his surroundings is a marked characteristic of mankind.
>
> —John Maynard Keynes

Three facts, simple but remarkable, have defined the economic history of human beings until now.

The first is that, for most of the 300,000 years that human beings have been around, economic life was stagnant. Whether a person was a hunter-gatherer in the Stone Age or a laborer working in the eighteenth century, their economic fate was very similar: both are likely to have lived in poverty, engaged in a relentless struggle for subsistence.1

The second is that it was only very recently that this stagnation came to an end. Modern economic growth began just two hundred years ago, when living standards in certain parts of the world started a dizzying climb. If the sum of human history were an hour long, then this reversal in fortune took place in the last couple of seconds.[2]

And the third is that human beings have managed to maintain their economic ascent. Whenever growth happened in earlier centuries, it had been limited and fizzled out. But this time it was both significant and sustained, as if some long-pent-up productive power that had lain hidden for millennia had finally been unleashed.[3] This is what makes modern economic growth entirely unlike anything that had come before.

The first half of this book is about this extraordinary history: why there was no growth for so long, why it suddenly began, and how it has been sustained. In the twentieth century, pursuing economic growth became one of the defining activities of our common life. And at least until recently, despite the mysteries that remain about growth's true causes, we have been relatively successful at this pursuit.

As time has passed, we have used this growing material prosperity to achieve extraordinary outcomes: Freeing billions from the struggle for

subsistence that haunted our ancestors. Making the average human life longer and healthier than ever before. Funding discoveries that have transformed our understanding of the world—splitting the atom, cracking the genetic code, exploring the stars.

But it is also increasingly clear that the pursuit of this prosperity has come at an enormous price: The destruction of the natural environment. The desolation of local cultures and communities. The emergence of vast inequalities between those who have received the greatest share of this wealth and those who have not. The creation of technologies whose disruptive effects on our work and political lives we might not be able to properly control.

And so, growth now presents us with a dilemma. On the one hand, it is associated with many of our greatest triumphs and achievements. But on the other, it is also related to many of the greatest problems we confront today. The promise of growth pulls us, at times desperately and violently, toward pursuing ever more of it. But its price pushes us away from that chase with a powerful force as well. It is as if we cannot go on, and yet we must.

The second half of this book explores this dilemma: how it emerged, how we have failed to engage it, why we lack serious ideas for responding to it—and what we ought to do. In recent years, I have come to believe that confronting the growth dilemma is one of the most important tasks that now faces humankind. Our failure to do so until now means that we are on a dangerous path. Taking the challenge seriously is not only a chance to change that direction of travel for the better, but, as we shall see, an opportunity for moral revitalization, to create a renewed sense of collective purpose in society in pursuit of what really matters—not simply a more prosperous economy but the many other ends that people care about, from a fairer society to a healthier planet.

Taken together, then, this book tells the full story of growth—its mysterious past, its troubling present, and its uncertain future, which now falls to us to shape. In part this is a book of ideas: about how some of the greatest minds have tried (and often failed) to understand this important phenomenon, how our leaders accidentally put its pursuit at the center of our political lives only a few decades ago, and how economic growth quickly became one of our most treasured and dangerous ideas. What follows will carry us well beyond the boundaries of any particular discipline, raising exciting and unsettling questions: why human existence

was so miserable for so long, whether living standards can improve forever, what exactly we ought to value in society, and if we ought to care for trillions of people who are yet to be born.

But this is also a practical book, a guide to how we should address the growth dilemma in the real world. Although the story I tell roams from the remote past to the distant future, its lessons matter most for thinking about how to act in the present moment.

The Present Urgency

It is hard to think of a time when the pursuit of "more growth" has seemed more vital. As the twentieth century came to an end, leaders were confident that they knew what they were doing, that steadily increasing prosperity was a sensible and achievable shared goal. In the United States, economists spoke of the "great moderation"; in the United Kingdom, politicians celebrated the "end of boom and bust." The idea that sustained growth could be achieved through modest interventions was taken for granted. And our apparent success created the impression that an expanding economy was the norm, with any slowdown to be regarded as an unfortunate but temporary exception.

Today, that assuredness feels misplaced. Almost every country has slumped its way into the twenty-first century, though the timing differs: Japan and Germany started spluttering in the mid-1990s, the US and UK in the mid-2000s, China in the 2010s. Most economies, battered by two decades of crises—including the dot-com bust, the 2007–2008 financial crisis, and the Covid-19 pandemic—are a sluggish shadow of former selves. We increasingly realize we cannot take growth for granted. In response, political leaders, in almost every country, have thrust "more growth" to the very top of their list of priorities. But it is far from clear they or those that advise them understand what must be done to achieve it. This book, in part, hopes to fix that.

Yet if only the problem were as simple as that. For at the same time, it is also hard to think of a moment when the pursuit of "more growth" has seemed more dangerous. Of course, the dangers that it brings—its threats to the stability of the climate, the health of the social order, the strength of our communities, the availability of good work, the quality of our politics—are not new. But having been left to simmer in the second half of the twentieth century, these challenges have emerged far more intensely

at the start of the twenty-first. It is not a coincidence that radical movements, from far-left "degrowthers" to far-right national populists, are ascendant. The more moderate parts of political life have slumped to the occasion.

Historians, when trying to make sense of the present, like to look to the past for guidance. "What are the precedents for this moment?," they ask, trying to learn what they can from the answers. Unfortunately, when it comes to the growth dilemma, that sort of backward-looking exercise is unlikely to bear fruit. The world we inhabit is quite unlike anything that has come before: for almost all of history, life was stagnant, growth rare and fleeting. The dilemma that we face, this sense of being wrenched in opposite directions, is an uncharted challenge: humankind has never had to choose in such a dramatic fashion between ever-increasing prosperity and the other features of the world that we care about. Psychologists talk about how a person might experience cognitive dissonance, the mental discomfort that comes from holding irreconcilable views at the same time. There is a sense in which the same phenomenon now applies to society as a whole: growth has an irresistible promise and an unacceptable price; it is miraculous and devastating; we need a lot more and vastly less. The challenge we face is not only new but disorienting.

The Story of Growth

In order to grapple with the future of growth, we must first understand how it began. And so, Part I sets out to explore these origins: why living standards suddenly spiked after several hundred thousand years and how economists have struggled to understand the process in the relatively short time since. Given growth's extraordinary importance—indeed, as we shall see, it is hard to think of anything that is more important—we still know surprisingly little for certain about its causes. That said, though, we do know enough to make some sense of what happened in the past and, perhaps even more importantly, what is possible in the future.

Today, we live in societies that prioritize growth, where our collective success is determined by how much stuff we are able to produce in a given amount of time. Economic life is often dominated by a single question: whether our country's gross domestic product, or GDP, has gone up or down. That prioritization gives the impression that growth must have an illustrious history as an idea. But it does not. The idea of pursuing growth would have been unimaginable to most classical economists; indeed, it

would have been impossible for them to even quantify how much growth was happening, since useful measures of the size of an economy only emerged in the 1930s. In fact, growth gained its pre-eminence almost by accident. But it was a lucky accident. For as the twentieth century unfolded, it turned out that GDP is correlated with almost every measure of human flourishing. This fortuitous circumstance is the focus of Part II.

Growth is not only important, though—it is also dangerous, as noted before. Part III turns to this downside of growth, uncovering all the dimensions in which the phenomenon is making our lives worse. As we shall see, there are two increasingly popular responses to the growth dilemma. One is to continue pursuing growth but tinker with the GDP measure, the sort of activity proposed by many technocratically minded policymakers and economists. The other is a more dramatic proposal: to give up on that pursuit altogether and deliberately slow down our economies through "degrowth," the sort of path advocated by influential public figures like David Attenborough and Greta Thunberg. Neither of these ideas alone can solve the growth dilemma—they are at best insufficient, at worst needlessly self-destructive. But neither should they be ignored, for both of them reveal important truths that will help us respond to the challenge that we face.

Taken together, Parts I–III provide the intellectual toolkit for understanding the idea of growth. Parts IV and V then put these ideas to practical use, exploring what we actually ought to do about the growth dilemma in the real world. The starting point is that giving up on growth would be a catastrophe, not only abandoning what ought to be basic ambitions for society—from eradicating poverty to providing good health care for all—but suffering from a failure of imagination about how we might flourish in the future. And so, I set out how we can achieve more economic growth, as well as showing why many of today's popular remedies are likely to be misplaced.

Yet at the same time, we cannot continue to muddle on and ignore the enormous costs of our pursuit of prosperity. It falls to us to explicitly confront the tradeoffs presented by growth's promise and its price. To begin with, we should *avoid* these tradeoffs where we can, seeking out the kinds of growth that do not impose a price on society. Where that fails, as it inevitably will, we should attempt to *weaken* these tradeoffs, using every tool at our disposal to change the nature of growth and make it less destructive. But in the end, we must also recognize that weakening the tradeoffs may not be feasible either. And so, the final task will be to *accept* these tradeoffs, to resign ourselves to the fact that they cannot be sidestepped

or softened, and to decide whether we are willing to sacrifice some growth to protect those other important outcomes that we care about—protecting the environment, lessening wealth inequality, and so on. Doing this raises two difficult moral questions on which there is likely to be immense disagreement: What else are we to care about if not growth, and how much should we care about the future? This is what I explore in the closing moments of the book.

It is inevitable that a book like this involves simplification. Large bodies of thought can only be briefly explored, towering stalagmites of scholarship must be shrunk down to a few hundred words. Those who have picked it up expecting a detailed study of each challenge we face—climate change, inequality, globalization, artificial intelligence, and all the others—will be disappointed. That is not what it sets out to do. Nor will I present definitive lists of policy interventions that are carefully tailored to tackle each particular challenge. There are other books that attempt to do that. My aim is different: to sweep these challenges together and look at them from a new vantage point. For though these challenges differ greatly in their details, there is still a common thread that runs through them: the idea of growth, and how we have become distracted by it. That is what this book is about. And my hope is that this alternative view will not only provide us with a chance to look at these familiar challenges in a fresh way, an opportunity to see them again as if for the first time, but deepen our understanding of the problems that we face and why we have failed to tackle them until now. I encourage everyone to keep an open mind, particularly those who are inclined to continue with our inherited approach. For whatever we are doing, it is not working. And time is running out.

The Case for Optimism

In the twentieth century, we lost our way. After the insanity of the first half, most countries decided to distract themselves with the pursuit of prosperity in the second. There was no Big Bang when growth became the priority, no single moment when GDP was formally crowned the "statistic to end all statistics."[4] But gradually, it happened. Politics around the world became focused primarily on making the economic pie bigger. Leaders flourished or fell depending on whether they succeeded at that narrow goal. And the defining political debate of the century turned out to be a technical disagreement about how best to achieve this end: in short, would more growth come from the free market or from central planning?

Of course, other ends mattered during that time. Yet all too often, the intensity of the pursuit of growth drowned out these other concerns. They were put aside, either because it was thought that more material prosperity would achieve them eventually or because they were simply believed to be lesser priorities. But this inaction hollowed out our collective life. For decades, we have paid too little attention to the threat of climate change, the specter of inequality, the costs of globalization, and the threats of disruptive technologies. And as a result we failed to engage with the tradeoffs that a serious response to these challenges would demand. I believe that the historical failure to accept these tradeoffs, and wishful thinking from leaders who acted as if we could always have everything that we want at little cost, is why we now feel the tension between the promise and the price of growth so intensely.

And there is something peculiar about this relentless pursuit of prosperity. Like the proverbial worker caught in the economic rat race, who blindly chases after an ever-greater wage while their life dissipates in the background, our societies have found themselves in the same sort of situation, exhibiting the same lack of self-reflection as to what all this collective effort is really about. "The end justifies the means," wrote the author Ursula Le Guin. "But what if there never is an end? All we have is means." That line neatly captures our political life for the last seventy years: economic growth, which really ought to have been just a means to other valuable ends, over time became the end in itself. Our focus on growth, despite the immense bounty it has produced, is coming at too high a cost.

As I think about the future, I am hopeful. We live in an age of anxiety, where almost every day brings stories of new existential risks and deflating reminders of our supposed incapacity to deal with them. But my argument is an optimistic one: we have an existential opportunity in front of us. This book describes a chance for moral renewal, a way for us to pay more attention to the valuable ends that we have tended to neglect until now. And we can do so from a position of strength, looking into a future far more prosperous and technologically capable than ever before in our three-hundred-thousand-year history. We have the power not only to make life good in the decades to come, in the words of the philosopher Derek Parfit, but to make it better in ways that we cannot now even imagine. Nothing, in my view, could be more important—and how to do it is what this book is all about.

PART I

CHAPTER 1

THE TRAP

> Before the eighteenth century mankind entertained no false hopes.
>
> —John Maynard Keynes

It is hard to imagine that a Stone Age hunter-gatherer would have had much in common with someone from the eighteenth century. Almost every aspect of their lives would have been very different: the structure of their families and communities, what they ate and wore, how they made a living, and what they did for fun. But in one respect their existence was remarkably similar: both of them are likely to have lived stagnant economic lives, stuck in an unforgiving struggle for subsistence. In fact, some argue that not only was an ordinary person in 1800 no better off than in 100,000 BC, but they may have been *poorer*.[1] This does not mean they had less money in their pockets—the first currency, the Mesopotamian shekel, was only created about five thousand years ago—but that their living standards were probably lower.

This is a remarkable thought. In the millennia that separated their worlds, the bulk of human history would unfold. Great wars would be won and lost, civilizations would rise and fall, cultures would flourish and fade. And yet from an economic point of view, none of these events really mattered: the fate of an average human being remained stubbornly the same. Born at any moment during this period, you would expect to spend your life trying to secure the basics of survival. The hope that provides many people with meaning and purpose today—that with diligence and hard work, your economic future might be brighter than the past—would have been preposterous, if that idea had even occurred to them at all.

Extraordinary claims like this require extraordinary evidence. The challenge is that finding reliable evidence on the past, particularly the remote past, is difficult. But it is not impossible. A picture of economic life

during this vast expanse of time can still be patched together from an eclectic variety of different sources. And what emerges is a strong case for what we can call the "Long Stagnation," a one-hundred-thousand-year stretch in which very little changed in the living standards of human beings at all.

The Last Two Thousand Years

A useful starting point on this empirical hunt is England. For the past millennium, its institutions—its government, churches and monasteries, colleges and charities—have been remarkably stable, and their record-keeping unusually assiduous. This allowed the economic historian Gregory Clark to estimate the living standards of English men all the way back to 1209, figuring out their "real" wages rather than simply the nominal amount of money they received.[2] This calculation takes into account how prices changed over time, providing a sense of what a given wage actually bought at any moment. And when you look at how those English wages changed over the centuries, you see a "hockey stick": a long, mostly flat stretch with no particular overall trend (the shaft of the stick), until an explosive takeoff shortly after 1800 (the blade).

Six centuries rich in revolutionary moments—the arrival of the printing press in the fifteenth century and the attendant explosion in literacy, the English Reformation in the sixteenth century and a violent religious schism, the Glorious Revolution in the seventeenth century and a new conception of the state—yet economic life was essentially unchanged. According to Figure 1.1, an Englishman's living standards, measured by their real wages, were no better in 1800 than in 1200.

How low, though, were those living standards during that time? Economic life may have been stagnant, but did people really live in a subsistence economy? This is a big source of disagreement among economic historians. In part, that is due to ambiguities about what "subsistence" means. If it means "brute starvation," then the term doesn't really capture the English experience. Clark finds that although English laborers spent three-quarters of their income on food and drink—a big chunk, suggesting that workers lived hand to mouth—some of that went toward relative luxuries like meat and milk, butter and beer. "Very poor people," Clark notes, "do not buy such goods."[3] However, if "subsistence" simply means "a very basic economic existence," then the term is an excellent reflection of life in England over those centuries. All that being said, when

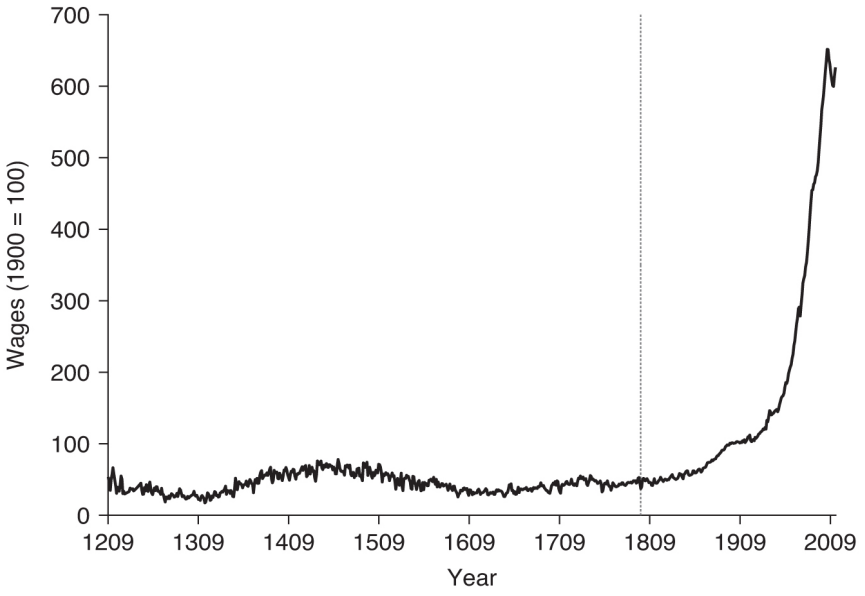

Figure 1.1. English wages, 1209–2016

you take the global view, it doesn't really matter too much what definition of "subsistence" you settle on: most of humanity did not live in places like England, but in even more miserable economic settings elsewhere.

To see this dire global picture, consider the work of another economic historian, Robert Allen. He calculated the annual income of laborers around the world relative to the cost of a standard barebones diet in their particular city (from oatmeal in northwestern Europe to millet chapatis in Delhi). These *subsistence ratios* provide an insight into economic life in a given place: a ratio of one means that people there could just afford that barebones diet.[4] Figure 1.2 shows Allen's subsistence ratios for several cities.

Figure 1.2 shows that before 1800, the global trends were similar to the English ones of Figure 1.1: there are some rises and falls in living standards but no overall upward movement. In fact, if there is a general trend, it is a *decline* in living standards after a bounce in the fourteenth century following the Black Death. These subsistence ratios also show that while people in cities like London and Amsterdam may have escaped starvation, those elsewhere—in Europe, India, and China—led a more wretched economic existence. Put another way, from a global point of

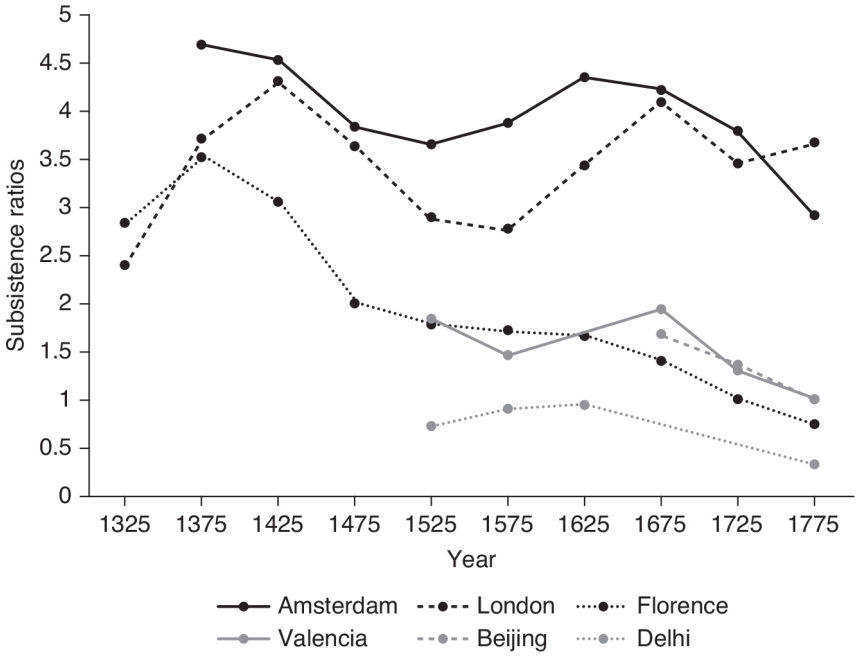

Figure 1.2. Subsistence ratio for laborers before 1800

view, pockets of relative prosperity in a couple of cities were drowned out by abject poverty in the rest of the world.

Another way to see this dire global picture is to look at GDP per capita for the entire world from 1 AD, as assembled by Angus Maddison. This is shown in Figure 1.3. These numbers imply that, until 1800, the average person was condemned to live on the equivalent of a few dollars a day in today's currency. The chart has a similar shape to Figure 1.1, but it tells a far bigger story—capturing all countries, not just England, and stretching further back in time as well.

It should be noted that the numbers in Figure 1.3 are controversial. To begin with, there are questions about their reliability: without the wealth of historical material used by scholars of England to create Figure 1.1, Maddison—a self-confessed *chiffrephile,* or lover of numbers—had to do some creative mathematics of his own. Mild-mannered colleagues have called these "educated guesses"; less well-disposed peers have accused him of manufacturing "fictions, as real as the relics peddled around Europe in the Middle Ages."[5] What's more, even if these numbers

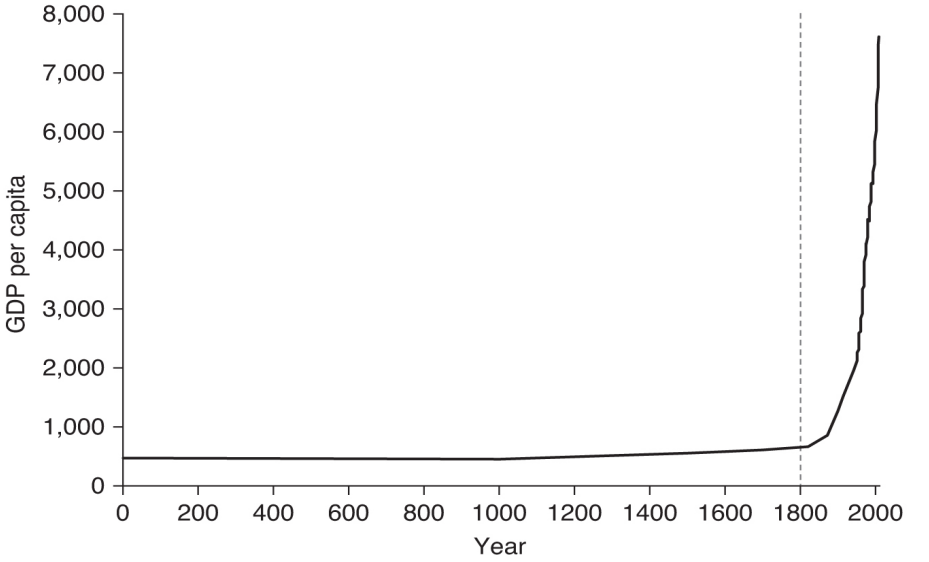

Figure 1.3. Global GDP per capita (1990 international dollars), 1–2008 AD
Note: International dollars are adjusted for price differences between countries.

are correct, there is bitter disagreement about what they imply about the nature of the Long Stagnation.[6] For if you look carefully at Figure 1.3, you can see that global GDP per capita actually does increase from 1000 to 1800, driven by growth in Western Europe. And if that increase is right, it appears to challenge the idea of the Long Stagnation and the claim that an ordinary person in 1800 was no better off economically than any of his ancestors.[7]

What to make of these disputes? As with the debate about the meaning of subsistence, these questions about the precise extent of stagnation are interesting, but nevertheless a footnote to a much larger story: what happened around 1800. After all, what cries out for explanation in Figure 1.3 is not the possibility of a minuscule increase in centuries before that, but the undeniable surge that took place after. Growth of 0.05 percent or so per year before the nineteenth century, if it happened at all, is far less interesting than the growth of 2 to 3 percent per year that followed.

Economic measures—workers' wages, subsistence ratios, GDP per capita—provide us with a rough sense of the Long Stagnation. But as we have seen, the story they tell is patchy. As a result, researchers have also

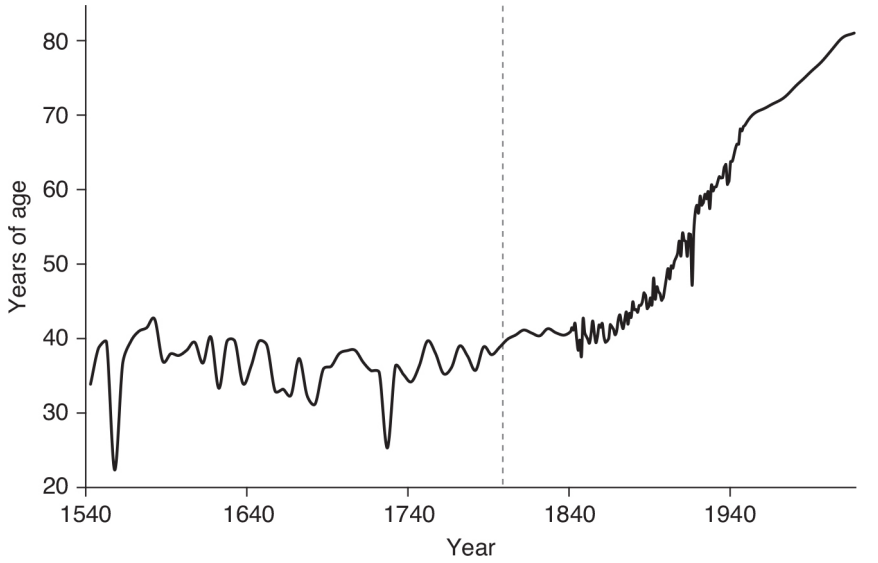

Figure 1.4. Life expectancy in the United Kingdom since 1543

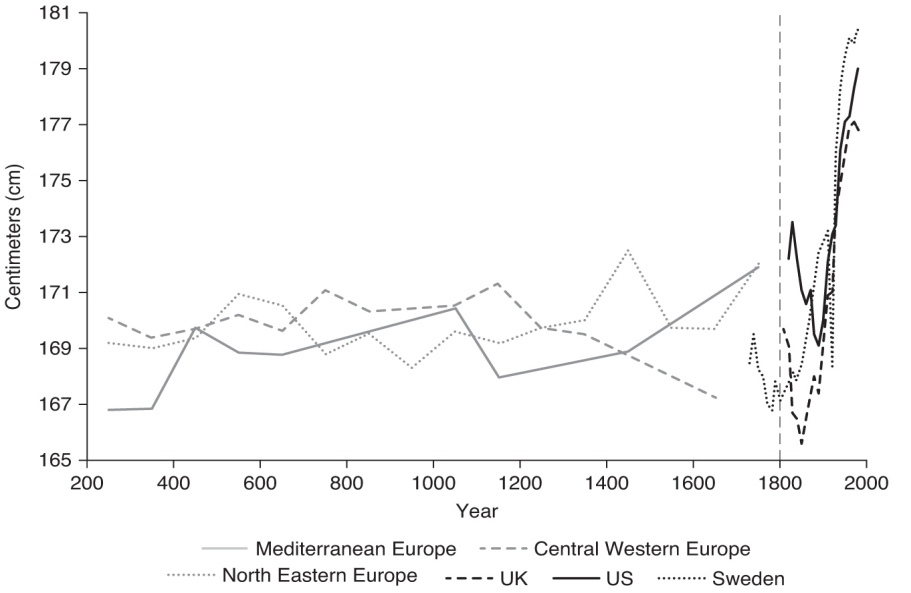

Figure 1.5. Human height from the third to the twentieth centuries

turned to biological measures for further insight. Here, the classic measure used is life expectancy: if living standards rise, the argument goes, you would expect people to live longer. Figure 1.4 shows UK life expectancy from the early sixteenth century onward. The picture formed is another hockey stick with a takeoff after 1800—again, something unprecedented appears to have happened around that time. (Bouts of plague and smallpox are responsible for the two notable pre-1800 dips.)

An even more morbid alternative to studying the ages at which people died is to calculate the size of the skeletons they left behind when they did: higher living standards ought to mean that people not only live longer, but grow taller as well.[8] Average heights in various parts of the world from the third to the twentieth century are shown in Figure 1.5. Once again, the picture is the same: no particular trend for most centuries, followed by a dramatic increase after 1800.

Even Further Back in Time

These measures—economic ones like wages and GDP per capita, biological ones like age and height—all show the Long Stagnation stretching back to about 1 AD. However, the bold claim at the outset of this chapter is that an ordinary person in 1800 was no better off than someone in *100,000 BC.* So can we look further back?

Snippets of older wage data have been recovered: an ancient Mesopotamian merchant account here, a pharaonic Egyptian ration book there. Yet the difficulty with these is that simply comparing wages scattered across ancient sources is fairly meaningless because prices will have changed as well. A given wage today may buy far more—or far less—than that same amount of currency thousands of years ago. Normally, we take account of these price changes by calculating "real" wages rather than looking at raw numbers, as shown in Figure 1.1. But the further back you go, the harder it is to keep track of these changes and make that kind of adjustment.

Clark, who calculated English living standards back to 1209, cleverly solved this problem by re-expressing workers' wages in terms of the amount of wheat they could buy, an approach similar to Allen's subsistence ratios. These "wheat wages" for nineteenth-century English laborers he found to be roughly the same as those four thousand years ago in ancient Babylonia and Assyria—a sign that the Long Stagnation stretched far back in time.

Biological measures of the kind we saw in Figures 1.4 and 1.5 can also be stretched further back. To begin with, we can look at older remains. Excavations of ten-thousand-year-old skeletons from the European Mesolithic and Neolithic periods suggest that human beings at that time were a similar height to those in eighteenth- and early-nineteenth-century London and Holland—another sign of stagnation.[9] It is also possible to identify life expectancies from ancient times: one study collected data on the age at death of 300,000 notable people across four thousand years, beginning with the Babylonian king Hammurabi in 2400 BC.[10] What they found is that for almost all these millennia there was no change in life expectancy: until the seventeenth century, famous people lived to about sixty. Again, further evidence for a lengthy Long Stagnation.[11]

But to look all the way back to 100,000 BC, to the beginning of the hunter-gatherer way of life that would be practiced by human beings for almost all their history, we need to take a different tack.[12] This means putting traditional measures to one side, and turning instead to the more unconventional approach of the anthropologist Richard Lee.

Hunting for Living Fossils

Anthropologists have a different focus from economic historians; they are more interested in arrowheads and animal bones than in wages and incomes, but both groups share the same underlying frustration: evidence on the distant past is fragmentary and unreliable.[13] Lee's response, though, was unusual. In the 1960s, rather than attempt to excavate more artifacts, as some might try to do, he instead embedded himself with the last remaining hunter-gatherer communities that still existed, often the !Kung San people of Botswana, looking to infer from them what life might have been like for our earliest ancestors.[14]

Lee was not naive about what was discovered in these places. He did not believe that these communities were "living fossils," perfect replicas of an ancient world that had been preserved in their inherited practices and traditional behaviors. He knew that they were not "hunters living in a world of hunters" but hunters who had lived in a world first of farmers, then of factory workers, and now of lawyers, accountants, and management consultants. He understood that any contact they'd had with those outside their communities, however fleeting, may have permanently changed their way of life. Yet Lee and his peers were still confident that certain features had persisted through the millennia, and they

believed that carefully studying these societies could tell them something important about how our earliest ancestors lived. And for the purpose of thinking about the Long Stagnation, one of the features that they uncovered is particularly important: the unexpectedly high standard of living in these hunter-gatherer communities.

A common view of hunter-gatherer existence was captured by the philosopher Thomas Hobbes: in the "natural condition of mankind," he wrote, life was "solitary, poor, nasty, brutish, and short."[15] People who subscribe to that notion are likely to be suspicious of those who draw a favorable comparison between the economic life of a hunter-gatherer and a person living in 1800. But Lee, who lived in an actual state of nature with the !Kung people for many years, said that this Hobbesian view was mistaken. Their lives, he wrote, were not necessarily "precarious and full of hardship."[16] In fact, the food supply was "abundant." This adds weight to the claim that our distant ancestors lived no worse than those on the brink of the Industrial Revolution.[17] Indeed, they might have been *better* off.

But how did the actual living standards of these hunter-gatherer societies compare to those of people in the early 1800s? Because hunter-gatherers don't use labor markets, we can't look at wages or income as a proxy for economic well-being.[18] For that reason, in place of paychecks, many have calculated the average calorie consumption per person in those different settings and compared these numbers instead. "As income rises in poor societies," notes Clark, "calorie consumption per person characteristically also increases." Looking at the meat, nuts, and vegetables eaten by the !Kung people, Lee estimated they were consuming an average of 2,355 calories a day.[19] And Clark himself, looking across a spread of studies, calculated an average of 2,340 for forager and basic agrarian societies. How do these diets compare to those at the start of the nineteenth century, before modern economic growth began? Very favorably to those of workers in England (2,322 calories a day) and Belgium (2,248 calories daily). "Primitive man," Clark concludes, "ate well compared with one of the richest societies in the world in 1800."[20]

Besides those calorie calculations, there was another reason these scholars thought the Hobbesian view was so wrong. What struck the anthropologists who spent time with these hunter-gatherer communities was not only how well their members ate, but also how little they actually worked in the first place. Lee noted that the !Kung had an abundant food supply that they managed to achieve with a "work effort of only 2

or 3 days per week." This, he noted, was "a far lower level than that required of wage workers in our own industrial society"—never mind 1800.[21] And Clark, looking across a variety of similar studies, found much the same: that hunter-gatherers, liberated from long working days, took about a thousand more hours of leisure a year, on average, than working men in the UK today.[22]

Most people associate the passing of time with progress. Yet for literally 99.9 percent of human existence, that sort of optimism about the economic future would have been misplaced: stasis, not progress, was the defining feature of history. If anything, the evidence from the hunter-gatherer communities that still exist today suggests that living standards may actually have declined over time. And the big puzzle is—*why*.

The Dismal Scientist

The most compelling explanation for the Long Stagnation is found in the work of the nineteenth-century clergyman Thomas Malthus. He was a divisive figure, both despised and celebrated by the great minds of his time and in the decades that followed. Karl Marx, for instance, dismissed his work as "schoolboyish, superficial plagiary" and "a libel on the human race."[23] Friedrich Engels, Marx's co-author, enthusiastically agreed, writing it off as "repulsive blasphemy against man and nature." But it was the English Romantic poets who particularly detested him. William Wordsworth wrote to a friend that it would be "monstrous" to agree with Malthus; Percy Bysshe Shelley pronounced that Malthus's beliefs were those of "a eunuch and a tyrant"; Samuel Taylor Coleridge scribbled in his notebooks how "contemptible a wretch" he considered him to be. As one early biographer put it, Malthus was "the best-abused man of the age."

Elsewhere, though, he was greatly respected. His debates with David Ricardo, one of the founding fathers of economics, were influential at the time and in the decades since.[24] John Maynard Keynes, looking back on them, fawned over Malthus, lamenting that if only he, "instead of Ricardo, had been the parent stem from which nineteenth-century economics proceeded, what a much wiser and richer place the world would be to-day!" Eighty years later, the Nobel Prize–winning economist Paul Krugman would share Keynes's enthusiasm, proclaiming that "Malthus was right about the whole of human history up until his own era." (I will return to that observation in the next chapter.)[25]

Malthus deserves both the acclaim and the derision. At times he could be incendiary. For instance, in an early edition of his most important work, *An Essay on the Principle of Population,* he tells an ill-judged metaphorical tale about the merits of abandoning the poor to destitution: allowing them to share in the communal economic "feast," he argues, would turn "plenty . . . into scarcity" for those fortunate enough to be at the table. (The story was wisely removed in later versions.)[26] The ambiguity of his writing didn't help, either. *An Essay on the Principle of Population* was originally published anonymously in 1798, written in a rhetorical, flowery, polemical style. The reaction to it was so hostile that Malthus felt compelled to respond in his own name and in greater depth—which he did, rewriting the book five times, but each time opening himself up to new confusions and criticisms.[27] In part, this explains why various unsavory individuals and movements have been able to so selectively misread his work. "The poor laws, the British government's approach to famine in Ireland and India, social Darwinism, eugenics, the Holocaust, India's forced sterilisations and China's one-child policy," says the writer Matt Ridley, "all derived their logic more or less directly from a partial reading of Malthus."[28] In part, though, the problem is simpler: the pernicious ideas really are there for the taking.

Yet at the core of Malthus's work was an undeniably useful set of observations. What he identified was a simple but troubling mismatch—between the explosive rate at which any population of living creatures would grow if left unchecked, and the glacial rate at which food supplies could increase to support them (a clash, in his words, between "geometric" and "arithmetic" rates of growth). For him, this basic story was sufficient to explain population dynamics in the entire nonhuman world. Plant and animal populations would increase rapidly until "want of room and nourishment" put a brake on further growth in numbers, and those that survived would be left to struggle in subsistence.

But with only a small tweak, Malthus argued, the same story applied to human societies as well. The difference was that people might be able to use reason and self-restraint to limit their number of offspring. This, he thought, could slow population growth before living standards were driven so low that "actual famine" kicked in to do it instead. He called this extra check "moral restraint" and, channeling his strict Christian asceticism, defined it as avoiding "irregular gratifications" out of marriage—in short, not having casual sex. In theory, he thought this offered human societies a way out of the Malthusian trap: if people could be reminded

of "the duty of each individual not to marry till he has a prospect of supporting his children," then population growth could be controlled and economic disaster avoided. In practice, he was far less sanguine about whether that was possible. "There are few states," he wrote, "in which there is not a constant effort in the population to increase beyond the means of subsistence." To Malthus, then, human beings were like animals—both in their uncontrollable sexual proclivities and in the material struggles they would inevitably face as a result.

A Strange Inversion

Malthus's argument has a peculiar consequence. It rests on two assumptions: that populations grow to take advantage of any increase in living standards, and that those living standards get eroded as a result.[29] Yet if these assumptions are right, they imply that anything that *reduces* population numbers, however unpleasant it might be, would be of economic benefit by improving life for those who are fortunate to remain. This "strange inversion of reasoning" suggests that otherwise awful events—war, famine, disease—could be economically beneficial.[30] These horrors, by decimating the population, might increase living standards.

To see this strange inversion in practice, think about the bubonic plague, otherwise known as the Black Death and the Great Mortality.[31] This pandemic began in Asia in the 1320s and reached Europe in the 1340s, spreading through infected fleas that rode on rodents carried by merchant ships.[32] When their rodent hosts died, the fleas moved on to others, like human beings—bringing the *Yersinia pestis* bacteria responsible for the disease along with them. The plague took its name from its most distinctive symptom, the buboes or boils that appeared on the necks, thighs, and armpits of the infected, filling their lymph nodes with hemorrhaged blood and accumulated pus, swelling the glands to the size of apples.[33]

The humanitarian impact of this pestilence was catastrophic. If you caught the disease, you were likely to die within a few days. Within five years, it killed about 40 percent of the European population. Certain places were particularly badly affected: up to 60 percent of those in England, France, Italy, and Spain would die within two years.[34] To put that in context, it is as if an atom bomb twice as deadly as those used at Hiroshima and Nagasaki—which are estimated to have killed 26 percent and 20 percent of those cities' populations, respectively—were dropped on

every population center in Europe.[35] (In that spirit, during the Cold War the US Atomic Energy Commission actually used the impact of the plague to model the consequences of a full-on global nuclear conflict.)[36]

Yet the economic impact of the disease was more benign. Indeed, as the Black Death ripped through England in the fourteenth century and the population shriveled, living standards did appear to rise for those who survived, just as Malthus's story predicted. Figure 1.6 shows wages in England from 1209 to 1809, using the same data as in Figure 1.1, but with the population numbers overlaid on them as well. When population is low, wages are high, and vice versa.

A notary called William de la Dene, who was composing a chronicle of his times at Rochester Cathedral, captured what he saw: "a shortage of labourers" meant that "the humble turned up their noses at employment, and could scarcely be persuaded to service the eminent for triple wages." Indeed, the situation became so acute that the king of England himself, Edward III, felt he had to intervene. Perhaps under pressure from the country's landowning and labor-employing elites, in 1349 the king issued the Ordinance of Labourers in an attempt to control rising wages. The law was written in a disdainful tone, describing how selfish workers had taken advantage of a "shortage of employees" by shamefully "refusing

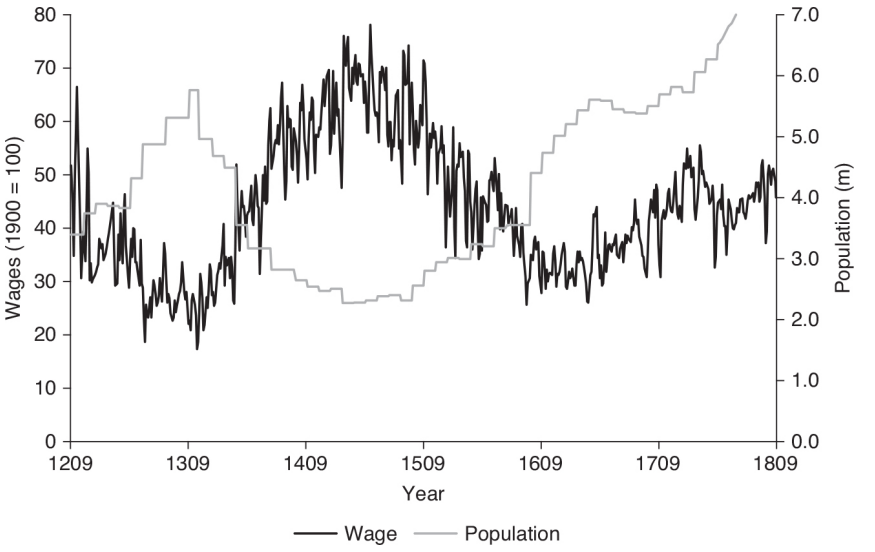

Figure 1.6. English wages and population (m), 1209–1809

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