

# THE CHALLENGE OF INEQUALITY

## "A DANGEROUS AND GROWING INEQUALITY"

How many billionaires does it take to match the net worth of half of the world's population? In 2015, the richest sixty-two persons on the planet owned as much private net wealth as the poorer half of humanity, more than 3.5 billion people. If they decided to go on a field trip together, they would comfortably fit into a large coach. The previous year, eighty-five billionaires were needed to clear that threshold, calling perhaps for a more commodious double-decker bus. And not so long ago, in 2010, no fewer 388 of them had to pool their resources to offset the assets of the global other half, a turnout that would have required a small convoy of vehicles or filled up a typical Boeing 777 or Airbus A340.<sup>1</sup>

But inequality is not created just by multibillionaires. The richest 1 percent of the world's households now hold a little more than half of global private net wealth. Inclusion of the assets that some of them conceal in offshore accounts would skew the distribution even further. These disparities are not simply caused by the huge differences in average income between advanced and developing economies. Similar imbalances exist within societies. The wealthiest twenty Americans currently own as much as the bottom half of their country's households taken together, and the top 1 percent of incomes account for about a fifth of the national total. Inequality has been growing in much of the world. In recent decades, income and wealth have become more unevenly distributed in Europe and North America, in the former Soviet bloc, and in China, India, and elsewhere. And to the one who has, more will be given: in the United States, the best-earning 1 percent of the top 1 percent (those in the highest 0.01 percent income bracket) raised their share to almost six times what it had been in

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<sup>1</sup> Hardoon, Ayele, and Fuentes-Nieva 2016: 2; Fuentes-Nieva and Galasso 2014: 2.

the 1970s even as the top tenth of that group (the top 0.1 percent) quadrupled it. The remainder averaged gains of about three-quarters—nothing to frown at, but a far cry from the advances in higher tiers.<sup>2</sup>

The “1 percent” may be a convenient moniker that smoothly rolls off the tongue, and one that I repeatedly use in this book, but it also serves to obscure the degree of wealth concentration in even fewer hands. In the 1850s, Nathaniel Parker Willis coined the term “Upper Ten Thousand” to describe New York high society. We may now be in need of a variant, the “Upper Ten-Thousandth,” to do justice to those who contribute the most to widening inequality. And even within this rarefied group, those at the very top continue to outdistance all others. The largest American fortune currently equals about 1 million times the average annual household income, a multiple twenty times larger than it was in 1982. Even so, the United States may be losing out to China, now said to be home to an even larger number of dollar billionaires despite its considerably smaller nominal GDP.<sup>3</sup>

All this has been greeted with growing anxiety. In 2013, President Barack Obama elevated rising inequality to a “defining challenge”:

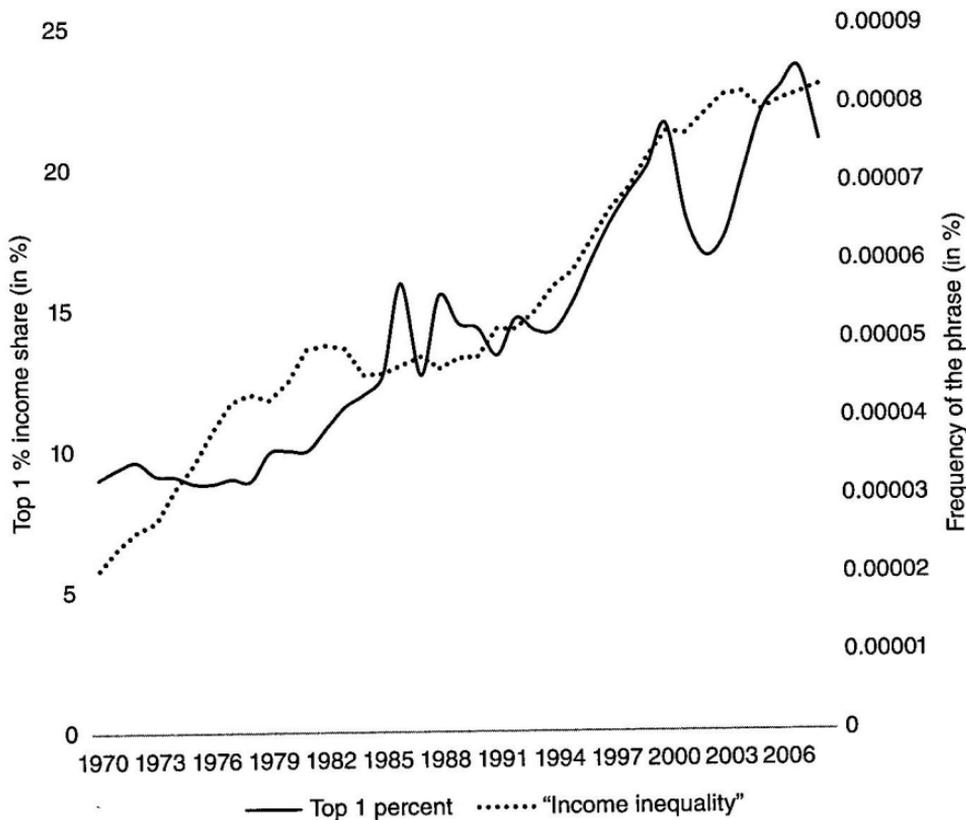
And that is a dangerous and growing inequality and lack of upward mobility that has jeopardized middle-class America’s basic bargain—that if you work hard, you have a chance to get ahead. I believe this is the defining challenge of our time: Making sure our economy works for every working American.

Two years earlier, multibillionaire investor Warren Buffett had complained that he and his “mega-rich friends” did not pay enough taxes. These sentiments are widely shared. Within eighteen months of its publication in 2013, a 700-page academic tome on capitalist inequality had sold 1.5 million copies and risen to the top of the *New York Times* nonfiction hardcover bestseller list. In the Democratic

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<sup>2</sup> Global wealth: Credit Suisse 2015: 11. U.S. top income shares according to WWID: the top 0.01, 0.1, and 1 percent shares, including capital gains, rose from 0.85, 2.56, and 8.87 percent in 1975 to 4.89, 10.26, and 21.24 percent in 2014, which represents increases of 475 percent, 301 percent, and 139 percent, respectively, and of 74 percent for those between the top 0.1 percent and 1 percent.

<sup>3</sup> Bill Gates’s fortune of \$75.4 billion in February 2016 equals roughly 1 million times average and 1.4 million times median U.S. household income, while Daniel Ludwig’s assets of \$2 billion in the first Forbes 400 list, published in 1982, equaled about 50,000 times average and 85,000 times median household income at the time. For China’s billionaires, see [www.economist.com/news/china/21676814-crackdown-corruption-has-spread-anxiety-among-chinas-business-elite-robber-barons-beware](http://www.economist.com/news/china/21676814-crackdown-corruption-has-spread-anxiety-among-chinas-business-elite-robber-barons-beware).



**Figure I.1** Top 1 percent income share in the United States (per year) and references to “income inequality” (three-year moving averages), 1970–2008

Party primaries for the 2016 presidential election, Senator Bernie Sanders’s relentless denunciation of the “billionaire class” roused large crowds and elicited millions of small donations from grassroots supporters. Even the leadership of the People’s Republic of China has publicly acknowledged the issue by endorsing a report on how to “reform the system of income distribution.” Any lingering doubts are dispelled by Google, one of the great money-spinning disequalizers in the San Francisco Bay Area, where I live, which allows us to track the growing prominence of income inequality in the public consciousness (Fig. I.1).<sup>4</sup>

<sup>4</sup> “Remarks by the President on Economic Mobility,” December 4, 2013, <https://www.whitehouse.gov/the-press-office/2013/12/04/remarks-president-economic-mobility>. Buffett 2011. Bestseller: Piketty 2014. China: State Council 2013. Fig. I.1: WWID (including capital gains); <https://books.google.com/ngrams>. The prominence of this meme has most recently been underscored by the publication of a collection of poems fashionably entitled *Widening income inequality* (Seidel 2016).

So have the rich simply kept getting richer? Not quite. For all the much-maligned rapacity of the “billionaire class” or, more broadly, the “1 percent,” American top income shares only very recently caught up with those reached back in 1929, and assets are less heavily concentrated now than they were then. In England on the eve of the First World War, the richest tenth of households held a staggering 92 percent of all private wealth, crowding out pretty much everybody else; today their share is a little more than half. High inequality has an extremely long pedigree. Two thousand years ago, the largest Roman private fortunes equaled about 1.5 million times the average annual per capita income in the empire, roughly the same ratio as for Bill Gates and the average American today. For all we can tell, even the overall degree of Roman income inequality was not very different from that in the United States. Yet by the time of Pope Gregory the Great, around 600 CE, great estates had disappeared, and what little was left of the Roman aristocracy relied on papal handouts to keep them afloat. Sometimes, as on that occasion, inequality declined because although many became poorer, the rich simply had more to lose. In other cases, workers became better off while returns on capital fell: western Europe after the Black Death, where real wages doubled or tripled and laborers dined on meat and beer while landlords struggled to keep up appearances, is a famous example.<sup>5</sup>

How has the distribution of income and wealth developed over time, and why has it sometimes changed so much? Considering the enormous amount of attention that inequality has received in recent years, we still know much less about this than might be expected. A large and steadily growing body of often highly technical scholarship attends to the most pressing question: why income has frequently become more concentrated over the course of the last generation. Less has been written about the forces that caused inequality to fall across much of the world earlier in the twentieth century—and far less still about the distribution of material resources in the more distant past. To be sure, concerns about growing income gaps in the world today have given momentum to the study of inequality in the longer run, just as contemporary climate change has encouraged analysis of pertinent historical data. But we still lack a proper sense of the big picture, a global survey that covers the broad sweep of observable

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<sup>5</sup> U.S.: WWID, and herein, chapter 15, p. 409. England: Roine and Waldenström 2015: 579 table 7.A4. For Rome, see herein, chapter 2, p. 78 (fortunes), chapter 9, p. 266 (handouts), and Scheidel and Friesen 2009: 73–74, 86–87 (GDP and income Gini coefficient). For overall levels of inequality, see herein, appendix, p. 455. For the Black Death, see herein, chapter 10, pp. 300–306.

history. A cross-cultural, comparative, and long-term perspective is essential for our understanding of the mechanisms that have shaped the distribution of income and wealth.

## THE FOUR HORSEMEN

Material inequality requires access to resources beyond the minimum that is needed to keep us all alive. Surpluses already existed tens of thousands of years ago, and so did humans who were prepared to share them unevenly. Back in the last Ice Age, hunter-gatherers found the time and means to bury some individuals much more lavishly than others. But it was food production—farming and herding—that created wealth on an entirely novel scale. Growing and persistent inequality became a defining feature of the Holocene. The domestication of plants and animals made it possible to accumulate and preserve productive resources. Social norms evolved to define rights to these assets, including the ability to pass them on to future generations. Under these conditions, the distribution of income and wealth came to be shaped by a variety of experiences: health, marital strategies and reproductive success, consumption and investment choices, bumper harvests, and plagues of locusts and rinderpest determined fortunes from one generation to the next. Adding up over time, the consequences of luck and effort favored unequal outcomes in the long term.

In principle, institutions could have flattened emerging disparities through interventions designed to rebalance the distribution of material resources and the fruits from labor, as some premodern societies are indeed reputed to have done. In practice, however, social evolution commonly had the opposite effect. Domestication of food sources also domesticated people. The formation of states as a highly competitive form of organization established steep hierarchies of power and coercive force that skewed access to income and wealth. Political inequality reinforced and amplified economic inequality. For most of the agrarian period, the state enriched the few at the expense of the many: gains from pay and benefactions for public service often paled next to those from corruption, extortion, and plunder. As a result, many premodern societies grew to be as unequal as they could possibly be, probing the limits of surplus appropriation by small elites under conditions of low per capita output and minimal growth. And when more benign institutions promoted more vigorous economic development, most notably in the emergent West, they continued to sustain high inequality. Urbanization, commercialization, financial sector innovation,

trade on an increasingly global scale, and, finally, industrialization generated rich returns for holders of capital. As rents from the naked exercise of power declined, choking off a traditional source of elite enrichment, more secure property rights and state commitments strengthened the protection of hereditary private wealth. Even as economic structures, social norms, and political systems changed, income and wealth inequality remained high or found new ways to grow.

For thousands of years, civilization did not lend itself to peaceful equalization. Across a wide range of societies and different levels of development, stability favored economic inequality. This was as true of Pharaonic Egypt as it was of Victorian England, as true of the Roman Empire as of the United States. Violent shocks were of paramount importance in disrupting the established order, in compressing the distribution of income and wealth, in narrowing the gap between rich and poor. Throughout recorded history, the most powerful leveling invariably resulted from the most powerful shocks. Four different kinds of violent ruptures have flattened inequality: mass mobilization warfare, transformative revolution, state failure, and lethal pandemics. I call these the Four Horsemen of Leveling. Just like their biblical counterparts, they went forth to “take peace from the earth” and “kill with sword, and with hunger, and with death, and with the beasts of the earth.” Sometimes acting individually and sometimes in concert with one another, they produced outcomes that to contemporaries often seemed nothing short of apocalyptic. Hundreds of millions perished in their wake. And by the time the dust had settled, the gap between the haves and the have-nots had shrunk, sometimes dramatically.<sup>6</sup>

Only specific types of violence have consistently forced down inequality. Most wars did not have any systematic effect on the distribution of resources: although archaic forms of conflict that thrived on conquest and plunder were likely to enrich victorious elites and impoverish those on the losing side, less clear-cut endings failed to have predictable consequences. For war to level disparities in income and wealth, it needed to penetrate society as a whole, to mobilize people and resources on a scale that was often only feasible in modern nation-states. This explains why the two world wars were among the greatest levelers in history. The physical destruction wrought by industrial-scale warfare, confiscatory taxation, government intervention in the economy, inflation, disruption to global flows of goods and capital, and other factors all combined to

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<sup>6</sup> Revelation 6:4, 8.

wipe out elites' wealth and redistribute resources. They also served as a uniquely powerful catalyst for equalizing policy change, providing powerful impetus to franchise extensions, unionization, and the expansion of the welfare state. The shocks of the world wars led to what is known as the "Great Compression," massive attenuation of inequalities in income and wealth across developed countries. Mostly concentrated in the period from 1914 to 1945, it generally took several more decades fully to run its course. Earlier mass mobilization warfare had lacked similar pervasive repercussions. The wars of the Napoleonic era or the American Civil War had produced mixed distributional outcomes, and the farther we go back in time, the less pertinent evidence there is. The ancient Greek city-state culture, represented by Athens and Sparta, arguably provides us with earliest examples of how intense popular military mobilization and egalitarian institutions helped constrain material inequality, albeit with mixed success.

The world wars spawned the second major leveling force, transformative revolution. Internal conflicts have not normally reduced inequality: peasant revolts and urban risings were common in premodern history but usually failed, and civil war in developing countries tends to render the income distribution more unequal rather than less. Violent societal restructuring needs to be exceptionally intense if it is to reconfigure access to material resources. Similarly to equalizing mass mobilization warfare, this was primarily a phenomenon of the twentieth century. Communists who expropriated, redistributed, and then often collectivized leveled inequality on a dramatic scale. The most transformative of these revolutions were accompanied by extraordinary violence, in the end matching the world wars in terms of body count and human misery. Far less bloody ruptures such as the French Revolution leveled on a correspondingly smaller scale.

Violence might destroy states altogether. State failure or systems collapse used to be a particularly reliable means of leveling. For most of history, the rich were positioned either at or near the top of the political power hierarchy or were connected to those who were. Moreover, states provided a measure of protection, however modest by modern standards, for economic activity beyond the subsistence level. When states unraveled, these positions, connections, and protections came under pressure or were altogether lost. Although everybody might suffer when states unraveled, the rich simply had much more to lose: declining or collapsing elite income and wealth compressed the overall distribution of resources. This has happened for as long as there have been states. The

earliest known examples reach back 4,000 years to the end of Old Kingdom Egypt and the Akkadian empire in Mesopotamia. Even today, the experience of Somalia suggests that this once potent equalizing force has not completely disappeared.

State failure takes the principle of leveling by violent means to its logical extremes: instead of achieving redistribution and rebalancing by reforming and restructuring existing polities, it wipes the slate clean in a more comprehensive manner. The first three horsemen represent different stages, not in the sense that they are likely to appear in sequence—whereas the biggest revolutions were triggered by the biggest wars, state collapse does not normally require similarly strong pressures—but in terms of intensity. What they all have in common is that they rely on violence to remake the distribution of income and wealth alongside the political and social order.

Human-caused violence has long had competition. In the past, plague, smallpox, and measles ravaged whole continents more forcefully than even the largest armies or most fervent revolutionaries could hope to do. In agrarian societies, the loss of a sizeable share of the population to microbes, sometimes a third or even more, made labor scarce and raised its price relative to that of fixed assets and other nonhuman capital, which generally remained intact. As a result, workers gained and landlords and employers lost as real wages rose and rents fell. Institutions mediated the scale of these shifts: elites commonly attempted to preserve existing arrangements through fiat and force but often failed to hold equalizing market forces in check.

Pandemics complete the quartet of horsemen of violent leveling. But were there also other, more peaceful mechanisms of lowering inequality? If we think of leveling on a large scale, the answer must be no. Across the full sweep of history, every single one of the major compressions of material inequality we can observe in the record was driven by one or more of these four levelers. Moreover, mass wars and revolutions did not merely act on those societies that were directly involved in these events: the world wars and exposure to communist challengers also influenced economic conditions, social expectations, and policymaking among bystanders. These ripple effects further broadened the effects of leveling rooted in violent conflict. This makes it difficult to disentangle developments after 1945 in much of the world from the preceding shocks and their continuing reverberations. Although falling income inequality in Latin America in the early 2000s might be the most promising candidate for nonviolent equalization, this trend has remained relatively modest in scope, and its sustainability is uncertain.

Other factors have a mixed record. From antiquity to the present, land reform has tended to reduce inequality most when associated with violence or the threat of violence—and least when not. Macroeconomic crises have only short-lived effects on the distribution of income and wealth. Democracy does not of itself mitigate inequality. Although the interplay of education and technological change undoubtedly influences dispersion of incomes, returns on education and skills have historically proven highly sensitive to violent shocks. Finally, there is no compelling empirical evidence to support the view that modern economic development, as such, narrows inequalities. There is no repertoire of benign means of compression that has ever achieved results that are even remotely comparable to those produced by the Four Horsemen.

Yet shocks abate. When states failed, others sooner or later took their place. Demographic contractions were reversed after plagues subsided, and renewed population growth gradually returned the balance of labor and capital to previous levels. The world wars were relatively short, and their aftereffects have faded over time: top tax rates and union density are down, globalization is up, communism is gone, the Cold War is over, and the risk of World War III has receded. All of this makes the recent resurgence of inequality easier to understand. The traditional violent levelers currently lie dormant and are unlikely to return in the foreseeable future. No similarly potent alternative mechanisms of equalization have emerged.

Even in the most progressive advanced economies, redistribution and education are already unable fully to absorb the pressure of widening income inequality before taxes and transfers. Lower-hanging fruits beckon in developing countries, but fiscal constraints remain strong. There does not seem to be an easy way to vote, regulate, or teach our way to significantly greater equality. From a global historical perspective, this should not come as a surprise. So far as we can tell, environments that were free from major violent shocks and their broader repercussions hardly ever witnessed major compressions of inequality. Will the future be different?

## WHAT THIS BOOK IS NOT ABOUT

Disparities in the distribution of income and wealth are not the only type of inequality of social or historical relevance: so are inequalities that are rooted in gender and sexual orientation; in race and ethnicity; and in age, ability, and beliefs, and so are inequalities of education, health, political voice, and life

chances. The title of this book is therefore not as precise as it could be. Then again, a subtitle such as “violent shocks and the global history of income and wealth inequality from the Stone Age to the present and beyond” would not only have stretched the publisher’s patience but would also have been needlessly exclusive. After all, power inequalities have always played a central role in determining access to material resources: a more detailed title would be at once more precise and too narrow.

I do not endeavor to cover all aspects even of economic inequality. I focus on the distribution of material resources *within* societies, leaving aside questions of economic inequality *between* countries, an important and much-discussed topic. I consider conditions within particular societies without explicit reference to the many other sources of inequality just mentioned, factors whose influence on the distribution of income and wealth would be hard, if not impossible, to track and compare in the very long run. I am primarily interested in answering the question of why inequality fell, in identifying the mechanisms of leveling. Very broadly speaking, after our species had embraced domesticated food production and its common corollaries, sedentism and state formation, and had acknowledged some form of hereditary property rights, upward pressure on material inequality effectively became a given—a fundamental feature of human social existence. Consideration of the finer points of how these pressures evolved over the course of centuries and millennia, especially the complex synergies between what we might crudely label coercion and market forces, would require a separate study of even greater length.<sup>7</sup>

Finally, I discuss violent shocks (alongside alternative mechanisms) and their effects on material inequality but do not generally explore the inverse relationship, the question of whether—and if so, how—inequality helped generate these violent shocks. There are several reasons for my reluctance. Because high levels of inequality were a common feature of historical societies, it is not easy to explain specific shocks with reference to that contextual condition. Internal stability varied widely among contemporaneous societies having comparable levels of material inequality. Some societies that underwent violent ruptures were not particularly unequal: prerevolutionary China is one example. Certain shocks were largely or entirely exogenous, most notably pandemics that

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<sup>7</sup> Milanovic 2005; 2012; Lakner and Milanovic 2013; and, most recently, Milanovic 2016: 10–45, 118–176 are among the most important studies of international income inequality. Anand and Segal 2015 survey scholarship in this area. Ponthieux and Meurs 2015 provide a massive overview of work on economic gender inequality. See also Sandmo 2015 on income distribution in economic thought.

leveled inequality by altering the balance of capital and labor. Even human-caused events such as the world wars profoundly affected societies that were not directly involved in these conflicts. Studies of the role of income inequality in precipitating civil war highlight the complexity of this relationship. None of this should be taken to suggest that domestic resource inequality did not have the potential to contribute to the outbreak of wars and revolutions or to state failure. It simply means that there is currently no compelling reason to assume a systematic causal connection between overall income and wealth inequality and the occurrence of violent shocks. As recent work has shown, analysis of more specific features that have a distributional dimension, such as competition within elite groups, may hold greater promise in accounting for violent conflict and breakdown.

For the purposes of this study, I treat violent shocks as discrete phenomena that act on material inequality. This approach is designed to evaluate the significance of such shocks as forces of leveling in the very long term, regardless of whether there is enough evidence to establish or deny a meaningful connection between these events and prior inequality. If my exclusive focus on one causal arrow, from shocks to inequality, encourages further engagement with the reverse, so much the better. It may never be feasible to produce a plausible account that fully endogenizes observable change in the distribution of income and wealth over time. Even so, possible feedback loops between inequality and violent shocks are certainly worth exploring in greater depth. My study can be no more than a building block for this larger project.<sup>8</sup>

## HOW IS IT DONE?

There are many ways of measuring inequality. In the following chapters, I generally use only the two most basic metrics, the Gini coefficient and percentage shares of total income or wealth. The Gini coefficient measures the extent to which the distribution of income or material assets deviates from perfect equality. If each member of a given population receives or holds exactly the same amount of resources, the Gini coefficient is 0; if one member controls everything and everybody else has nothing, it approximates 1. Thus the more unequal the distribution, the higher the Gini value. It can be expressed as a fraction of 1 or as a percentage; I prefer the former so as to distinguish it more

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<sup>8</sup> For more on this issue, see herein, chapter 14, pp. 392–394.

clearly from income or wealth shares, which are generally given as percentages. Shares tell us which proportion of the total income or wealth in a given population is received or owned by a particular group that is defined by its position within the overall distribution. For example, the much-cited “1 percent” represent those units—often households—of a given population that enjoy higher incomes or dispose of greater assets than 99 percent of its units. Gini coefficients and income shares are complementary measures that emphasize different properties of a given distribution: whereas the former compute the overall degree of inequality, the latter provide much-needed insight into the shape of the distribution.

Both indices can be used for measuring the distribution of different versions of the income distribution. Income prior to taxes and public transfers is known as “market” income, income after transfers is called “gross” income, and income net of all taxes and transfers is defined as “disposable” income. In the following, I refer only to market and disposable income. Whenever I use the term *income inequality* without further specification, I mean the former. For most of recorded history, market income inequality is the only type that can be known or estimated. Moreover, prior to the creation of extensive systems of fiscal redistribution in the modern West, differences in the distribution of market, gross, and disposable income were generally very small, much as in many developing countries today. In this book, income shares are invariably based on the distribution of market income. Both contemporary and historical data on income share, especially those at the very top of the distribution, are usually derived from tax records that refer to income prior to fiscal intervention. On a few occasions, I also refer to ratios between shares or particular percentiles of the income distribution, an alternative measure of the relative weight of different brackets. More sophisticated indices of inequality exist but cannot normally be applied to long-term studies that range across highly diverse data sets.<sup>9</sup>

The measurement of material inequality raises two kinds of problems: conceptual and evidential. Two major conceptual issues merit attention here. First,

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<sup>9</sup> Despite what is often said, the Gini coefficient  $G$  can never quite reach 1, because  $G = 1 - 1/n$ , where  $n$  is the size of the population. See Atkinson 2015: 29–33 for a pithy summary of the different types of income and related metrics, noting complications arising from the need to control for the value of public services in addition to transfers and the difference between accrued and realized losses. For the purposes of this broad survey, such distinctions can safely be left aside. For ratios of income shares, see, most recently, Palma 2011 (top 10 percent/bottom 40 percent) and Cobham and Sumner 2014. For the methodology of inequality measurement, see Jenkins and Van Kerm 2009 and, in a more technical vein, Cowell and Flachaire 2015.

most available indices measure and express *relative* inequality based on the *share* of total resources captured by particular segments of the population. *Absolute* inequality, by contrast, focuses on the difference in the *amount* of resources that accrue to these segments. These two approaches tend to produce very different results. Consider a population in which the average household in the top decile of income distribution earns ten times as much as an average household in the bottom decile—say, \$100,000 versus \$10,000. National income subsequently doubles while the distribution of income remains unchanged. The Gini coefficient and income shares remain the same as before. From this perspective, incomes have gone up without raising inequality in the process. Yet at the same time, the income gap between the top and bottom deciles has doubled, from \$90,000 to \$180,000, ensuring much greater gains for affluent than for low-income households. The same principle applies to the distribution of wealth. In fact, there is hardly any credible scenario in which economic growth will fail to cause absolute inequality to rise. Metrics of relative inequality can therefore be said to be more conservative in outlook as they serve to deflect attention from persistently growing income and wealth gaps in favor of smaller and multidirectional changes in the distribution of material resources. In this book, I follow convention in prioritizing standard measures of relative inequality such as the Gini coefficient and top income shares but draw attention to their limitations where appropriate.<sup>10</sup>

A different problem stems from the Gini coefficient of income distribution's sensitivity to subsistence requirements and to levels of economic development. At least in theory, it is perfectly possible for a single person to own all the wealth that exists in a given population. However, nobody completely deprived of income would be able to survive. This means that the highest feasible Gini values for income are bound to fall short of the nominal ceiling of  $\sim 1$ . More specifically, they are limited by the amount of resources in excess of those needed to meet minimum subsistence requirements. This constraint is particularly powerful in the low-income economies that were typical of most of human history and that still exist in parts of the world today. For instance, in a society having a GDP equivalent to twice minimal subsistence, the Gini coefficient could not rise above 0.5 even if a single individual somehow managed to monopolize all income beyond what everybody else needed for bare survival.

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<sup>10</sup> See Atkinson and Brandolini 2004, esp. 19 fig. 4, and also Ravallion 2014: 835 and herein, chapter 16, p. 424. Milanovic 2016: 27–29 offers a defense of relative inequality measures.

At higher levels of output, the maximum degree of inequality is further held in check by changing definitions of what constitutes minimum subsistence and by largely impoverished populations' inability to sustain advanced economies. Nominal Gini coefficients need to be adjusted accordingly to calculate what has been called the extraction rate, the extent to which the maximum amount of inequality that is theoretically possible in a given environment has been actualized. This is a complex issue that is particularly salient to any comparisons of inequality in the very long run but that has only very recently begun to attract attention. I address it in more detail in the appendix at the end of this book.<sup>11</sup>

This brings me to the second category: problems related to the quality of the evidence. The Gini coefficient and top income shares are broadly congruent measures of inequality: they generally (though not invariably) move in the same direction as they change over time. Both are sensitive to the shortcomings of the underlying data sources. Modern Gini coefficients are usually derived from household surveys from which putative national distributions are extrapolated. This format is not particularly suitable for capturing the very largest incomes. Even in Western countries, nominal Ginis need to be adjusted upward to take full account of the actual contribution of top incomes. In many developing countries, moreover, surveys are often of insufficient quality to support reliable national estimates. In such cases, wide confidence intervals not only impede comparison between countries but also can make it hard to track change over time. Attempts to measure the overall distribution of wealth face even greater challenges—not only in developing countries, where a sizeable share of elite assets is thought to be concealed offshore, but even in data-rich environments such as the United States. Income shares are usually computed from tax records, whose quality and characteristics vary greatly across countries and over time and that are vulnerable to distortions motivated by tax evasion. Low participation rates in lower-income countries and politically driven definitions of what constitutes taxable income introduce additional complexities. Despite these difficulties, the compilation and online publication of a growing amount of information on top income shares in the “World Wealth and Income Database” has put our understanding of income inequality on a more solid footing and redirected attention from somewhat opaque

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<sup>11</sup> See herein, pp. 445–456; for the example, see p. 445.

single-value metrics such as the Gini coefficient to more articulated indices of resource concentration.<sup>12</sup>

All these problems pale in comparison to those we encounter once we seek to extend the study of income and wealth inequality farther back in time. Regular income taxes rarely predate the twentieth century. In the absence of household surveys, we have to rely on proxy data to calculate Gini coefficients. Prior to about 1800, income inequality across entire societies can be estimated only with the help of social tables, rough approximations of the incomes obtained by different parts of the population that were drawn up by contemporary observers or inferred, however tenuously, by later scholars. More rewarding, a growing number of data sets that in parts of Europe reach back to the High Middle Ages have shed light on conditions in individual cities or regions. Surviving archival records of wealth taxes in French and Italian cities, taxes on housing rental values in the Netherlands, and income taxes in Portugal allow us to reconstruct the underlying distribution of assets and sometimes even incomes. So do early modern records of the dispersion of agricultural land in France and of the value of probate estates in England. In fact, Gini coefficients can fruitfully be applied to evidence that is much more remote in time. Patterns of landownership in late Roman Egypt; variation in the size of houses in ancient and early medieval Greece, Britain, Italy, and North Africa and in Aztec Mexico; the distribution of inheritance shares and dowries in Babylonian society; and even the dispersion of stone tools in Catal Höyük, one of the earliest known proto-urban settlements in the world, established almost 10,000 years ago, have all been analyzed in this manner. Archaeology has enabled us to push back the boundaries of the study of material inequality into the Paleolithic at the time of the last Ice Age.<sup>13</sup>

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<sup>12</sup> For the relationship between Ginis and top income shares, see Leigh 2007; Alvaredo 2011; Morelli, Smeeding, and Thompson 2015: 683–687; Roine and Waldenström 2015: 503–606, esp. 504 fig. 7.7. For Gini adjustments, see esp. Morelli, Smeeding, and Thompson 2015: 679, 681–683 and herein, chapter 15, p. 409. Palma 2011: 105, Piketty 2014: 266–267, and Roine and Waldenström 2015: 506 stress the probative value of top income shares. For Gini comparisons, see, e.g., Bergh and Nilsson 2010: 492–493 and Ostry, Berg, and Tsangarides 2014: 12. Both prefer the Gini values reported in the Standardized World Income Inequality Database (SWIID), which I use throughout the book except when I cite references by other scholars. Confidence intervals are visualized at the SWIID website, <http://fsolt.org/swiid/>; see also herein, chapter 13, pp. 377–378. For the concealment of wealth, see Zucman 2015. Kopczuk 2015 discusses the difficulties of measuring U.S. wealth shares. For the nature and reliability of top income data, see esp. Roine and Waldenström 2015: 479–491 and the very extensive technical discussions in the many contributions to Atkinson and Piketty 2007a and 2010. The World Wealth and Income Database (WWID) can be accessed at <http://www.wid.world/>.

<sup>13</sup> All these and additional examples are discussed throughout Part I and in chapter 9, pp. 267–269, and chapter 10, pp. 306–310.

We also have access to a whole range of proxy data that do not directly document distributions but that are nevertheless known to be sensitive to changes in the level of income inequality. The ratio of land rents to wages is a good example. In predominantly agrarian societies, changes in the price of labor relative to the value of the most important type of capital tend to reflect changes in the relative gains that accrued to different classes: a rising index value suggests that landlords prospered at the expense of workers, causing inequality to grow. The same is true of a related measure, the ratio of mean per capita GDP to wages. The larger the nonlabor share in GDP, the higher the index, and the more unequal incomes were likely to be. To be sure, both methods have serious weaknesses. Rents and wages may be reliably reported for particular locales but need not be representative of larger populations or entire countries, and GDP guesstimates for any premodern society inevitably entail considerable margins of error. Nevertheless, such proxies are generally capable of giving us a sense of the contours of inequality trends over time. Real incomes represent a more widely available but somewhat less instructive proxy. In western Eurasia, real wages, expressed in grain equivalent, have now been traced back as far as 4,000 years. This very long-term perspective makes it possible to identify instances of unusually elevated real incomes for workers, a phenomenon plausibly associated with lowered inequality. Even so, information on real wages that cannot be contextualized with reference to capital values or GDP remains a very crude and not particularly reliable indicator of overall income inequality.<sup>14</sup>

Recent years have witnessed considerable advances in the study of premodern tax records and the reconstruction of real wages, rent/wage ratios, and even GDP levels. It is not an exaggeration to say that much of this book could not have been written twenty or even ten years ago. The scale, scope, and pace of progress in the study of historical income and wealth inequality gives us much hope for the future of this field. There is no denying that long stretches of human history do not admit even the most rudimentary quantitative analysis of the distribution of material resources. Yet even in these cases we may be able to identify signals of change over time. Elite displays of wealth are the most promising—and, indeed, often the only—marker of inequality. When archaeological evidence

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<sup>14</sup> Once again, I employ these approaches in much of this book, especially in Parts I and V. Evidence for real wages going back to the Middle Ages has been gathered at “The IISH list of datafiles of historical prices and wages” hosted by the International Institute of Social History, <http://www.iisg.nl/hpw/data.php>. Scheidel 2010 covers the earliest evidence. For historical GDP data, estimates, and conjectures, see the “Maddison project,” <http://www.ggdc.net/maddison/maddison-project/home.htm>.

of lavish elite consumption in housing, diet, or burials gives way to more modest remains or signs of stratification fade altogether, we may reasonably infer a degree of equalization. In traditional societies, members of the wealth and power elites were often the only ones who controlled enough income or assets to suffer large losses, losses that are visible in the material record. Variation in human stature and other physiological features can likewise be associated with the distribution of resources, although other factors, such as pathogen loads, also played an important role. The more we move away from data that document inequality in a more immediate manner, the more conjectural our readings are bound to become. Yet global history is simply impossible unless we are prepared to stretch. This book is an attempt to do just that.

In so doing we face an enormous gradient in documentation, from detailed statistics concerning the factors behind the recent rise in American income inequality to vague hints at resource imbalances at the dawn of civilization, with a wide array of diverse data sets in between. To join all this together in a reasonably coherent analytical narrative presents us with a formidable challenge: in no small measure, this is the true challenge of inequality invoked in the title of this introduction. I have chosen to structure each part of this book in what seems to me the best way to address this problem. The opening part follows the evolution of inequality from our primate beginnings to the early twentieth century and is thus organized in conventional chronological fashion (chapters 1–3).

This changes once we turn to the Four Horsemen, the principal drivers of violent leveling. In the parts devoted to the first two members of this quartet, war and revolution, my survey starts in the twentieth century and subsequently moves back in time. There is a simple reason for this. Leveling by means of mass mobilization warfare and transformative revolution has primarily been a feature of modernity. The “Great Compression” of the 1910s to 1940s not only produced by far the best evidence of this process but also represents and indeed constitutes it in paradigmatic form (chapters 4–5). In a second step, I look for antecedents of these violent ruptures, moving from the American Civil War all the way back to the experience of ancient China, Rome, and Greece, as well as from the French Revolution to the countless revolts of the premodern era (chapters 6 and 8). I follow the same trajectory in my discussion of civil war in the final part of chapter 6, from the consequences of such conflicts in contemporary developing countries to the end of the Roman Republic. This approach allows me to establish models of violent leveling that are solidly grounded in modern data before I explore whether they can also be applied to the more distant past.

In Part V, on plagues, I employ a modified version of the same strategy by moving from the best documented case—the Black Death of the Late Middle Ages (chapter 10)—to progressively less well known examples, one of which (the Americas after 1492) happens to be somewhat more recent whereas the others are located in more ancient times (chapter 11). The rationale is the same: to establish the key mechanisms of violent leveling brought about by epidemic mass mortality with the help of the best available evidence before I search for analogous occurrences elsewhere. Part IV, on state failure and systems collapse, takes this organizing principle to its logical conclusion. Chronology matters little in analyzing phenomena that were largely confined to premodern history, and there is nothing to be gained from following any particular time sequence. The dates of particular cases matter less than the nature of the evidence and the scope of modern scholarship, both of which vary considerably across space and time. I thus begin with a couple of well-attested examples before I move on to others that I discuss in less detail (chapter 9). Part VI, on alternatives to violent leveling, is for the most part arranged by topic as I evaluate different factors (chapters 12–13) before I turn to counterfactual outcomes (chapter 14). The final part, which together with Part I frames my thematic survey, returns to a chronological format. Moving from the recent resurgence in inequality (chapter 15) to the prospects of leveling in the near and more distant future (chapter 16), it completes my evolutionary overview.

A study that brings together Hideki Tojo’s Japan and the Athens of Pericles or the Classic Lowland Maya and present-day Somalia may seem puzzling to some of my fellow historians, although less so, I hope, to readers from the social sciences. As I said, the challenge of exploring the global history of inequality is a serious one. If we want to identify forces of leveling across recorded history, we need to find ways to bridge the divide between different areas of specialization both within and beyond academic disciplines and to overcome huge disparities in the quality and quantity of the data. A long-term perspective calls for unorthodox solutions.

## DOES IT MATTER?

All this raises a simple question. If it is so difficult to study the dynamics of inequality across very different cultures and in the very long run, why should we even try? Any answer to this question needs to address two separate but related issues—does economic inequality matter today, and why is its history worth exploring? Princeton philosopher Harry Frankfurt, best known for his earlier disquisition *On Bullshit*, opens his booklet *On Inequality* by disagreeing with

Obama's assessment quoted at the beginning of this introduction: "our most fundamental challenge is not the fact that the incomes of Americans are widely *unequal*. It is, rather, the fact that too many of our people are *poor*." Poverty, to be sure, is a moving target: someone who counts as poor in the United States need not seem so in central Africa. Sometimes poverty is even defined as a function of inequality—in the United Kingdom, the official poverty line is set as a fraction of median income—although absolute standards are more common, such as the threshold of \$1.25 in 2005 prices used by the World Bank or reference to the cost of a basket of consumer goods in America. Nobody would disagree that poverty, however defined, is undesirable: the challenge lies in demonstrating that income and wealth inequality *as such* has negative effects on our lives, rather than the poverty or the great fortunes with which it may be associated.<sup>15</sup>

The most hard-nosed approach concentrates on inequality's effect on economic growth. Economists have repeatedly noted that it can be hard to evaluate this relationship and that the theoretical complexity of the problem has not always been matched by the empirical specification of existing research. Even so, a number of studies argue that higher levels of inequality are indeed associated with lower rates of growth. For instance, lower disposable income inequality has been found to lead not only to faster growth but also to longer growth phases. Inequality appears to be particularly harmful to growth in developed economies. There is even some support for the much-debated thesis that high levels of inequality among American households contributed to the credit bubble that helped trigger the Great Recession of 2008, as lower-income households drew on readily available credit (in part produced by wealth accumulation at the top) to borrow for the sake of keeping up the with consumption patterns of more affluent groups. Under more restrictive conditions of lending, by contrast, wealth inequality is thought to disadvantage low-income groups by blocking their access to credit.<sup>16</sup>

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<sup>15</sup> Frankfurt 2015: 3. Wearing my historian's hat I am happy to take it as a given that any and all history is worth exploring and that knowledge is its own reward. Then again, when it comes to the world we live in, some questions may be more equal than others.

<sup>16</sup> For the difficulties, see Bourguignon 2015: 139–140 and esp. Voitchovsky 2009: 569, who summarizes conflicting results (562 table 22.11). Studies that report negative consequences include Easterly 2007; Cingano 2014; and Ostry, Berg, and Tsangarides 2014, esp. 16, 19 (more and longer growth). Changes in the income share of the top quintile have an effect on the growth rate over the following five-year period: Dabla-Norris et al. 2015. Rising income inequality between 1985 and 2005 reduced cumulative growth in an average OECD country by 4.7 percent in the period from 1990 to 2010: OECD 2015: 59–100, esp. 67. A survey of 104 countries suggests that between 1970 and 2010, higher income inequality tended to raise per capita GDP (as well as human capital) in low-income countries but had the opposite effect in those with middle

Among developed countries, higher inequality is associated with less economic mobility across generations. Because parental income and wealth are strong indicators of educational attainment as well as earnings, inequality tends to perpetuate itself over time, and all the more so the higher it is. The disequalizing consequences of residential segregation by income are a related issue. In metropolitan areas in the United States since the 1970s, population growth in high- and low-income areas alongside shrinking middle-income areas has led to increasing polarization. Affluent neighborhoods in particular have become more isolated, a development likely to precipitate concentration of resources, including locally funded public services, which in turn affects the life chances of children and impedes intergenerational mobility.<sup>17</sup>

In developing countries, at least certain kinds of income inequality increase the likelihood of internal conflict and civil war. High-income societies contend with less extreme consequences. In the United States, inequality has been said to act on the political process by making it easier for the wealthy to exert influence, although in this case we may wonder whether it is the presence of very large fortunes rather than inequality per se that accounts for this phenomenon. Some studies find that high levels of inequality are correlated with lower levels of self-reported happiness. Only health appears to be unaffected by the distribution of resources as such, as opposed to income levels:

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or high incomes: Brueckner and Lederman 2015. This is consistent with an earlier study that was unable to show negative consequences for growth beyond advanced economies: Malinen 2012. If we confine ourselves rather narrowly to inequality expressed through the relative size of billionaire fortunes, negative effects may even be limited to wealth inequality associated with political connections: Bagchi and Svejnar 2015. Van Treeck 2014 reviews the debate about the role of inequality in the financial crisis. Wealth inequality and access to credit: Bowles 2012a: 34–72; Bourguignon 2015: 131–132.

<sup>17</sup> Björklund and Jäntti 2009 and Jäntti and Jenkins 2015 are the most recent surveys. For the association between inequality and mobility, see Corak 2013: 82 fig. 1 and Jäntti and Jenkins 2015: 889–890, esp. 890 fig. 10.13. Large differences exist within the OECD: the United States and the United Kingdom report both high inequality and low mobility, whereas the inverse applies to Nordic countries: OECD 2010: 181–198. Björklund and Jäntti 2009: 502–504 find that family background has a stronger influence on economic status in America than in Scandinavia, although broader cross-country studies sometimes suggest only weak effects. Men who grew up in more unequal societies in the 1970s were less likely to have experienced social mobility by the late 1990s: Andrews and Leigh 2009; Bowles and Gintis 2002 (indicators); Autor 2014: 848 (self-perpetuation, education). Reardon and Bischoff 2011a and b discuss residential segregation. Kozol 2005 focuses on its consequences for schooling. See also Murray 2012 for a conservative perspective on this issue. Changes in economic inequality aside, the findings of Clark 2014 suggest that social mobility more generally tends to be modest across a wide range of different societies and in the long run.

whereas health differences generate income inequality, the reverse remains unproven.<sup>18</sup>

What all these studies have in common is that they focus on the practical consequences of material inequality, on instrumental reasons for why it might be deemed a problem. A different set of objections to a skewed distribution of resources is grounded in normative ethics and notions of social justice, a perspective well beyond the scope of my study but deserving of greater attention in a debate that is all too often dominated by economic concerns. Yet even on the more limited basis of purely instrumental reasoning there is no doubt that at least in certain contexts, high levels of inequality and growing disparities in income and wealth are detrimental to social and economic development. But what constitutes a “high” level, and how do we know whether “growing” imbalances are a novel feature of contemporary society or merely bring us closer to historically common conditions? Is there, to use Francois Bourguignon’s term, a “normal” level of inequality to which countries that are experiencing widening inequality should aspire to return? And if—as in many developed economies—inequality is higher now than it was a few decades ago but is lower than a century ago, what does this mean for our understanding of the determinants of the distribution of income and wealth?<sup>19</sup>

Inequality either grew or held fairly steady for much of recorded history, and significant reductions have been rare. Yet policy proposals designed to stem or reverse the rising tide of inequality tend to show little awareness or appreciation of this historical background. Is that as it should be? Perhaps our age has become so fundamentally different, so completely untethered from its agrarian and undemocratic foundations, that history has nothing left to teach us. And indeed, there is no question that much has changed: low-income groups in rich economies are generally better off than most people were in the past, and even the most disadvantaged residents of the least developed countries live longer

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<sup>18</sup> For inequality and civil war, see hereafter, chapter 6, pp. 202–203, and cf. briefly Bourguignon 2015: 133–134. Politics: Gilens 2012. Happiness: van Praag and Ferrer-i-Carbonell 2009: 374, and see also Clark and D’Ambrosio 2015 on inequality’s effect on subjective well-being and attitudes. Health: Leigh, Jencks, and Smeeding 2009; O’Donnell, Van Doorslaer, and Van Ourti 2015. However, the gap in life expectancy between different socioeconomic groups has been growing both in the United States and in several Western European countries: Bosworth, Burtless, and Zhang 2016: 62–69.

<sup>19</sup> Atkinson 2015: 11–14 distinguishes between instrumental and intrinsic reasons for why inequality is a problem. See also Frankfurt 2015. In fairness, Bourguignon 2015: 163 himself cautiously applies quotation marks to the concept of a “normal” level of inequality” but nevertheless defines conditions “prior to the last two or three decades” in these terms.

than their ancestors lived. The experience of life at the receiving end of inequality is in many ways very different from what it used to be.

But it is not economic or more broadly human development that concerns us here—rather how the fruits of civilization are distributed, what causes them to be distributed the way they are, and what it would take to change these outcomes. I wrote this book to show that the forces that used to shape inequality have not in fact changed beyond recognition. If we seek to rebalance the current distribution of income and wealth in favor of greater equality, we cannot simply close our eyes to what it took to accomplish this goal in the past. We need to ask whether great inequality has ever been alleviated without great violence, how more benign influences compare to the power of this Great Leveler, and whether the future is likely to be very different—even if we may not like the answers.

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Part I

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# A BRIEF HISTORY OF INEQUALITY

# THE RISE OF INEQUALITY

## PRIMORDIAL LEVELING

Has inequality always been with us? Our closest nonhuman relatives in the world today, the African great apes—gorillas, chimpanzees, and bonobos—are intensely hierarchical creatures. Adult gorilla males divide into a dominant few endowed with harems of females and many others having no consorts at all. Silverbacks dominate not only the females in their groups but also any males who stay on after reaching maturity. Chimpanzees, especially but not only males, expend tremendous energy on status rivalry. Bullying and aggressive dominance displays are matched by a wide range of submission behaviors by those on the lower rungs of the pecking order. In groups of fifty or a hundred, ranking is a central and stressful fact of life, for each member occupies a specific place in the hierarchy but is always looking for ways to improve it. And there is no escape: because males who leave their group to avoid overbearing dominants run the risk of being killed by males in other groups, they tend to stay put and compete or submit. Echoing the phenomenon of social circumscription that has been invoked to explain the creation of hierarchy among humans, this powerful constraint serves to shore up inequality.

Their closest relatives, the bonobos, may present a gentler image to the world but likewise feature alpha males and females. Considerably less violent and intent on bullying than chimpanzees, they nevertheless maintain clear hierarchical rankings. Although concealed ovulation and the lack of systematic domination of females by males reduce violent conflict over mating opportunities, hierarchy manifests in feeding competition among males. Across these species, inequality is expressed in unequal access to food sources—the closest approximation of human-style income disparities—and, above all, in terms of reproductive success. Dominance hierarchy, topped by the biggest, strongest,

and most aggressive males, which consume the most and have sexual relations with the most females, is the standard pattern.<sup>1</sup>

It is unlikely that these shared characteristics evolved only after these three species had branched off from the ancestral line, a process that commenced about 11 million years ago with the emergence of gorillas and that continued 3 million years later with the split of the common ancestor of chimpanzees and bonobos from the earliest forerunners of what were to evolve into australopiths and, eventually, humans. Even so, marked social expressions of inequality may not always have been common among primates. Hierarchy is a function of group living, and our more distant primate relatives, who branched off earlier, are now less social and live either on their own or in very small or transient groups. This is true both of gibbons, whose ancestors split from those of the great apes some 22 million years ago, and of the orangutans, the first of the great apes to undergo speciation about 17 million years ago and now confined to Asia. Conversely, hierarchical sociality is typical of the African genera of this taxonomic family, including our own. This suggests that the most recent common ancestor of gorillas, chimpanzees, bonobos, and humans already displayed some version of this trait, whereas more distant precursors need not have done so.<sup>2</sup>

Analogy to other primate species may be a poor guide to inequality among earlier hominins and humans. The best proxy evidence we have is skeletal data on sexual size dimorphism, the extent to which mature members of one sex—in this case, males—are taller, heavier, and stronger than those of the other. Among gorillas, as among sea lions, intense inequality among males with and without harems as well as between males and females is associated with a high degree of male-biased size dimorphism. Judging from the fossil record, prehuman hominins—australopiths and paranthropi, reaching back more than 4 million years—appear to have been more dimorphic than humans. If the orthodox position, which has recently come under growing pressure, can be upheld, some of the earliest species, *Australopithecus afarensis* and *anamensis*, which emerged 3 to 4 million years ago, were defined by a male body mass advantage of more than 50 percent, whereas later species occupied an intermediate position between them and humans. With the

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<sup>1</sup> Boehm 1999: 16–42 is a classic account. See esp. 130–137 on why social relations in all three of these species can be defined as (more or less) “despotic.” Note that even among nonhuman primates, a violent shock in the form of mass mortality may soften hierarchies and reduce rank-based bullying: Sapolsky and Share 2004.

<sup>2</sup> For these speciation dates, see Pozzi et al. 2014: 177 fig. 2, the most recent and comprehensive study available at the time of writing. Future research may well alter these estimates: only three years earlier, Tinh et al. 2011: 4 had reported significantly later dates. Traits of common ancestor: Boehm 1999: 154.

advent of larger-brained *Homo erectus* more than 2 million years ago, sexual size dimorphism had already declined to the relatively modest amount we still observe today. Insofar as the degree of dimorphism was correlated with the prevalence of agonistic male-on-male competition for females or shaped by female sexual selection, reduced sex differences may be a sign of lesser reproductive variance among males. On this reading, evolution attenuated inequality both among males and between the sexes. Even so, higher rates of reproductive inequality for men than for women have persisted alongside moderate levels of reproductive polygyny.<sup>3</sup>

Other developments that may have begun as long as 2 million years ago are also thought to have fostered greater equality. Changes in the brain and in physiology that promoted cooperative breeding and feeding would have countered aggression by dominants and would have softened hierarchies in larger groups. Innovations in the application of violence may have contributed to this process. Anything that helped subalterns resist dominants would have curtailed the powers of the latter and thus diminished overall inequality. Coalition-building among lower-status men was one means to this end, use of projectile weapons another. Fights at close quarters, whether with hands and teeth or with sticks and rocks, favored stronger and more aggressive men. Weapons began to play an equalizing role after they could be deployed over a greater distance.

Some 2 million years ago, anatomical changes in the shoulder made it possible for the first time to throw stones and other objects in an effective manner, a skill unavailable to earlier species and to nonhuman primates today. This adaptation not only improved hunting abilities but also made it easier for gammas to challenge alphas. The manufacturing of spears was the next step, and enhancements such as fire-hardened tips and, later, stone tips followed. Controlled use of fire dates back perhaps 800,000 years, and heat treatment technology is at least 160,000 years old. The appearance of darts or arrow tips made of stone, first attested about 70,000 years ago in South Africa, was merely the latest phase in a drawn-out process of projectile weapons development. No matter how primitive they may seem to modern observers, such tools privileged skill over size, strength, and aggressiveness and encouraged first strikes and ambushes

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<sup>3</sup> Orthodoxy: Klein 2009: 197. Plavcan 2012: 49–50 rejects the notion of lower dimorphism, comparable to modern human levels, already in *Australopithecus afarensis* proposed by Reno, McCollum, Meindl, and Lovejoy 2010; Reno and Lovejoy 2015. Cf. also Shultziner et al. 2010: 330–331. See Plavcan 2012: 47 fig. 1 for a comparison of dimorphism in humans and other apes and 50–58 for a discussion of its likely causes. Labuda et al. 2010 and Poznik et al. 2013: 565 present genetic evidence for moderate polygyny in modern humans. Bowles 2006 argues for a role of reproductive leveling in the evolution of human altruism.

as well as cooperation among weaker individuals. The evolution of cognitive skills was a vital complement necessary for more accurate throwing, improved weapons design, and more reliable coalition building. Full language capabilities, which would have facilitated more elaborate alliances and reinforced notions of morality, may date back as few as 100,000 or as many as 300,000 years. Much of the chronology of these social changes remains unclear: they may have been strung out over the better part of the last 2 million years or may have been more concentrated among anatomically modern humans, our own species of *Homo sapiens*, which arose in Africa at least 200,000 years ago.<sup>4</sup>

What matters most in the present context is the cumulative outcome, the improved ability of lower-status individuals to confront alpha males in ways that are not feasible among nonhuman primates. When dominants became embedded in groups whose members were armed with projectiles and capable of balancing their influence by forming coalitions, overt dominance through brute force and intimidation was no longer a viable option. If this conjecture—for this is all it can be—is correct, then violence and, more specifically, novel strategies of organizing and threatening violent action, played an important and perhaps even critical role in the first great leveling in human history. By that time, human biological and social evolution had given rise to an egalitarian equilibrium. Groups were not yet large enough, productive capabilities not yet differentiated enough, and intergroup conflict and territoriality not yet developed enough to make submission to the few seem the least bad option for the many. Whereas animalian forms of domination and hierarchy had been eroded, they had not yet been replaced by new forms of inequality based on domestication, property, and war. That world has been largely but not completely lost. Defined by low levels of resource inequality and a strong egalitarian ethos, the few remaining foraging populations in the world today give us a sense, however limited, of what the dynamics of equality in the Middle and Upper Paleolithic may have looked like.<sup>5</sup>

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<sup>4</sup> Shoulder: Roach, Venkadesan, Rainbow, and Lieberman 2013. Fire: Marean 2015: 543, 547. Stone tips for projectiles: Henshilwood et al. 2001; Brown et al. 2012. Boehm 1999: 174–181 attributes considerable leveling effects to these developments, most recently followed by Turchin 2016b: 95–111. See also Shultziner et al. 2010: 329. Language: Marean 2015: 542. Boehm 1999: 181–183, 187–191 emphasizes the equalizing potential of language and morality. Timing: Boehm 1999: 195–196, 198, with a preference for relatively recent and sudden changes, whereas Dubreuil 2010: 55–90 and Shultziner et al. 2010: 329–331 give greater weight to earlier changes. The oldest known fossil remains of *Homo sapiens* date from about 195,000 years ago: McDougall, Brown, and Fleagle 2005. This is consistent with modern DNA analysis by Elhaik et al. 2014 that points to speciation probably a little more than 200,000 years ago.

<sup>5</sup> These terms conventionally refer to the period from about 300,000 years ago until the onset of agriculture. For the limitations of this perspective, see herein, p. 30.

Powerful logistical and infrastructural constraints help contain inequality among hunter-gatherers. A nomadic lifestyle that does not feature pack animals severely limits the accumulation of material possessions, and the small size and fluid and flexible composition of foraging groups are not conducive to stable asymmetric relationships beyond basic power disparities of age and gender. Moreover, forager egalitarianism is predicated on the deliberate rejection of attempts to dominate. This attitude serves as a crucial check to the natural human propensity to form hierarchies: active equalization is employed to maintain a level playing field. Numerous means of enforcing egalitarian values have been documented by anthropologists, graduated by severity. Begging, scrounging, and stealing help ensure a more equal distribution of resources. Sanctions against authoritarian behavior and self-aggrandizement range from gossip, criticism, ridicule, and disobedience to ostracism and even physical violence, including homicide. Leadership consequently tends to be subtle, dispersed among multiple group members, and transient; the least assertive have the best chances to influence others. This distinctive moral economy has been called “reverse dominance hierarchy”: operative among adult men (who commonly dominate women and children), it represents the ongoing and preemptive neutralization of authority.<sup>6</sup>

Among the Hadza, a group of a few hundred hunter-gatherers in Tanzania, camp members forage individually and strongly prefer their own households in distributing the acquired food. At the same time, food sharing beyond one’s own household is expected and common, especially when resources can readily be spotted by others. Hadza may try to conceal honey because it is easier to hide, but if found out, they are compelled to share. Scrounging is tolerated and widespread. Thus even though individuals clearly prefer to keep more for themselves and their immediate kin, norms interfere: sharing is common because the absence of domination makes sharing hard to resist. Large perishable items such as big game may even be shared beyond the camp group. Saving is not valued, to the extent that available resources tend to be consumed without delay and not even shared with people who happen to be absent at that moment. As a result, the Hadza have only minimal private possessions: jewelry, clothes, a digging stick, and sometimes a cooking pot for women and a bow and arrows, clothes and jewelry, and perhaps a few tools for men. Many of these goods are not particularly durable, and owners do not form strong attachments to them. Property

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<sup>6</sup> Material constraints: e.g., Shultziner et al. 2010: 327. Leveling needed to combat natural hierarchies: Boehm 1999: 37, 39. Enforcement: Boehm 1999: 43–89; also, more briefly, Shultziner et al. 2010: 325–327; Kelly 2013: 243–244; Boix 2015: 46–51; Morris 2015: 33–43.

beyond these basic items does not exist, and territory is not defended. The lack or dispersion of authority makes it hard to arrive at group decisions, let alone enforce them. In all these respects, the Hadza are quite representative of extant foraging groups more generally.<sup>7</sup>

A foraging mode of subsistence and an egalitarian moral economy combine into a formidable obstacle to any form of development for the simple reason that economic growth requires some degree of inequality in income and consumption to encourage innovation and surplus production. Without growth, there was hardly any surplus to appropriate and pass on. The moral economy prevented growth, and the lack of growth prevented the production and concentration of surplus. This must not be taken to suggest that foragers practice some form of communism: consumption is not equalized, and individuals differ not just in terms of their somatic endowments but also with respect to their access to support networks and material resources. As I show in the next section, forager inequality is not nonexistent but merely very low compared to inequality in societies that rely on other modes of subsistence.<sup>8</sup>

We also need to allow for the possibility that contemporary hunter-gatherers may differ in important ways from our pre-agrarian ancestors. Surviving forager groups are utterly marginalized and confined to areas that are beyond the reach of, or of little interest to, farmers and herders, environments that are well suited to a lifestyle that eschews the accumulation of material resources and firm claims to territory. Prior to the domestication of plants and animals for food production, foragers were much more widely spread out across the globe and had access to more abundant natural resources. In some cases, moreover, contemporary foraging groups may respond to a dominant world of more hierarchical farmers and pastoralists, defining themselves in contradistinction to outside norms. Remaining foragers are not timeless or “living fossils,” and their practices need to be understood within specific historical contexts.<sup>9</sup>

For this reason, prehistoric populations need not always have been as egalitarian as the experience of contemporary hunter-gatherers might suggest. Observable material inequalities in burial contexts that date from before the

<sup>7</sup> Marlowe 2010: 225–254, esp. 232–234, 237–238, 240–241, 248, 251–254. Typical character (on the Hadza as “median foragers”): 255–283. The !Kung bushmen are another well-known and much-cited case: Lee 1979; 1984.

<sup>8</sup> Growth and surplus: Boix 2015: 54–55 for the point about heterogeneous outcomes. Low inequality: Smith et al. 2010b, and see herein, pp. 37–39.

<sup>9</sup> Outside contacts: Sassaman 2004: 229, 236–238. Not “living fossils”: Marlowe 2010: 285–286; and Kelly 2013: 269–275 on hunter-gatherers as a proxy for prehistory, a complex yet useful analogy.

onset of the Holocene, which began about 11,700 years ago, are rare but do exist. The most famous example of unearned status and inequality comes from Sungir, a Pleistocene site 120 miles north of Moscow whose remains date from about 30,000 to 34,000 years ago, a time corresponding to a relatively mild phase of the last Ice Age. It contains the remains of a group of hunters and foragers who killed and consumed large mammals such as bison, horse, reindeer, antelope, and especially mammoth alongside wolf, fox, brown bear, and cave lion. Three human burials stand out. One features an adult man who was buried with some 3,000 beads made of mammoth ivory that had probably been sewn onto his fur clothing as well as around twenty pendants and twenty-five mammoth ivory rings. A separate grave was the final resting place of a girl of about ten years and a roughly twelve-year-old boy. Both children's clothing was adorned with an even larger number of ivory beads, about 10,000 overall, and their grave goods included a wide range of prestige items such as spears made of straightened mammoth tusk and various art objects.

Massive effort must have been expended on these deposits: modern scholars have estimated that it would have taken anywhere from fifteen to forty-five minutes to carve a single bead, which translates to a total of 1.6 to 4.7 years of work for one person carving forty hours a week. A minimum of seventy-five arctic foxes needed to be caught to extract the 300 canines attached to a belt and head-gear in the children's grave, and considering the difficulty of extracting them intact, the actual number may well have been higher. Although a substantial spell of relative sedentism would have given the members of this group enough spare time to accomplish all this, the question remains why they would have wished to do so in the first place. These three persons do not appear to have been buried with everyday clothing and objects. That the beads for the children were smaller than those for the man implies that these beads had been manufactured specifically for the children, whether in life or, more likely, just for their burial. For reasons unknown to us, these individuals were considered special. Yet the two children were too young to have earned their privileged treatment: perhaps they owed it to family ties to someone who mattered more than others. The presence of possibly fatal injuries in both the man and the boy and of femoral shortening that would have disabled the girl in life merely add to the mystery.<sup>10</sup>

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<sup>10</sup> Trinkaus, Buzhilova, Mednikova, and Dobrovolskaya 2014 is now the authoritative treatment of the Sungir finds: see esp. 3–33 on the site, date, and mortuary behavior and 272–274, 282–283, 287–288 on the injuries and disorders. Bead size: Formicola 2007: 446. Inherited status: Anghelino 2012: 38.

Although the splendor of the Sungir burials has so far remained without parallel in the Paleolithic record, other rich graves have been found farther west. In Dolní Věstovice in Moravia, at roughly the same time, three individuals were buried with intricate headgear and resting on ocher-stained ground. Later examples are somewhat more numerous. The cave of Arene Candide on the Ligurian coast housed a deep pit grave for a lavishly adorned adolescent male put to rest on a bed of red ocher about 28,000 or 29,000 years ago. Hundreds of perforated shells and deer canines found around his head would originally have been attached to some organic headgear. Pendants made of mammoth ivory, four batons made of elk antlers, and an exceptionally long blade made of exotic flint that had been placed in his right hand added to the assemblage. A young woman buried in Saint-Germaine-la-Rivière some 16,000 years ago bore ornaments of shell and teeth: the latter, about seventy perforated red deer canines, must have been imported from 200 miles away. About 10,000 years ago, in the early Holocene but in a foraging context, a three-year-old child was laid to rest with 1,500 shell beads at the La Madeleine rock shelter in the Dordogne.<sup>11</sup>

It is tempting to interpret these findings as the earliest harbingers of inequalities to come. Evidence of advanced and standardized craft production, time investment in highly repetitive tasks, and the use of raw materials sourced from far away offers us a glimpse of economic activities more advanced than those found among contemporary hunter-gatherers. It also hints at social disparities not normally associated with a foraging existence: lavish graves for children and adolescents point to ascribed and perhaps even inherited status. The existence of hierarchical relations is more difficult to infer from this material but is at least a plausible option. But there is no sign of durable inequalities. Increases in complexity and status differentiation appear to have been temporary in nature. Egalitarianism need not be a stable category: social behavior could vary depending on changing circumstances or even recurring seasonal pressures. And although earliest coastal adaptations, cradles of social evolution in which access to maritime food resources such as shellfish encouraged territoriality and more effective leadership, may reach back as far as 100,000 years, there is—at least as yet—no related evidence of emergent hierarchy and consumption disparities. For all we can tell, social or economic inequality in the Paleolithic remained sporadic and transient.<sup>12</sup>

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<sup>11</sup> Vanhaeren and d'Errico 2005; Pettitt, Richards, Maggi, and Formicola 2003; d'Errico and Vanhaeren 2016: 54–55.

<sup>12</sup> See esp. Shultziner et al. 2010: 333–334; Anghelinu 2012: 37–38; Wengrow and Graeber 2015. Marean 2014 argues for the antiquity and significance of coastal adaptations.

## THE GREAT DISEQUALIZATION

Inequality took off only after the last Ice Age had come to an end and climatic conditions entered a period of unusual stability. The Holocene, the first interglacial warm period for more than 100,000 years, created an environment that was more favorable to economic and social development. As these improvements allowed humans to extract more energy and grow in numbers, they also laid the ground for an increasingly unequal distribution of power and material resources. This led to what I call the “Great Disequalization,” a transition to new modes of subsistence and new forms of social organization that eroded forager egalitarianism and replaced it with durable hierarchies and disparities in income and wealth. For these developments to occur, there had to be productive assets that could be defended against encroachment and from which owners could draw a surplus in a predictable manner. Food production by means of farming and herding fulfills both requirements and came to be the principal driver of economic, social, and political change.

However, domestication of plants and animals was not an indispensable prerequisite. Under certain conditions, foragers were also able to exploit undomesticated natural resources in an analogous fashion. Territoriality, hierarchy, and inequality could arise where fishing was feasible or particularly productive only in certain locations. This phenomenon, which is known as maritime or riverine adaptation, is well documented in the ethnographic record. From about 500 CE, pressure on fish stocks as a result of population growth along the West Coast of North America from Alaska to California encouraged foraging populations to establish control over highly localized salmon streams. This was sometimes accompanied by a shift from mostly uniform dwellings to stratified societies that featured large houses for chiefly families, clients, and slaves.<sup>13</sup>

Detailed case studies have drawn attention to the close connection between resource scarcity and the emergence of inequality. From about 400 to 900 CE, the site of Keatley Creek in British Columbia housed a community of a few hundred members near the Fraser River that capitalized on the local salmon runs. Judging from the archaeological remains, salmon consumption declined around 800, and mammalian meat took its place. At this time, signs of inequality appear in the record. A large share of the fish bone recovered from the pits

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<sup>13</sup> For the West Coast in general, see now briefly Boix 2015: 98–101; Morris 2015: 37. In practice, causation could be more complex: e.g., Sassaman 2004: 240–243, 264–265. Kelly 2013: 252–266, esp. 251 fig. 9.3, offers a general model. Aquatic foragers: Johnson and Earle 2000: 204–217, esp. 211–216.

of the largest houses comes from mature chinook and sockeye salmon, a prize catch rich in fat and calories. Prestige items such as rare types of stone are found there. Two of the smallest houses, by contrast, contained bones of only younger and less nutritious fish. As in many other societies at this level of complexity, inequality was both celebrated and mitigated by ceremonial redistribution: roasting pits that were large enough to prepare food for sizable crowds suggest that the rich and powerful organized feasts for the community. A thousand years later, potlatch rituals in which leaders competed among themselves through displays of generosity were a common feature across the Pacific Northwest. Similar changes took place at the Bridge River site in the same area: from about 800, as the owners of large buildings began to accumulate prestige goods and abandoned communal food preparation outdoors, poorer residents attached themselves to these households, and inequality became institutionalized.<sup>14</sup>

On other occasions, it was technological progress that precipitated disqualifying social and economic change. For thousands of years, the Chumash on the Californian coast, in what is now Santa Barbara and Ventura counties, had lived as egalitarian foragers who used simple boats and gathered acorns. Around 500 to 700, the introduction of large oceangoing plank canoes that could carry a dozen men and venture more than sixty miles out to sea allowed the Chumash to catch larger fish and to establish themselves as middlemen in the shell trade along the coast. They sold flint obtained from the Channel Islands to inland groups in exchange for acorns, nuts, and edible grasses. This generated a hierarchical order in which polygamous chiefs controlled canoes and access to territory, led their men in war, and presided over ritual ceremonies. In return, they received payments of food and shells from their followers. In such environments, foraging societies could attain relatively high levels of complexity. As reliance on concentrated local resources grew, mobility declined, and occupational specialization, strictly defined ownership of assets, perimeter defense, and intense competition between neighboring groups that commonly involved the enslavement of captives fostered hierarchy and inequality.<sup>15</sup>

Among foragers, adaptations of this kind were possible only in specific ecological niches and did not normally spread beyond them. Only the domestication of food resources had the potential to transform economic activity and social relations on a global scale: in its absence, stark inequalities might have

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<sup>14</sup> Prentiss et al. 2007; Speller, Yang, and Hayden 2005: 1387 (Keatley Creek); Prentiss et al. 2012, esp. 321 (Bridge River).

<sup>15</sup> Flannery and Marcus 2012: 67–71 (Chumash). Complexity: Kelly 2013: 241–268, esp. 242 table 9.

remained confined to small pockets along coasts and rivers, surrounded by a whole world of more egalitarian foragers. But this was not to be. A variety of edible plants began to be domesticated on different continents, first in Southwest Asia about 11,500 years ago, then in China and South America 10,000 years ago, in Mexico 9,000 years ago, in New Guinea more than 7,000 years ago, and in South Asia, Africa, and North America some 5,000 years ago. The domestication of animals, when it did occur, sometimes preceded and sometimes followed these innovations. The shift from foraging to farming could be a drawn-out process that did not always follow a linear trajectory.<sup>16</sup>

This was especially true of the Natufian culture and its prepottery Neolithic successors in the Levant, the first to witness this transition. From about 14,500 years ago, warmer and wetter weather allowed regional forager groups to grow in size and to operate from more permanent settlements, hunting abundant game and collecting wild cereal grains in sufficient quantities to require at least small storage facilities. The material evidence is very limited but shows signs of what leading experts have called an “incipient social hierarchy.” Archaeologists have discovered one larger building that might have served communal uses and a few special basalt mortars that would have taken great effort to manufacture. According to one count, about 8 percent of the recovered skeletons from the Early Natufian period, about 14,500 to 12,800 years ago, wore seashells, sometimes brought in from hundreds of miles away, and decorations made of bone or teeth. At one site, three males were buried with shell headdresses, one of them fringed with shells four rows deep. Only a few graves contained stone tools and figurines. The presence of large roasting pits and hearths may point to redistributive feasts of the type held much later in the American Northwest.<sup>17</sup>

Yet whatever degree of social stratification and inequality had developed under these benign environmental conditions faded during a cold phase from about 12,800 to 11,700 years ago known as the Younger Dryas, when the remaining foragers returned to a more mobile lifestyle as local resources dwindled or became less predictable. The return to climatic stability around 11,700 years ago coincided with the earliest evidence for the cultivation of wild crops such

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<sup>16</sup> Chronology of domestication: Price and Bar-Yosef 2011: S171 table 1. On the question of the origins of agriculture, see esp. Barker 2006 and the contributions to the special issue of *Current Anthropology* 52, S4 (2011), S161–S512. Diamond 1997 remains the most accessible account of global variation in the scope and pace of domestication. Nonlinearity: Finlayson and Warren 2010.

<sup>17</sup> Natufians: Barker 2006: 126; Price and Bar-Yosef 2010: 149–152; Pringle 2014: 823; and cf. also Bowles and Choi 2013: 8833–8834; Bowles 2015: 3–5.

as Einkorn, emmer, wheat, and barley. During what is known as the early Pre-Pottery Neolithic (about 11,500 to 10,500 years ago), settlements expanded and food eventually came to be stored in individual households, a practice that points to changing concepts of ownership. That some exotic materials such as obsidian appeared for the first time may reflect a desire to express and shore up elevated status. The later Pre-Pottery Neolithic (about 10,500 to 8,300 years ago) has yielded more specific information. About 9,000 years ago, the village of Cayönü in southeastern Turkey comprised different zones whose buildings and finds differed in size and quality. Larger and better-built structures feature unusual and exotic artifacts and tend to be located in close proximity to a plaza and a temple. Whereas only a small share of graves include obsidian, beads, or tools, three of the four richest in-house burials in Cayönü took place in houses next to the plaza. All of this may be regarded as markers of elite standing.<sup>18</sup>

There can be no doubt that most of the inequality we observe in the following millennia was made possible by farming. But other paths existed. I have already mentioned aquatic adaptations that allowed substantial political and economic disparities to arise in the absence of food domestication. In other cases, the introduction of the domesticated horse as a conveyance could have disequalizing effects even in the absence of food production. In the eighteenth and nineteenth centuries, the Comanche in the borderlands of the American Southwest formed a warrior culture that relied on horses of European origin to conduct warfare and raids over long distances. Buffalo and other wild mammals were their principal food source, complemented by gathered wild plants and maize obtained via trade or plunder. These arrangements supported high levels of inequality: captive boys were employed to tend to the horses of the rich, and the number of horses owned divided Comanche households rather sharply into the “rich” (*tsaanaakatu*), the “poor” (*tabkapu*), and the “very poor” (*tubitsi tabkapu*). More generally, foraging, horticultural, and agricultural societies were not always systematically associated with different levels of inequality: some foraging groups could be more unequal than some farming communities. A survey of 258 Native American societies in North America suggests that the size of the surplus, not domestication as such, was the key determinant of levels of material inequality: whereas two-thirds of societies that had no or hardly any surplus did not manifest resource inequality, four in five of those that generated

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<sup>18</sup> Impact of Younger Dryas: Mithen 2003: 50; Shultziner et al. 2010: 335. Pre-Pottery Neolithic: Price and Bar-Yosef 2010: 152–158.

moderate or large surpluses did. This correlation is much stronger than between different modes of subsistence on the one hand and inequality on the other.<sup>19</sup>

A collaborative study of twenty-one small-scale societies at different levels of development—hunter-gatherers, horticulturalists, herders, and farmers—and in different parts of the world identifies two crucial determinants of inequality: ownership rights in land and livestock and the ability to transmit wealth from one generation to the next. Researchers looked at three different types of wealth: embodied (mostly body strength and reproductive success), relational (exemplified by partners in labor), and material (household goods, land, and livestock). In their sample, embodied endowments were the most important wealth category among foragers and horticulturalists, and material wealth was the least important one, whereas the opposite was true of herders and farmers. The relative weight of different wealth classes is an important factor mediating the overall degree of inequality. Physical constraints on embodied wealth are relatively stringent, especially for body size and somewhat less so for strength, hunting returns, and reproductive success. Relational wealth, though more flexible, was also more unevenly distributed among farmers and pastoralists, and measures of inequality in land and livestock in these two groups reached higher levels than those for utensils or boat shares among foragers and horticulturalists. The combination of diverse inequality constraints that apply to different types of wealth and the relative significance of particular types of wealth accounts for observed differences by mode of subsistence. Average composite wealth Gini coefficients were as low as 0.25 to 0.27 for hunter-gatherers and horticulturalists but were much higher for herders (0.42) and agriculturalists (0.48). For material wealth alone, the main divide appears to lie between foragers (0.36) and all others (0.51 to 0.57).<sup>20</sup>

Transmissibility of wealth is another crucial variable. The degree of intergenerational wealth transmission was about twice as high for farmers and herders as for the others, and the material possessions available to them were much more suitable for transmission than were the assets of foragers and horticulturalists. These systematic differences exercise a strong influence on the inequality

<sup>19</sup> Rivaya-Martínez 2012: 49 (Comanche); Haas 1993, esp. 308–309 tables 1–2 (North American societies).

<sup>20</sup> Borgerhoff Mulder et al. 2009: 683 fig. 1 (sample), 684 table 1 (43 wealth measures for these societies), S34 table S4 (inequality for different wealth types), 685 table 2, S35 table S5 (Ginis). High land inequality among the circumscribed horticulturalists of Dominica drives up mean material equality for this subsistence mode relative to foragers, which means that these two groups may have more in common than this small sample suggests. For the horticulturalist data, see Gurven et al. 2010.

of life chances, measured in terms of the likelihood that a child of parents in the top composite wealth decile ends up in the same decile compared to that of a child of parents in the poorest decile. Defined in this way, intergenerational mobility was generally moderate: even among foragers and horticulturalists, offspring of the top decile were at least three times as likely to reproduce this standing as those of the bottom decile were to ascend to it. For farmers, however, the odds were much better (about eleven times), and they were better still for herders (about twenty times). These discrepancies can be attributed to two factors. About half of this effect is explained by technology, which determines the relative importance and characteristics of different wealth types. Institutions governing the mode of wealth transmission account for the other half, as agrarian and pastoralist norms favor vertical transmission to kin.<sup>21</sup>

According to this analysis, inequality and its persistence over time has been the result of a combination of three factors: the relative importance of different classes of assets, how suitable they are for passing on to others, and actual rates of transmission. Thus groups in which material wealth plays a minor role and does not readily lend itself to transmission and in which inheritance is discouraged are bound to experience lower levels of overall inequality than groups in which material wealth is the dominant asset class, is highly transmissible, and is permitted to be left to the next generation. In the long run, transmissibility is critical: if wealth is passed on between generations, random shocks related to health, parity, and returns on capital and labor that create inequality will be preserved and accumulate over time instead of allowing distributional outcomes to regress to the mean.<sup>22</sup>

In keeping with the observations made in the aforementioned survey of Native American societies, the empirical findings derived from this sample of twenty-one small-scale societies likewise suggest that domestication is not a sufficient precondition for significant disequalization. Reliance on defensible natural resources appears to be a more critical factor, because these can generally be bequeathed to the next generation. The same is true of investments such as plowing, terracing, and irrigation. The heritability of such productive assets and their improvements fosters inequality in two ways: by enabling it to increase over

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<sup>21</sup> Borgerhoff Mulder et al. 2009: 686, with S37 table S7; Smith et al. 2010a: 89 fig. 3.

<sup>22</sup> Model: Borgerhoff Mulder et al. 2009: 682. Correlation: Smith et al. 2010a: 91 fig. 5. Shennan 2011 also puts great weight on the shift from intangible to material property resources and its potential for creating inequality.

time and by reducing intergenerational variance and mobility. A much broader survey of more than a thousand societies at different levels of development confirms the central role of transmission. According to this global data set, about a third of simple forager societies have inheritance rules for movable property, but only one in twelve recognizes the transmission of real estate. By contrast, almost all societies that practice intensive forms of agriculture are equipped with rules that cover both. Complex foragers and horticulturalists occupy an intermediate position. Inheritance presupposes the existence of property rights. We can only conjecture the circumstances of their creation: Samuel Bowles has argued that farming favored rights in property that were impractical or unfeasible for foragers because farm resources such as crops, buildings, and animals could easily be delimited and defended, prerequisites not shared by the dispersed natural resources on which foragers tend to rely. Exceptions such as aquatic adaptations and horse cultures are fully consistent with this explanation.<sup>23</sup>

Historically, inequality was sometimes slow to take off. Catal Höyük, a Neolithic proto-urban settlement in southwestern Anatolia that reaches back to the eighth millennium BCE, is a striking example. Its several thousand residents relied on a mixture of horticultural hoe-farming and herding. Land was abundant, and there are no clear signs of governmental structures or social stratification. Residents inhabited family households where they stored grain, fruit, and nuts. Large numbers of stone artifacts have been recovered from this site. A comprehensive survey of 2,429 objects from twenty buildings and nine courtyards dating from 7400 to 6000 BCE reveals differences in the distribution of particular types of artifacts. Intact millstones and querns are very unevenly distributed across dwellings, whereas households generally enjoyed broad access to cooking features and stone tools. Intact querns are predominantly found in more elaborate buildings, but we cannot tell whether these represent higher-status households or whether they merely hosted cooperative tasks related to food processing. The observation that most millstones and querns had deliberately been broken long before they would have worn out may speak against the first of these interpretations. This custom may even reflect a widespread though not universal injunction against the intergenerational transmission of these valuable assets: in later Mesopotamian societies, querns featured prominently among

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<sup>23</sup> Smith et al. 2010a: 92 (defensibility); Boix 2015: 38 table 1.1.B (global survey); Bowles and Choi 2013 (property rights). The latter develop a formal model in which climate amelioration renders farming more productive and predictable and leads to an expansion of agriculture and private property rights (8834 fig. 2).

heritable wealth. It is possible that leveling measures were actively applied so as to curb wealth imbalances among households.<sup>24</sup>

Yet over time, inequality increasingly became the norm. Archaeological evidence from Mesopotamia shows strong signs of stratification well before the first states were established in that region. In the village of Tell es-Sawwan on the Tigris north of modern Baghdad, for example, a mud wall with a ditch that contained many sling missiles, all made of clay, points to violent conflict some 7,000 years ago, conditions that were conducive to the creation of centralized leadership and hierarchy. Some of the richest burials at this site are for children, reflecting status distinction based on family wealth rather than personal achievement. At Tell Arpachiyah near Mosul, a site that was occupied at roughly the same time, what appears to be the residence of an elite family consisted of a large number of rooms with finds of fancy pottery, alabaster vessels, obsidian, and various types of ornaments and craft tools. In this settlement, leaders controlled trade by sealing shipments with blobs of clay that had simple seals carved into them before they dried—early precursors of complex sealing in later Mesopotamian history. It is telling that at Yarim Tepe, a cremated youngster had been buried not just with obsidian beads but also with a seal drill, marking him out as the offspring and perhaps intended heir of such an official.<sup>25</sup>

By that time, between 6000 and 4000 BCE, all the basic ingredients of structural inequality were already in place: numerous defensive structures that invoke competition for scarce resources and a need for effective leadership; secular public buildings that may be associated with governmental functions; house shrines and temples that speak to the importance of ritual power; signs of hereditary rank, exemplified by lavish child burials; and evidence of craft exchange between elite families in different settlements. Political, military, and economic development differentiated the population, and prominent position, control over economic exchange, and personal wealth went hand in hand.

In other contexts, political leadership came to be associated with high levels of material inequality. A cemetery at Varna by the Black Sea in what is now Bulgaria has yielded more than 200 occupied graves from the fifth millennium BCE. One burial stands out, a middle-aged man laid to rest with no fewer than 990

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<sup>24</sup> Wright 2014.

<sup>25</sup> Mesopotamia: Flannery and Marcus 2012: 261–282, esp. 264–266, 268, 272, 274, 281. See also 451 for a cemetery with more than 1,000 burials in Susiana (Khuzestan), ranging from graves rich in copper and fancy painted pottery to poor ones with cooking pots, and see Price and Bar-Yosef 2010: 159 for inequality among more than 100 graves in Tell Halula on the Euphrates.

gold objects weighing more than three pounds total: he was covered in gold ornaments that were probably attached to his original clothing, carried heavy gold rings around his arms, and wielded an ax scepter; even his penis was sheathed in gold. This man's grave accounts for a third of all gold objects found at this site and a quarter of their total weight. Grave goods are very unevenly distributed overall: more than half of the occupied graves contain some goods, but fewer than one in ten is rich in deposits, and only a handful contain a wide range of materials, including lots of gold. The Gini coefficient for the number of goods per grave varies from 0.61 and 0.77, depending on the period, but would be much higher if we could adjust the distribution for value. Although we can only guess at the organization of this society, its hierarchical character is hardly in doubt. The gold-covered man and some of his lesser peers may well have been paramount chiefs.<sup>26</sup>

These finds point to a complementary source of inequality. The combination of surplus extraction from defensible resources and personal or familial property claims to these resources that included the right to transfer them to descendants or other kin laid the foundation for growing socioeconomic stratification. New forms of political and military power contributed to and amplified the resultant inequalities in income and wealth. Much like the shift to food domestication, the evolution of political hierarchies was a slow and gradual process and was highly contingent on ecological conditions, technological progress, and demographic growth. In the long run, the overall direction of change was from the small family-level groups of a few dozen people that were typical of simple forager economies to local groups and collectivities whose members typically numbered in the hundreds and on to larger chiefdoms or protostates that controlled thousands or tens of thousands. This was not always a linear progression, and not all environments supported more complex forms of social organization. As a result, complex state-level societies based on agriculture eventually came to share the planet with bands, tribes, and chiefdoms of herders, horticulturalists, and what remained of the ancestral population of hunter-gatherers. This diversity has been vital to our understanding of the driving forces behind the emergence of inequality, allowing us to compare the characteristics of different modes of subsistence and their consequences for the accumulation, transmission, and concentration of wealth as already summarized.<sup>27</sup>

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<sup>26</sup> Biehl and Marciniak 2000, esp. 186, 189–191; Higham et al. 2007, esp. 639–641, 643–647, 649; Windler, Thiele, and Müller 2013, esp. 207 table 2 (also on another site in the area).

<sup>27</sup> Johnson and Earle 2000 provide an excellent survey of social evolution. For typical group size, see 246 table 8.

The documented range of variation in sociopolitical organization around the world has been similarly broad, making it possible to relate inequalities of power and status to inequalities in wealth. From a global perspective, agriculture is closely correlated with social and political stratification. In a sample of more than a thousand communities, more than three-quarters of simple foraging communities do not display signs of social stratification, as opposed to fewer than a third of those practicing intensive forms of farming. Political hierarchies are even more strongly dependent on sedentary agriculture: elites and class structure are virtually unknown among simple foragers but are attested for the majority of agrarian societies. Once again, however, it was the scale of the economic surplus rather than the mode of subsistence as such that served as the critical variable. In the survey of 258 Native American societies already mentioned, 86 percent of those groups without significant surplus production also lacked signs of political inequality, whereas the same proportion of those that generated moderate or large surpluses had developed at least some degree of political hierarchy. Among 186 societies from across the world that are documented in more detail, known as the Standard Cross-Cultural Sample, four in five hunter-gatherer communities had no leaders, whereas three-quarters of farming societies were organized as chiefdoms or states.<sup>28</sup>

But not all agricultural societies followed the same trajectory. A new global survey suggests that the cultivation of cereals played a critical role in the development of more complex social hierarchies. Unlike perennial roots, which are continuously available but rot quickly, grain crops are gathered en masse only at specific harvest times and are suitable for longer-term storage. Both of these features made it easier for elites to appropriate and hold on to surplus food resources. States first arose in those parts of the world that had first developed agriculture: once plants—and above all cereals—and animals had been domesticated, sooner or later humans shared their fate, and inequality escalated to previously unimaginable heights.<sup>29</sup>

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<sup>28</sup> Global sample: Boix 2015: 38 table 1.1.C. North America: Haas 1993: 310 table 3. SCCS: Boix 2015: 103 table 3.1.D.

<sup>29</sup> Cereals: Mayshar, Moav, Neeman, and Pascali 2015, esp. 43–45, 47. Agriculture and state formation: Boix 2015: 119–121, esp. 120 fig. 3.3. See Petersen and Skaaning 2010 for variance in the timing of state formation, driven by geographical and climatic features that affected domestication, which supports Diamond 1997. Cf. also Haber 2012 for the role of crop storage in later phases of state formation.

## THE ORIGINAL "1 PERCENT"

Unequal access to income and wealth preceded the formation of the state and contributed to its development. Yet once established, governmental institutions in turn exacerbated existing inequalities and created new ones. Premodern states generated unprecedented opportunities for the accumulation and concentration of material resources in the hands of the few, both by providing a measure of protection for commercial activity and by opening up new sources of personal gain for those most closely associated with the exercise of political power. In the long run, political and material inequality evolved in tandem in what has been called "an upward spiral of interactive effects, where each increment on one variable makes a corresponding increment on the other more likely." Modern scholars have come up with a wide variety of definitions that seek to capture the quintessential features of statehood. Borrowing elements of several of them, the state can be said to represent a political organization that claims authority over a territory and its population and resources and that is endowed with a set of institutions and personnel that perform governmental functions by issuing binding orders and rules and backing them up with the threat or exercise of legitimized coercive measures, including physical violence. There is no shortage of theories to explain the emergence of the earliest states. The putative driving forces are all in some way predicated on economic development and its social and demographic consequences: gains that the well-positioned reaped from the control of trade flows, the need to empower leaders to manage the problems arising from growing population densities and more complex relations of production and exchange, class conflict over access to the means of production, and the pressures created by military conflict over scarce resources that favored scaling up, hierarchy, and centralized command structures.<sup>30</sup>

From the perspective of the study of inequality, it may not, strictly speaking, be particularly important which of these factors mattered most: to the extent that state formation introduced steep and stable hierarchies into societies with significant surpluses, inequalities of power, status, and material wealth were bound to grow. Even so, a growing consensus now holds that

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<sup>30</sup> Quote: Haas 1993: 312. Scheidel 2013: 5–9 presents and discusses various definitions of the state, several of which contribute to the summary given in the text. For the nature of premodern states, see herein, pp. 46–48. Maisels 1990: 199–220, Sanderson 1999: 53–95, and Scheidel 2013: 9–14 offer surveys of modern theories of state formation.

organized violence was central to this process. Robert Carneiro's influential theory of circumscription holds that the interaction between population growth and warfare under conditions of territorial boundedness explains why previously more autonomous and egalitarian households, reliant on scarce domesticated food resources and unable to exit stressful environments, were prepared to submit to authoritarian leadership and endure inequality to become more effective in competing with other groups. The most recent theories and simulation models of state formation likewise emphasize the crucial importance of intergroup conflict. The critical role of violence also goes a long way toward accounting for the specific characteristics of most premodern states, most notably despotic leadership and an often overwhelmingly strong focus on warmaking.<sup>31</sup>

Not all early states were alike, and centralized polities coexisted with more "heterarchical" or corporate forms of political organization. Even so, centralized authoritarian states commonly outcompeted differently structured rivals. They appeared independently around the world wherever ecological preconditions allowed, in the Old World as well as in the Americas and across a wide range of environments from the alluvial floodplains of Egypt and Mesopotamia to the highlands of the Andes. Defying this considerable diversity of context, the best-known among them developed into strikingly similar entities. All of them witnessed the expansion of hierarchies in different domains, from the political sphere to the family and religious belief systems—an autocatalytic process whereby "the hierarchical structure itself feeds back on all societal factors to make them more closely into an overall system that supports the authority structure." Pressures in favor of increasing stratification had an enormous effect on moral values, for the residue of ancestral egalitarianism was replaced by belief in the merits of inequality and acceptance of hierarchy as an integral element of the natural and cosmic order.<sup>32</sup>

In quantitative terms, agrarian states proved extremely successful. Although these numbers cannot be more than controlled conjecture, we can guess that 3,500 years ago, when state-level polities covered perhaps not more than 1 percent of the earth's terrestrial surface (excluding Antarctica), they already laid claim to up to half of our species. We are on more solid ground in estimating that by the beginning of the Common Era, states—mostly large empires such

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<sup>31</sup> Circumscription theory: Carneiro 1970; 1988. For simulation models of state formation driven by warfare, see Turchin and Gavrilets 2009; Turchin, Currie, Turner, and Gavrilets 2013. Boix 2015: 127–170, 252–253 also stresses the role of warfare.

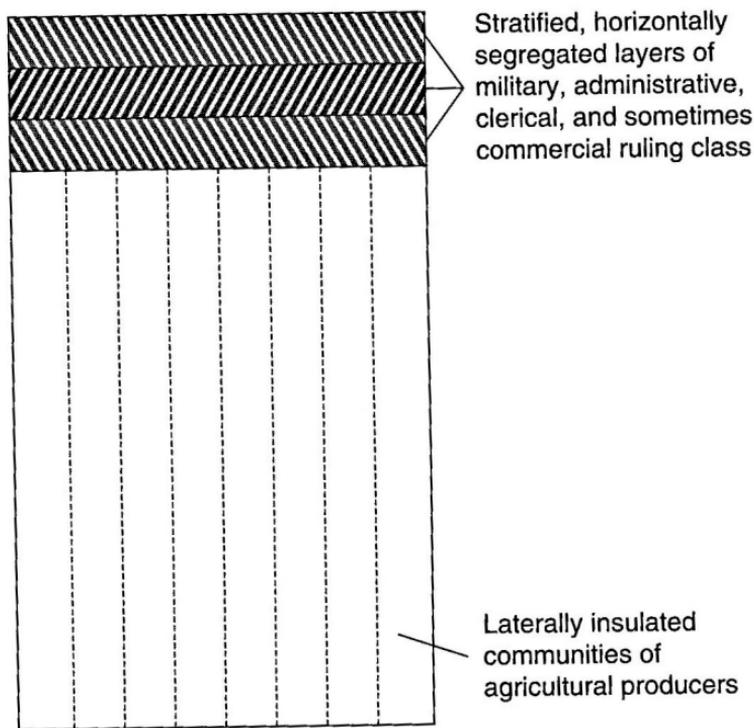
<sup>32</sup> Decentralized polities: e.g., Ehrenreich, Crumley, and Levy 1995; Blanton 1998. Quote: Cohen 1978: 70; see also Trigger 2003: 668–670 for pervasive hierarchization. Values: Morris 2015: 71–92, esp. 73–75, 92.

as Rome and Han China—comprised about a tenth of the earth’s land mass but between two-thirds and three-quarters of all people alive at the time. Shaky as they may be, these figures convey a sense of the competitive advantage of a particular type of state: far-flung imperial structures held together by powerful extractive elites. Once again, this was not the only outcome: independent city-states might flourish at the interstices between these empires but only rarely succeeded in holding off their outsized neighbors as the ancient Greeks managed to do in the fifth century BCE. More often than not, they were absorbed into larger entities; on occasion, they built up their own empires, such as Rome, Venice, and the Mexica Triple Alliance of Tenochtitlan, Texcoco, and Tlacopan. Moreover, empires failed from time to time, giving way to more fragmented political ecologies. Medieval Europe is a particularly extreme example of this shift.<sup>33</sup>

More commonly, however, empire begat empire as new conquest regimes reconsolidated earlier power networks. In the very long run, this created a pattern of periodic unraveling and restoration, from the increasingly regular “dynastic cycles” of China to longer swings in Southeast Asia, India, the Middle East and the Levant, central Mexico, and the Andean region. The Eurasian steppe also spawned numerous imperial regimes that embarked on predatory raids and conquests, spurred on by the riches generated by sedentary societies to the south. States grew over time. Prior to the sixth century BCE, the largest empires on earth covered a few hundred thousand square miles. During the following 1,700 years, their mightiest successors routinely exceeded this limit by an entire order of magnitude, and in the thirteenth century, the Mongols’ reach extended from Central Europe to the Pacific. And territory is only one metric: if we account for secular growth in population density, we see that the effective expansion of imperial rule was even more dramatic. To an even greater extent than today, our species used to be concentrated in the temperate zone of Eurasia as well as in parts of Central America and the South American Northwest. This is where empire thrived: for thousands of years, most of humanity lived in the shadow of these behemoths, with a few coming to tower far above ordinary mortals. This was the environment that created what I call the “original 1

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<sup>33</sup> Estimates: Scheidel 2013, conjectured from McEvedy and Jones 1978 and Cohen 1995: 400. On the nature of the early state, see herein. For the structure and world history of empires, see esp. Doyle 1986; Eisenstadt 1993; Motyl 2001; Burbank and Cooper 2010; Leitner 2011; Bang, Bayly, and Scheidel forthcoming; and the précis in Scheidel 2013: 27–30. For city-states, see esp. Hansen 2000 and, very briefly, Scheidel 2013: 30–32.



**Figure 1.1** General form of the social structure of agrarian societies

percent,” made up of competing but often closely intertwined elite groups that did their utmost to capture the political rents and commercial gains mobilized by state-building and imperial integration.<sup>34</sup>

Premodern state formation separated a small ruling class from the mass of primary producers. Though often internally stratified, this elite both transcended and collectively controlled the individual local communities that formed the basic building blocks of the state. Ernest Gellner’s famous image captures these structures with unrivaled clarity (Fig. 1.1).<sup>35</sup>

Some members of the ruling class, such as local notables who had ascended to state office or related honors, would have originated in or even remained

<sup>34</sup> For the evolution of steppe empires—which are absent from the present study mainly for want of relevant data—see Barfield 1989; Cioffi-Revilla, Rogers, Wilcox, and Alterman 2011; <http://nomadicempires.modhist.ox.ac.uk/>. Cf. also Turchin 2009 for their role in large-scale state formation. Growing size: Taagepera 1978: 120.

<sup>35</sup> Fig. 1.1 from Gellner 1983: 9 fig. 1 as reproduced in Morris 2015: 66 fig. 3.6.

rooted in these communities, whereas others, such as foreign conquerors, might have been sufficiently detached to form what was in effect a separate society. Centralized governance was very limited by modern standards: states commonly amounted to little more than what Patricia Crone called “protective shells” for the general population, trying to keep it out of the reach of domestic and foreign challengers to the established regime. But rulers and their agents also provided protection in the sense that mafia organizations do in modern societies, capitalizing on the profits from their preeminence in the use of organized violence. They frequently exercised a large amount of despotic power, for civil society institutions were too weak to constrain elite action, including exercise of the power over life and death and the allocation of property. At the same time, many of these states were lacking in infrastructural power, the capacity to penetrate society and implement policies widely. Communities were largely self-governing, loosely held in check by a relatively small and often distant centralized dominant authority.

Governments were semiprivate in nature and relied on the co-optation and cooperation of diverse holders of political, military, economic, and ideological power to control subordinate populations and mobilize resources for rulers. The latter tended to employ a mixture of rewards and threats of violence to preserve balance between competing elites, for government was often primarily focused on managing conflicts among the rich and powerful. Rulers, their agents, and large landowners, categories that commonly intersected, were locked in conflict over the control of the surplus that could be siphoned off through state taxes and private rents. Whereas the employment of established elite members as state officials curtailed the autonomy of rulers, recourse to subordinate agents of lower status created new elite aspirants eager to divert state income and privatize gains from office in order to join existing elite circles. Rulers strove to make power and privilege a contingent and revocable function of state service, whereas their agents sought private benefits for themselves and their descendants; in the long run, the latter often proved more successful. Corruption and other forms of predation were common. As members of the ruling class competed for position and advantage, turnover among individuals could be high, yet elite rule as such tended to be stable as long as state structures were successfully maintained. The upper classes separated themselves from commoners by their lifestyle and worldview, which were frequently martial in nature and defined leaders as the exploiters of inferior agrarian producers. Conspicuous

consumption served as an important means of manifesting and reinforcing power relations.<sup>36</sup>

These basic conditions profoundly shaped the distribution of income and wealth. Reduced to essentials, history has known only two ideal-typical modes of wealth acquisition: making and taking. The advent of surplus production, domestication, and hereditary property rights paved the way for the creation and preservation of personal fortunes. In the long run, institutional adaptations that were conducive to this process, technological progress, and the growing scale and scope of economic activity raised the ceiling on individual or familial wealth accumulation, thereby increasing at least the potential range of the dispersion of income and productive assets. In principle, the cumulative effect of random shocks would have been sufficient to make some households richer than others: differences in the return on capital such as land, livestock, buildings, and resources invested in loans and trade would have made sure of that. When their fortunes changed, others would take their place.

What may well be the earliest quantifiable evidence indicative of growing wealth inequality in subelite circles that appears to have resulted from economic development comes from ancient Mesopotamia several thousand years ago. Comparison of a sample of inheritance shares for sons in the Old Babylonian period (in the first half of the second millennium BCE) with documented dowries for daughters in the Neo-Babylonian era (in the late seventh and much of the sixth century BCE, roughly a thousand years later) reveals two notable differences. Converted into wheat wages, the latter are about twice as substantial as the former. As both data sets appear to refer to the same stratum—propertied urban residents, maybe the top decile or so of the urban population—this points to greater affluence overall, especially considering that we would expect sons to be favored over daughters. Moreover, the real values of the dowries are also much more unequally distributed. Because the Neo-Babylonian period was a time of unusually dynamic economic development, this contrast is perhaps best explained by the disequalizing effect of growth and commercialization.<sup>37</sup>

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<sup>36</sup> On the nature of premodern states in general, see esp. Claessen and Skalnik 1978b; Gellner 1983: 8–18; Tilly 1985; Giddens 1987: 35–80; Kautsky 1982, esp. 341–348; Haldon 1993; Sanderson 1999: 99–133; Crone 2003: 35–80 (quote: 51); North, Wallis, and Weingast 2009: 30–109 and a cross-disciplinary meta-survey in Scheidel 2013: 16–26.

<sup>37</sup> Makers and takers: Balch 2014. Babylonia: Jursa 2015 and personal communication. The median and mean real value of the dowries are about 70 percent and 130 percent higher, and the Ginis are 0.43 ( $n = 82$ ) and 0.55 ( $n = 84$ ) for the two periods, or 0.41 and 0.49 when the highest outlier is removed from each data set. For Neo-Babylonian economic dynamism, see Jursa 2010.

But this may be only part of the story, not just in this case but more generally. It is easy to appreciate how the defining features of premodern state formation just outlined would have influenced economic activity in peculiar ways. Political integration not only helped expand markets and lowered at least some transaction and information costs: the pervasive power asymmetries that commonly characterized premodern polities all but ensured an uneven playing field for economic actors. Fragile property rights, inadequate rule enforcement, arbitrary exercise of justice, the venality of state agents, and the paramount importance of personal relationships and proximity to sources of coercive power were among the factors likely to skew outcomes in favor of those in the upper reaches of the status pyramid and those profitably connected to them. This would have been true in even greater measure of various forms of “taking” that were available to members of the ruling class and their associates. Participation in governance opened up access to income from formal compensation, benefactions of rulers and other superiors, and the solicitation of bribes, embezzlement, and extortion, and it often also provided shelter from taxation and other obligations. Senior military positions might be rewarded with a share of war booty. What is more, direct service for the state was not even a necessary prerequisite. Ties of kinship, intermarriage, and other alliances with officeholders could yield commensurate benefits. Moreover, considering the often rather limited infrastructural power of the state, personal wealth and local influence made it easier to shield not only one’s own assets from state or community demands but also those of friends and clients—in exchange for other benefits. If necessary, tax quotas could be met by shifting additional burdens onto the powerless.

Under these conditions, political power could hardly fail to exert a major influence on the distribution of material resources. In smaller and less hierarchical polities such as tribes or Big Man collectivities, the status of leaders depended in no small measure on their ability and willingness to share their bounty with the entire community. The ruling classes of agrarian states and empires generally enjoyed greater autonomy. Notwithstanding occasional and well-publicized displays of largess, the flow of redistribution tended to be reversed, further enriching the few at the expense of the many. The elite’s collective capacity to extract surplus from primary producers determined the proportion of overall resources that was available for appropriation, and the balance of power between state rulers and various elite groups decided how these gains were apportioned among state coffers, the

private accounts of state agents, and the estates of the landed and commercial wealth elite.<sup>38</sup>

The same features of premodern states that funneled resources toward the powerful also served as a powerful check on the concentration of income and wealth. Predation, disregard for private property rights, and the arbitrary exercise of authority not only helped create fortunes but also could just as easily destroy them in the blink of an eye. Just as state office, proximity to power, and the favor of rulers raised the well-connected to great wealth, the machinations of rivals and rulers' desire to curb the influence of their associates and to absorb their ill-gotten gains could just as easily rob them of their riches if not their lives. In addition to the vagaries of familial demography that help account for the survival or dispersal of private estates, violent redistribution limited the degree to which resources came to be concentrated within elite circles.

In practice, outcomes varied widely across historical societies. Mamluk Egypt in the Middle Ages occupied one end of the spectrum. A foreign and nonhereditary conquest elite collectively claimed control of the land, which was allocated to members of the state class contingent on their position within the power structure, which was subject to frequent adjustments. This made access to resources fluid and unpredictable, for violent factionalism ensured high turnover. At the other end of the spectrum, feudal societies having weak rulers, such as Spring and Autumn China or medieval Europe, allowed lords to enjoy relatively secure control of their assets. The same was true of the Roman Republic prior to its terminal crises, when aristocrats collectively ruled the polity for their own benefit and were appropriately keen to uphold private property rights. Most premodern societies, and more than a few contemporary developing countries, fall in between these ideal-typical extremes, combining sometimes violent political intervention in private property relations with a measure of respect for personal wealth. I explore this relationship in greater detail in the following pages.<sup>39</sup>

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<sup>38</sup> For regressive distribution in despotic regimes, see, e.g., Trigger 2003: 389 and Boix 2015: 259. Winters 2011 tracks oligarchic power across world history, with its frequent focus on wealth defense (esp. 20–26). Notions of reciprocity mainly survived in the ideational domain. Elegantly defined by Claessen and Skalník 1978a: 640, “The early state is a centralized socio-political organization for the regulation of social relations in a complex, stratified society divided into at least two basic strata, or emergent social classes—viz., the rulers and the ruled—whose relations are characterized by political dominance of the former and tributary obligations of the latter, legitimized by a common ideology of which reciprocity is the basic principle.”

<sup>39</sup> For Mamluk Egypt, see herein, p. 82; for the Roman Republic, herein, pp. 71–74 and chapter 6, p. 187.

Rents from access to political power are not exclusive to low levels of development. A recent study of dozens of super-rich entrepreneurs in Western countries shows how they benefited from political connections, exploited loopholes in regulation, and took advantage of market imperfections. In this respect, the difference between advanced democratic market economies and other types of states is a matter of degree. In some cases, it may well be possible to estimate how much elite fortunes owed to income from sources other than economic activity: if we are able to tell that Roman aristocrats of the second and first centuries BCE were simply too rich to have built up their wealth by farming and commerce alone, then more specific breakdowns ought to be feasible for more recent historical societies. *Ancien régime* France, which I briefly discuss later in this section, is merely one example. In the most general terms, there can be little doubt that personalized political connections and favors made a much larger contribution to elite wealth than they do in developed countries today. Rent-seeking elites in Latin America or Africa may come somewhat closer to what in global historical terms must count as traditional and indeed “normal” strategies of wealth appropriation and concentration. So do contemporary Russian “oligarchs,” who resemble some premodern elite groups in the extent to which both the creation and the preservation of their fortunes have depended on personalized political power relations. Even allowing for considerable diversity of context, Russian credit card tycoon Oleg Tinkov’s description of his peers—“temporary managers of their assets—they are not real owners”—applies in equal measure to the precarious standing of many of their predecessors from ancient Rome and China to the monarchies of early modern Europe.<sup>40</sup>

Piketty has sought to explain the very high levels of wealth inequality that were typical of eighteenth- and nineteenth-century Europe with reference to the large gap between the rates of economic growth and return on capital (“ $r > g$ ”). In dynamic models featuring multiplicative and additive shocks—to the rate of return on capital, linked to investment strategies or luck; to demographic parameters, arising from mortality and parity; to preferences concerning consumption and saving; or to productivity, when external income is added in—this condition tends to amplify initial wealth disparities and leads to a high

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<sup>40</sup> Entrepreneurs: Villette and Vullermot 2009. For the Roman Republic, see herein, p. 73; for France, pp. 83–84. I refer to “personalized” political favors to distinguish these factors from the role of tax reductions in the recent rise of top income shares in the United States and some other Anglo-Saxon countries that have benefited the affluent in the aggregate: see herein, chapter 15, pp. 415–417. Quote: “Lunch with the FT: Oleg Tinkov,” *Financial Times*, December 30, 2015.

degree of wealth concentration. Unlike in the first half of the twentieth century, when negative shocks to the stock of capital and its rate of return in the form of wartime destruction, inflation, taxation, and expropriation greatly reduced wealth and, even more so, net income from wealth, the more stable conditions that had preceded this period of considerable leveling had favored holders of wealth. As a result, income from capital accounted for a larger share of total income than it has done since.

Was this situation representative of premodern societies more generally? Considering that the gap between the rate of economic growth and nominal returns on capital (as proxied by interest rates or fixed incomes from estates or endowments) had always been extremely large, it is plausible to assume that on the whole, capital owners enjoyed a perennial advantage. At the same time, we would expect the intensity of shocks to capital to have varied considerably, dependent on the likelihood of violent asset redistribution. In times of stability, the arbitrary exercise of autocratic rule could generate powerful shocks, especially to elites' fortunes, that might cause those fortunes to balloon just about as often as it destroyed them. As long as these interventions merely redistributed assets that had already been claimed by the top tier of society, the overall effect on the distribution of wealth may well have been neutral. By contrast, shocks resulting from war, conquest, or state failure yielded less predictable consequences: whereas military success was likely to raise inequality on the victorious side by enriching its ruling class, generalized leveling commonly ensued from the disintegration of governmental structures. I present historical evidence for these developments in this and later chapters.

In the long run, levels of wealth inequality must have been shaped by the frequency with which these more destabilizing violent ruptures occurred. Insofar as earlier mechanisms of income distribution and wealth accumulation differed from those observed in eighteenth- and especially nineteenth-century Europe, they may have done so with respect to the relative importance of elite income from sources other than labor. The more that personal fortunes depended on access to political rents, the more income from labor—at least if we can define corruption, embezzlement, extortion, military plunder, vying for benefactions, and taking over the assets of rivals as forms of labor—would have mattered than it did for entrepreneurial or rentier investors of capital in more orderly and pacified societies. As I argue in the remainder of this section, income of this nature could be a major, and at times perhaps even the principal, determinant of elite standing. This was true in particular of early, archaic states whose upper classes

relied more on state-sponsored claims to rents in goods and labor services than on returns on private assets. These entitlements qualify the conventional distinction between income from capital and income from labor and once again underline the critical importance of political power relations in creating the original “1 percent.”<sup>41</sup>

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Fairly egalitarian modes of land ownership were once common in many of the regions that later came to host large empires. Among the Sumerians in southern Mesopotamia, one of the earliest civilizations known from written sources that date back more than 5,000 years, much farmland used to be controlled by extended patrilineal families of commoners who worked it as communal holdings. This type of ownership was also typical in early China, in the Shang and Western Zhou periods in the second millennium BCE, at a time when private land sales were supposedly inadmissible. In the Valley of Mexico in the Aztec period, most land was held and cultivated by *calpotin*, corporate groups whose holdings combined family fields with common land. The former were sometimes periodically reconfigured to take account of changes in family size. The same was true of the *ayllukuna* in the Peruvian highlands of the Inca period, endogamous groups that assigned parcels at different altitudes to individual member families and regularly adjusted them to ensure an equitable distribution. Arrangements such as these imposed a powerful constraint on the concentration and commercial exploitation of land.

Over time, however, inequality grew as capitalholders acquired land and political leaders superimposed tributary structures on existing holdings. By the time Sumerian documentation expanded in the course of the third millennium BCE, we already encounter temples that held large amounts of land and worked it with their own institutional labor force, and we see nobles who had somehow amassed larger holdings as well. Privatization of lineage land was possible as long as other group members agreed to it. Debt served as a potent instrument of converting surplus income into additional land: high annual interest rates of up to a third frequently compelled customary owners who had taken out loans to

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<sup>41</sup> For the role of returns on capital and of shocks on these returns, see esp. the concise expositions in Piketty and Saez 2014: 841–842; Piketty 2015b: 73–78, and more generally Piketty 2014: 164–208. For the debate, see herein, chapter 15, pp. 411–423.

cede their holdings to creditors and might even condemn them to servitude if they had pledged themselves as collateral. This process created both large estates and a landless workforce to cultivate them. While creditors may have derived some of the disposable resources that they lent to others from the management of their own economic assets, political rents could also play an important role in providing them with the means to pursue this strategy. Privatization, in turn, reduced traditional social obligations to clients and supporters: the fewer costly social responsibilities were attached to private property, the more attractive it would have become to investors. A variety of social statuses developed to cater to the labor needs of capital owners, such as sharecroppers and debt bondsmen, with slavery, a more primordial type of subordination, added to the mix. Analogous processes could be observed 4,000 years later, but at a comparable level of socioeconomic development, among the Aztecs, where rural debt and recourse to landless serfs and slaves sustained growing inequality.<sup>42</sup>

The practices of state rulers provided both a model for, and often also the means of, encroachment. Sumerian kings sought to obtain land for themselves and their associates and insinuated themselves into the operation of temple estates to gain control over their assets. Temple administrators intermingled management of institutional assets with their own. Graft, corruption, and force were already well-established means of appropriation. Sumerian cuneiform records from the city of Lagash in the twenty-fourth century BCE show that the local kings and queens took over temple land and the workers attached to it; that aristocrats acquired land by foreclosing on high-interest loans; that officials misused state assets such as boats and fishing grounds, overcharged for basic services such as funerals and sheep shearing, withheld wages from workers, and generally filled their pockets through corruption; and that the wealthy stole fish from poor men's ponds. Whatever the merits of some of these allegations, the overall impression is that of a particular type of governance that encouraged encroachment and enrichment aided by the exercise of power for personal benefit. From early on, the ongoing acquisition and concentration of private wealth in elite circles caused concerns for rulers who needed to protect primary producers, who were expected to pay taxes and perform labor services for the state, from predatory lenders and domineering landlords. From the mid-third

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<sup>42</sup> Hudson 1996b: 34–35, 46–49; 1996c: 299, 303; Trigger 2003: 316–321, 333; Flannery and Marcus 2012: 500–501, 515–516. The Sumerian experience is given pride of place here because it represents the earliest surviving example of these processes.

to the mid-second millennium BCE, Mesopotamian kings periodically decreed cancellation of debts in an attempt to slow the advance of private capital. For all we know, this was bound to be a losing battle.<sup>43</sup>

A telling illustration of these tensions can be found in the “Song of Release,” a Hurrian myth translated into Hittite in the fifteenth century BCE. It features the Hurrian weather god Tessub, who appears in the city council of Ebla (in northwestern Syria) in the guise of a debtor, visibly in dire need and “dried out.” King Megi has clashed with the city’s powerful notables over the release of debt slaves, a measure deemed required by divine command but successfully opposed by Zazalla, a gifted orator who sways opinion in the elite council. Under his influence, the councilors offer Tessub gifts of gold and silver if he is in debt, oil if he is dried out, and fuel if he is cold but refuse to free the enslaved debtors in accordance with Megi’s wishes:

But we will make no release [of slaves]. There will be [no] rejoicing in your soul, O Megi.

They invoke the necessity of keeping debtors in bondage, for

If we were to release them, who would give us to eat? On the one hand, they are our cupbearers; on the other, they serve (food) to us. They are our cooks, and they wash up for us.

Megi is reduced to tears by their obstreperousness and renounces any claim to his own bondsmen. Right before the surviving text breaks off, Tessub promises divine rewards if the other debts are remitted and threatens severe punishment if they are not.<sup>44</sup>

Accounts such as these reveal the limits of royal power in the face of elite privilege and appropriation. Ancient Near Eastern city-kings also had to tread carefully in expanding their own holdings in competition with local temples and other influential constituencies. Up to a point, balancing and the relatively modest scale of many of these polities served as a check on the degree of dis-equalizing intervention. Large-scale conquest, however, dramatically changed

<sup>43</sup> Hudson 1996a: 12–13, 16; Flannery and Marcus 2012: 474–502, esp. 489–491 on Lagash. For debt relief, see herein, chapter 12, pp. 359–360.

<sup>44</sup> Ebla: Hoffner 1998: 65–80, esp. 73–77. Quotes: 75 paragraphs 46, 48. The Hurrians were located in northern Mesopotamia, the Hittites in Anatolia.

this equation. The violent takeover of rival polities and territories opened the door to more overt predation and the accumulation of riches unfettered by customary local constraints. The agglomeration of existing polities into larger structures created new tiers of hierarchy and gave those at the top access to surplus from a broader resource base, developments that could hardly fail to intensify overall inequality by boosting top income and wealth shares.

The disequalizing effects of state formation by extensive conquest are clearly visible in the case of the Akkadian kingdom in the twenty-fourth to twenty-second centuries BCE. Considered the first “true” empire in history if we define empire in terms not merely of size but also of multiethnic heterogeneity, asymmetric core-periphery relations, and abiding local traditions of distinction and hierarchy, it exercised power over diverse societies from northern Syria into western Iran. This unprecedented expansion encouraged Akkad’s rulers not only to assume divine rank—surviving texts report that Rimush, the son and successor of the empire’s founder, Sargon, “accounted himself among the gods” and that his nephew Naram-Sin declared that “the people of his city asked of him that he be god of their city Agade . . . and they built his temple in Agade”—but also to seize and redistribute assets on a vast scale. Local city-state kings were replaced by Akkadian governors, and large amounts of land ended up in the hands of the new rulers and their senior agents. Because much of the most productive farmland was held by temples, rulers either had it confiscated or appointed relatives and officials as priests to assume control of these resources. A new imperial ruling class that transcended the internal divisions of this far-flung realm accumulated large estates. Appropriated land, handed over to officials, was used to support them and to reward their own clients and subordinates, some of whom were known as “the select.” Later tradition expressed loathing for “the scribes who parceled out farmland in the steppe.” The beneficiaries of state grants further added to their holdings by purchasing private land.

Some Akkadian records offer detailed insight into the growth of elite wealth. Yetib-Mer, the majordomo of god-king Naram-Sin, held almost 2,500 acres of land in different parts of the empire. Mesag, a notable in the late twenty-third century BCE, controlled more than 3,000 acres: he had been granted a third of it for his own subsistence and bought use rights to the remainder. His domain was parceled out to lesser administrators, craftsmen, and other clients, only a few of whom received large allotments in excess of ninety acres; indeed, most had to make do with much smaller plots. Access to material resources was thus sharply graduated across the state class. Coupled with the ability to

reassign assets with little regard for established patterns of ownership, imperial amalgamation of productive resources created a “winner-takes-all” environment that disproportionately benefited a small power elite. In the judgment of a leading expert, “the Akkadian governing elite enjoyed resources far in excess of what Sumerian notables before them had known.”<sup>45</sup>

Empire building had the potential to influence the distribution of income and wealth in ways that were unrelated to returns on economic activity and turned material inequality into a by-product of the underlying restructuring of power relations. Political unification on a large scale could improve overall conditions for commercial activity by lowering transaction costs, by boosting demand for high-end goods and services, and by enabling entrepreneurs to capitalize on networks of exchange established for extractive purposes, thereby widening the gap between capital holders and others. It spurred urban growth, especially in metropolitan centers, that exacerbated material imbalances. It also protected from popular demands and expectations wealthy elites who were allied to the central authorities, giving them freer rein in the pursuit of personal gain. All these factors, among others, were conducive to the concentration of income and wealth.

But empire also shaped inequality in a much more straightforward manner. State-directed allocation of material resources to members of the political elite and administrative personnel converted political inequality into income and wealth inequality. It directly and immediately reproduced power asymmetries in the economic sphere. The delegational nature of rule in premodern states required rulers to share gains with their agents and supporters as well as with preexisting elites. In this context, assigned claims to surplus could be more important than formal property rights in productive assets. This was particularly true in societies in which labor services represented a major component of state and elite revenue. *Corvée* arrangements in the Inca empire were among the most extensive recorded in history, but use of coerced labor was also widespread in Egypt, the Near East, China, and Mesoamerica, to name but a few places. Land grants were an almost universal means of rewarding key associates, being handed out by the chiefs of Hawai’i and the god-kings of Akkad and Cuzco, by Egyptian Pharaohs and Zhōu emperors, by the kings

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<sup>45</sup> Foster 2016: 40, 43, 56, 62, 72, 90, 92; also Hudson 1996c: 300. Quotes: Foster 2016: 8 (Rimush), 13 (Naram-Sin), 40 (scribes), 43 (elite). For the collapse of the Akkadian empire, see herein, chapter 9, p. 280. In subsequent imperial formations, elites and state personnel in the capital cities benefited disproportionately: e.g., Yoffee 1988: 49–52.

of medieval Europe and by Charles V in the New World. Attempts to make these prebendal estates hereditary within the families of the initial beneficiaries and eventually turn them into private property were an almost inevitable consequence. But even when successfully accomplished, these transformations merely perpetuated and cemented material inequality that had originated in the political domain.

In addition to grants of land and labor, participation in the collection of state revenue was another important pathway to power-based elite enrichment. This process is so well attested that a long book could, and indeed should, be devoted to it. To name just one lesser-known example, in the Oyo empire, a large Yoruba state in West Africa in the early modern period, petty kings and subordinate chiefs gathered at local tribute-taking centers before they converged on an annual festival at the capital. Tribute in the form of cowrie shells, livestock, meat, flour, and construction materials was presented to the king through the intermediation of officials who had been appointed to act as patrons for particular groups of tribute-bearers and who were entitled to a share of the proceeds in exchange for their troubles. Needless to say, formal entitlements frequently accounted for only a modest portion of the personal income that fiscal agents derived from their service.<sup>46</sup>

By the Middle Babylonian period, more than 3,000 years ago, centuries of exposure to a succession of imperial regimes had taught the inhabitants of Mesopotamia an important lesson—that “the king is the one at whose side wealth walks.” What they could not know but would hardly have been surprised to learn was that this was to be true for thousands of years more and around the world. Violent predation and political preference greatly complemented and amplified the inequalities in income and wealth that had arisen from surplus production and hereditary transmissible assets. It was the interplay between these economic and political developments that spawned the original “1 percent.” I am unable to improve on Bruce Trigger’s pithy description of the Aztec *pipiltin*, who

wore cotton clothes, sandals, feather work, and jade ornaments, lived in two-storey stone houses, ate the flesh of human sacrifices, drank

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<sup>46</sup> Trigger 2003: 375–394 surveys these features across several early civilizations. For the Oyo, see 393. The contributions in Yun-Casalilla and O’Brien 2012 and Monson and Scheidel 2015 add up to a broad overview of fiscal regimes in world history.

chocolate and fermented beverages (in moderation) in public, kept concubines, entered the royal palace at will, could eat in the palace dining hall, and performed special dances at public rituals. They did not pay taxes.<sup>47</sup>

This, in a nutshell, was the public face of premodern inequality. It was only through their cannibalistic bent that this particular elite elevated the metaphorical consumption of human sweat and toil that was typical of their class to an unusually literal level. For much of human history, the very rich were indeed “different from you and me”—or, rather, our more ordinary ancestors. Material inequality may even have molded the human body. In the eighteenth and nineteenth century, when advances in medical knowledge had finally made it possible for the wealthy to purchase longer lives and limbs, the English upper classes famously towered over the stunted masses. If data sets that tend to be (much) less than perfect are to be trusted, such disparities may stretch much farther back in time. Egyptian pharaohs and members of the Mycenaean elite of Bronze Age Greece appear to have been visibly taller than commoners. The skeletal record of some heavily stratified societies shows greater dispersion in body height than in less strongly layered ones. Finally, and from a Darwinian perspective most important, material inequality routinely translated into reproductive inequality on an extravagant scale as elites accumulated harems and sired offspring by the dozen.<sup>48</sup>

To be sure, the degree of income and wealth inequality in premodern societies was not solely determined by the rapacity of their well-connected elites. The ancient Babylonian evidence for the dispersion of inheritances and dowries in subelite circles, already cited, allows us to catch a faint glimpse of what appear to have been growing disparities in response to economic growth and commercialization. In the next chapter and in chapter 9, I present archaeological data on house sizes before, during, and after the period of Roman rule in different parts of Europe and North Africa that reveal considerable variation in consumption inequality among urban commoners. Even so, although additional material could no doubt be adduced, especially from funerary contexts, for most of the

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<sup>47</sup> The first quote is taken from the so-called “Babylonian Theodicy,” a text composed in the Middle Babylonian language: Oshima 2014: 167, line 282, and the second one is from Trigger 2003: 150–151.

<sup>48</sup> Quote: Fitzgerald 1926. For stature inequality, see Boix and Rosenbluth 2014: 11–14, reprised in Boix 2015: 188–194; and see also Payne 2016: 519–520. Scheidel 2009b surveys reproductive inequality across world history.

premodern period it is hard, if not impossible, to gather meaningful information about the distribution of income and wealth in the general population.<sup>49</sup>

But it is not primarily for pragmatic reasons that I focus on the affluent. As we will see in chapter 3 and the appendix, in a number of cases social tables or census records make it possible to track, at least in very rough outlines, the distribution of material resources in particular societies from antiquity to the modern colonial period. Most of the Lorenz curves we could plot on the basis of these guesstimates would resemble hockey sticks rather than crescents, pointing to sharp disparities between a select few and a large majority at or not far from basic subsistence. With few exceptions, such as the ancient Greeks and the settlers of colonial North America, groups to which I return in chapters 3 and 6, agrarian populations that were organized in state-level polities generally lacked robust middle classes whose resources could have counterbalanced elite wealth. For this reason alone, variation in inequality was in large measure mediated by the share of resources commanded by the affluent.<sup>50</sup>

Finally, the introduction of large numbers of very poor individuals also raised overall inequality. In many premodern societies, the enslavement or deportation of outsiders was a powerful means to this end. The Neo-Assyrian empire in the Fertile Crescent was notorious for engaging in forcible resettlement on a huge scale, mostly from subjugated peripheries into the imperial heartland in north-eastern Mesopotamia. Large-scale transfers commenced under the reign of Tiglath-Pileser III (745–727 BCE) when imperial expansion and consolidation gained momentum. One survey of the ancient records counts forty-three events involving 1,210,928 deportees alongside more than a hundred other deportations for which no or only partial tallies are known. Even though the advertised numbers are of dubious reliability, and although claims about the uprooting of entire populations need to be treated with caution—“the people of his land, male and female, small and great, without exception, I led them forth, I counted them as spoil”—the cumulative effect of this practice was massive.

Over the following century or so, the continuing inflow of deportees allowed Assyrian kings to build, populate, and provision several capital cities. The stone reliefs that glorify royal exploits convey the impression that deportees arrived with only minimal personal belongings, such as a bag or sack. Shorn of their former assets,

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<sup>49</sup> See herein, p. 48 (Babylonians), pp. 76–77, and chapter 9, pp. 267–269 (housing).

<sup>50</sup> See herein, appendix, pp. 447–449 (distributions), chapter 6, pp. 188–199 (Greeks), chapter 3, p. 108 (America). The Lorenz curve is a graph used to plot the distribution of assets within a given population. Strong concentration among a few members causes the right-hand end of the curve to rise sharply.

they could typically expect nothing better than an existence at the margins of bare subsistence. Their position may even have deteriorated as the empire reached the peak of its power. For a long time, there had been no sign in the record that resettled subjects had been formally differentiated from the indigenous population: they were “counted together with the Assyrians.” This phrase disappeared in the final phase of Assyrian conquests, from about 705 to 627 BCE, when great victories and ongoing expansion fostered a heightened sense of superiority. Deportees were downgraded to the status of forced laborers and employed in large public works projects.

Forced migration not only augmented the ranks of the poor but also added to the wealth and income of the upper class. Multiple texts mention the distribution of war captives at the court and to temples. When the last of the great conquerors, King Ashurbanipal (668–627 BCE), dragged in large numbers of deportees from Elam (now Khuzestan in southwestern Iran), he declared that “the choicest I presented unto my gods; . . . the soldiers . . . I added to my royal army; . . . the rest I divided like sheep among the capital cities, the abodes of the great gods, my officials, my nobles, the whole of my camp.” Allocated captives were put to work on fields and orchards that had also been granted to officials, whereas others were settled on crown land. Practiced on a large scale, these arrangements simultaneously increased the share of workers in the population who had low income and no wealth and boosted the income of those near the top, a combination that could not fail to exacerbate inequality overall.<sup>51</sup>

Slavery produced similar results. The enslavement of outsiders was one of the few mechanisms capable of creating significant levels of inequality in foraging societies of small size and low or moderate complexity, not only among the aquatic foragers of the Pacific Northwest but across a wide range of tribal groups. Yet once again, it took domestication and state formation to boost the use of slave labor to new heights. Under the Roman Republic, several million slaves entered the Italian peninsula, where many of them were bought up by the wealthy to toil in their mansions, workshops, and agricultural estates. Two thousand years later, in the nineteenth century, in what is now Nigeria, the jihadist Sokoto Caliphate allocated enormous numbers of war captives to members of its political and military elite at exactly the same time when the “peculiar institution” was driving up material inequality in the Old South.<sup>52</sup>

<sup>51</sup> Oded 1979: 19, 21–22, 28, 35, 60, 78–79, 81–91, 112–113. See also herein, chapter 6, p. 200.

<sup>52</sup> Regarding slavery, see esp. Patterson 1982: 105–171 on the different modes of creating and acquiring slaves, Miller 2012 for slavery in global history, and Zeuske 2013 for the global history of slavery. For Rome, see Scheidel 2005a; for Sokoto, Lovejoy 2011; and for the United States, herein, p. 108.