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Introduction

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.[1]

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

[1] 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.[2]

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.[3]

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

[2] 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.

[3] 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.

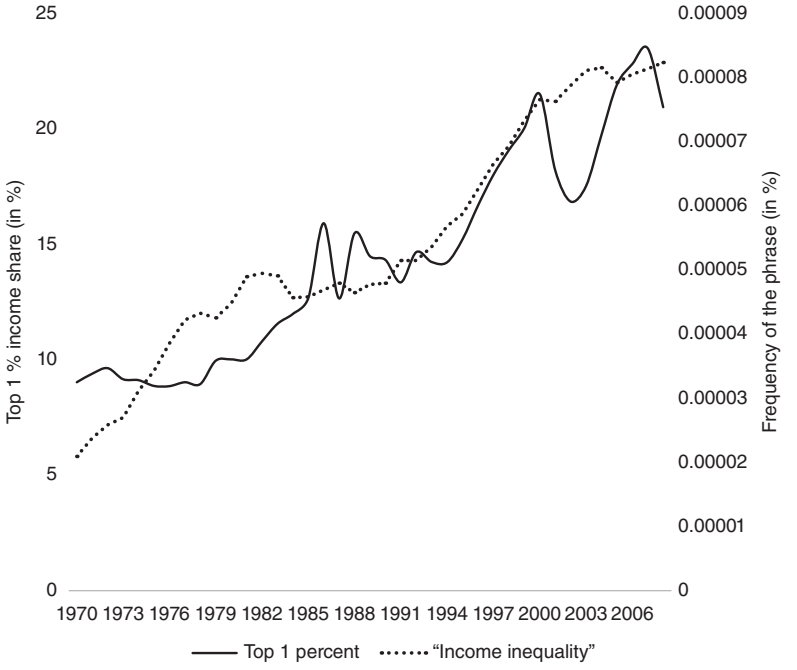

Figure I.1 Top 1 percent income share in the United States (per year) and references to "income inequality" (three-year moving averages), 1970–2008

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).[4]

[4] "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.[5]

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

[5] 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.[6]

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

[6] 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.[7]

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

[7] 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.[8]

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

[8] 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.[9]

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

[9] 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.[10]

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 ~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.

[10] See Atkinson and Brandolini 2004, esp. 19 fig. 4, and also Ravaillon 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.[11]

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

[11] 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.[12]

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.[13]

[12] 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/.

[13] 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.[14]

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

[14] 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.[15]

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.[16]

[15] 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.

[16] 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 turns affects the life chances of children and impedes intergenerational mobility.[17]

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:

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.

[17] 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.[18]

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?[19]

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

[18] 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.

[19] 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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