# Nobel Lecture: The Institutional Origins of Shared Prosperity<sup>†</sup>

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Following the end of Japanese occupation in 1945, Korea was divided into North and South. Through the 1950s, both regions remained substantially damaged by war and struggled to rebuild. Since that time, however, the divergence in economic fortunes has been remarkable. South Korea has experienced sustained growth in GDP per capita, rising from below 10 percent of the US level in 1960 to over 70 percent today. In North Korea, on the other hand, most people remain very poor. While any official data from North Korea should be regarded with suspicion, recent satellite photos of the Korean peninsula at night show the comparison in stark terms: South Korea is bathed in light from homes, offices, restaurants, streets, and other sources, while North Korea is mostly dark. In 1945, these countries had roughly similar income per capita, and South Korea did not reach this level again until the 1980s. However, South Korea's GDP per capita today is approximately 45 times greater than it was in 1946—and North Korea's has not increased in decades (see panel A of Figure 1).

The most plausible explanation for this divergence lies with institutions, meaning the rules that govern how political and economic systems function. Since the 1980s, South Korea has become a robust democracy, with regular elections and genuine competition between parties. Private property is respected, government powers are constrained, and corruption has been brought under control. Panel B of Figure 1 shows data from the Varieties of Democracy (V-Dem) database, which measures political corruption, the rule of law, and government accountability over long periods of time (Coppedge et al. 2024a,b; see also the Appendix). The series shown here is a simple average of the three measures. Higher values of this index represent institutions that are better from the perspective of ordinary people because there is less predation and power in the hands of government in recent decades and now ranks among the most democratic countries in the world. In North Korea, however,

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<sup>&</sup>lt;sup>1</sup>The theory underlying this view of institutions is presented succinctly in Acemoglu, Johnson, and Robinson (2001b)—henceforth, AJR (2001b)—and in an expanded form in AJR (forthcoming). See also Acemoglu (2025), which was very helpful in the development of this lecture.



FIGURE 1. EVOLUTION OF INSTITUTIONS AND GDP PER CAPITA IN SOUTH AND NORTH KOREA

a violent dictatorship has prevailed for more than 70 years, suppressing dissent, keeping all power in the hands of one family and its close allies, and preventing the development of private enterprise except in the most limited and insecure forms. Starting from an already low point, panel B of Figure 1 suggests institutions in North Korea may actually have become worse.

The contrast between North and South Korea is striking and perhaps extreme, but there is significant variation in institutional arrangements around the world. A number of published metrics provide insight into the extent to which countries have "inclusive institutions," strong economic and political rights for the vast majority of people, or "extractive institutions," arrangements that concentrate political power and economic opportunity in the hands of just a few, typically enriching a local elite while leaving everyone else far behind.

Acemoglu, Johnson, and Robinson (2001b)—henceforth, AJR (2001b)—featured cross-country data from Political Risk Services (PRS) on institutions through the mid-1990s (International Country Risk Guide (ICRG) Researchers 2014).<sup>2</sup> The same source now provides assessments through 2022. The definition of variables has changed slightly over time, and the measure closest to our original "protection against expropriation risk" variable is provided by averaging the PRS indexes for "Corruption," "Law and Order," and "Bureaucracy Quality." On all three dimensions, a higher score indicates institutions are on average more inclusive and, by definition, less extractive.<sup>3</sup> These PRS indicators are highly correlated with each

*Notes:* Panel A shows real GDP per capita as measured by the Maddison Project (Bolt and Van Zanden 2025). The Maddison project cites Cha, Kim, and Park (2022) as the original source for GDP per capita in North and South Korea. Panel B shows a measure of institutions, which is the unweighted average of V-Dem's Corruption, Rule of Law, and Accountability indexes (Coppedge et al. 2024a,b); a higher value is interpreted as more inclusive and, by definition, less extractive.

 $<sup>^{2}</sup>$  We will refer to these data simply as PRS throughout the text.

<sup>&</sup>lt;sup>3</sup>The PRS Corruption and Law and Order indexes range from 0 to 6, while the Bureaucratic Quality index is from 0 to 4. We rescale the Bureaucratic Quality index to match and then take the simple average across all three measures for each year. Due to data use restrictions, the original PRS data are not included in our replication package, but the data are available for download for noncommercial purposes via the Harvard Dataverse. For more detail on the constituent elements of these indexes, see the Appendix.



FIGURE 2. INSTITUTIONS AROUND THE WORLD

other and with similar measures constructed by other organizations; as a summary statistic, it is sufficient to look at simple averages, as shown in the map in Figure 2.<sup>4</sup> Figure 2 shows at a glance the wide variation in institutions around the world, from more inclusive to more extractive.

Figure 3 plots log GDP per capita in 2022 against our PRS composite measure of inclusive institutions, showing a strong positive correlation that is not due to outliers. Across a wide variety of plausible measures, countries with higher income per capita also have more inclusive institutions.

The data in Figure 3 are adjusted for purchasing power parity to reflect the fact that the price of nontraded goods is lower in places with lower wages. Even with this adjustment, GDP per capita in the top 10 percent of countries is 40–60 times higher on average than in the poorest countries. The gaps in average prosperity between countries today have remained remarkably resilient for over a century, despite the fact that ideas, capital, services, and most goods can move quite freely around the globe. Why are some countries, measured in this way, so much richer than others?

Figure 3 suggests that cross-country variation in institutions could well be related to the variation in prosperity. But do more inclusive institutions boost income per capita, or is it the case that richer countries can afford more inclusive institutions? Or perhaps there is some third factor, not shown in Figure 3, that drives both income per capita and institutions—resulting in a correlation between those two variables that is at best spurious and perhaps deeply misleading if used to inform antipoverty policy.

*Notes:* The figure shows the extent to which country-level institutions are inclusive/extractive as measured by a simple average of the Political Risk Services indexes for Protection against Corruption, Law and Order, and Bureaucratic Quality in 2022 (International Country Risk Guide 2014). Higher scores indicate more inclusive institutions, while lower scores indicate institutions are more extractive.

<sup>&</sup>lt;sup>4</sup>The map in Figure 2 looks essentially the same if it is drawn using the V-Dem measures discussed above. The advantage of the V-Dem measures is their long time series, but this source was not available when we wrote our original papers.



#### FIGURE 3. GDP PER CAPITA AND INSTITUTIONS

*Notes:* The relationship between GDP per capita and institutions, measured as PPP-adjusted log GDP per capita in 2023 from the World Bank (World Bank 2024a), against the average of the PRS indexes for Protection against Corruption, Law and Order, and Bureaucratic Quality in 2022 (International Country Risk Guide 2014). Dots shown in red are former European colonies included in the AJR (2001) sample (except Venezuela, which is missing recent GDP data). Dots shown in blue are all other countries for which both the World Bank and PRS have data. The black line is the regression line including all countries (blue and red dots). The slope and standard error (in parentheses) for the fit line is shown in the figure.

These questions motivated the empirical research that initially appeared in AJR (2000), published as AJR (2001b), was expanded on in AJR (2002) and subsequently confirmed with further robustness checks in AJR (2012), and revisited with the latest available data on GDP per capita and institutions in AJR (forthcoming).<sup>5</sup>

The main finding in those papers is that the disease environment in different parts of the world strongly shaped the institutions Europeans chose to establish—ranging from more inclusive (at least for some Europeans) to highly extractive. Early colonial economic and political governance, in turn, heavily influenced how institutions subsequently developed, including after independence. This establishes a robust link between the early mortality rates faced by potential European settlers and country-level GDP per capita today, with causation running through the specifics of how institutions developed. This evidence strongly suggests that more inclusive institutions tend to increase the average prosperity levels that can be sustained in the long run.

Here, I review the underpinnings and main findings of that line of work, with reference to about 25 papers we wrote on closely related topics, including when inclusive institutions had their most decisive historical effects on relative per capita incomes (AJR 2002); why institutions matter so much for long-run growth (AJR 2005a); the role of institutions relative to macroeconomic policy (Acemoglu et al. 2003); the importance of property rights and constraints on executive power relative

<sup>&</sup>lt;sup>5</sup>Anyone interested in the development of this work and the full set of robustness checks should consult the NBER working paper versions: AJR (2000, 2001a, 2011).

to other forms of institutions (Acemoglu and Johnson 2005) and relative to human capital (Acemoglu et al. 2005); the role of trade in creating more inclusive institutions in Western Europe (AJR 2005b); the history and impact of global disease eradication (Acemoglu and Johnson 2007; Acemoglu, Fergusson, and Johnson 2020); the coevolution of income and democracy (Acemoglu, Johnson, Robinson, and Yared 2008); the importance of institutions in economic crises (Acemoglu, Johnson, Kermani et al. 2016); and the effects of various institutional reforms, ranging from those associated with the French Revolution (Acemoglu et al. 2011) to the creation of independent central banks (Acemoglu, Johnson, Querubín, and Robinson 2008).

I also discuss more recent research that emphasizes the critical importance of historical choices regarding the development path of technology (Acemoglu and Johnson 2023). This adds important points about who wins and who loses in particular societies at key moments. Strong institutions tend to self-perpetuate, but only to the extent that the resulting policies deliver on shared prosperity within the society in question. Rapid automation, excessive globalization, and the decline of worker representation can undermine even the strongest democracy.

Section I reviews the historical evidence on how disease environments influenced European colonization strategies, while Section II presents new statistical evidence that supports the core argument of AJR (2001b): that there is a causal relationship between institutions and income per capita, which can be identified and understood through the effects of strategic colonization choices on early institutions. Section III explores related questions that arose from this line of research, including (i) why life expectancy converged across countries during the twentieth century but institutions and income per capita did not, (ii) whether human capital could be the primary transmission mechanism between colonial strategy and modern outcomes, (iii) the extent to which geography can be considered a meaningful determinant of divergent economic outcomes across countries, and (iv) how institutions interact with the evolution of political and economic power, including how these interactions in Britain and France from the late 1700s shaped the global economy.

Section IV discusses the long-lasting impact of highly extractive institutions (slavery and its aftermath) in the United States, which is considered in cross-country comparisons to have inclusive institutions. Section V concludes with three potential implications for the modern world. The Appendix explains the construction of the measures of institutions used here.

#### I. Colonial Histories

#### A. The Era of European Colonial Expansion

The countries in Figure 3 are divided into two nonintersecting sets: those that were taken over and substantially controlled by European colonial empires (shown as red dots) and all others for which data are available (blue dots). Within both sets of countries, there is a similar span of income per capita and institutions; that is, there are countries with low incomes and highly extractive institutions as well as countries with high incomes and inclusive institutions. If we can understand something about the origins of institutional variation within European empires, perhaps this can shed light on how institutions affect long-run growth.

Prior to 1400, European nations had little or no influence outside of Europe, and attempts by Europeans to expand their presence to other regions—for example, through the medieval Crusades—were firmly rebuffed. From the perspective of Eurasia and its well-armed empires, Europe was relatively small and not particularly distinguished. To the extent that there were pockets of prosperity within Europe and vibrant trade routes, most were centered around the Mediterranean—as they had been for thousands of years (AJR 2005b).

From the mid-1400s, and increasingly from about 1500, Portugal and Spain, followed closely by the Netherlands, Britain, France, and other countries with ready access to the Atlantic Ocean expanded their trading activities along the coast of Africa, sought new trading routes to Asia, and competed to grab land in the Americas. Over the next 400 years, multiple waves of European imperialism reached almost everywhere in the world, profoundly reshaping governance.

But the development of colonial institutions was not "one size fits all," even within particular empires. For example, the disparate record of the British empire includes playing a leading role in the transatlantic slave trade, creating extractive institutions in Africa, the West Indies, and throughout the Americas; dominating India for close to two centuries, first through a commercial company with strongly venal overtones and then through a rigid administrative apparatus reporting to the government in London; and establishing what became the United States of America, Australia, New Zealand, and Canada, which attracted a large number of European migrants. There was similar, if less extreme, variation within other European empires.

Europeans at that time were willing to consider moving almost anywhere in the world. What determined where they ended up and the kind of institutions they attempted to build in these "new" (to them) places?

### B. A Man, a Plan, a Canal ... Catastrophe

During their centuries of imperial expansion, Europeans discovered the hard way that moving to some places could have massively negative consequences for their health due to the effects of tropical disease.

One dramatic example is the French attempt to build the Panama Canal. Against great odds, in the middle of the nineteenth century, Ferdinand de Lesseps succeeded in building a canal across Egypt. Opened in 1869, the Suez Canal was an economic success, viewed by prominent Europeans as a political triumph. There had been some health issues along the way, including cholera outbreaks among the workforce, but the project was completed more or less on time, and any cost overruns were inconsequential. European investors did extremely well with this grand scheme, and many of them were clamoring for more such opportunities. Based on his proven ability to mobilize large-scale financial resources and organize complex engineering projects in hot places, in February 1881, Lesseps began to build a transoceanic canal across Panama. Initially, there was reasonable progress dredging harbors and rivers. But as the work began to shift onto higher ground, excavation became more difficult. And once it started to rain, tropical disease raised its ugly head.

In the summer of 1881, cases of severe fever appeared; the first canal worker died in June. About 60 people passed away during that year, including senior management in Panama, from either malaria or yellow fever; it was hard to keep track,

particularly as medical understanding of these diseases was quite imperfect. Lesseps pressed on, increasing the workforce to 19,000 in 1884. But malaria and yellow fever were equally relentless and cut down the French, West Indian, and local workforce in heartbreaking numbers.

From 1881 to 1889, the cumulative death toll was estimated at 22,000, of which around 5,000 were French. One-third of the workforce may have been sick at any one time. In the worst episodes, out of every 100 new arrivals in Panama, at least 20 died and only about 20 remained strong enough to do the necessary physical work. By some estimates, of every 4 people who came from France, between 2 and 3 died of "fever" (either yellow fever or malaria). In 1885, 33 Italians arrived; 27 were dead within three weeks. Conditions in the company hospital included standing water that allowed mosquitoes to breed, and epidemics spread mercilessly across the wards. Once admitted to hospital, the mortality rate was 75 percent.<sup>6</sup>

In the face of this complete population health disaster, the company collapsed, and the French attempt to build this canal was abandoned. This particular episode illustrates the broader point: Even centuries into the colonial experience, the disease environment in particular parts of the world severely limited the colonial strategies Europeans could pursue. European colonizers were tenacious people, and, where there were fortunes to be made, some were always willing to take a great deal of risk. But sometimes the cost of colonial schemes in terms of European lives was just overwhelming.

The question for colonial empire builders was how to balance the risks and rewards of sending Europeans to different parts of the world. Where was it simply too dangerous to spend a significant amount of time on the ground?

# C. The Image of Africa

Central America was far from the most unhealthy place for Europeans during the period of colonial expansion. For centuries, West Africa had been known as the "White Man's Grave," and most slave traders had deliberately spent minimal time on land (Curtin 1961). Despite this reputation, in the first half of the nineteenth century, there were concerted efforts to establish a more substantial European presence on the ground. All of these efforts were met with calamity for the same reason: Europeans died in large numbers in West Africa, far in excess of what was regarded as acceptable, well into the second half of the nineteenth century, despite their best attempts to remain healthy.

Mungo Park's expedition of 1805 included 44 Europeans, 39 of whom died. Tuckey's expedition of 1816 fared only slightly better: 21 out of 44 Europeans died. And in the Clapperton expedition of 1825–1827, four out of five Europeans died. Staying longer and gaining more local experience did not help much. The average death rates among soldiers in Freetown (Liberia) during 1813–1817 were reported as 483 per 1,000.<sup>7</sup>

<sup>&</sup>lt;sup>6</sup>All these details are from McCullough (2004). Anyone who thinks tropical disease was not a problem for Europeans during the colonial period should read this book. The logic, hubris, and calamity of the French Panama Canal scheme is discussed in more detail in Acemoglu and Johnson (2023, chap. 2).

<sup>&</sup>lt;sup>7</sup> These numbers are from Bruce-Chwatt and Bruce-Chwatt (1980, pp. 45–47), including Table 2; see the same source for more on the etiology of malaria. For more on the history of malaria and efforts to control the disease, see Acemoglu and Johnson (2007); see also two classic references: Gilles et al. (1993), *Bruce-Chwatt's Essential Malariology*, and Burnet and White (1972), *Natural History of Infectious Disease*.

The expected mortality for newly arrived Europeans was shockingly high, and much higher than for local people. With the hindsight provided by modern science, there is a straightforward explanation for this differential.

The facts about West Africa health in the late eighteenth century were first, hyperendemic malaria; second, relatively frequent yellow fever epidemics spaced at about five to ten years apart; third, extremely high initial mortality for any intrusive population from the temperate zone, and fourth, a pattern of behavior on the part of both yellow fever and malaria, which made it appear that Africans were immune. (Curtin 1961, p. 97)

West Africa was an area of hyperendemic malaria, which created a more intense problem for Europeans than they faced in most other parts of the world.

Virtually the whole of West Africa provides an extremely favorable environment for *Anopheles gambiae* and *Anopheles funestus* [mosquitos]. Both are among the most efficient vectors for carrying plasmodial parasites from one individual to another. The prevalent form of malaria is *Plasmodium falciparum*, one of the most dangerous of all malarial infections—much more likely to cause death than the *Plasmodium vivax* of the West Indies, which is debilitating but seldom fatal. (Curtin 1961, p. 95)

However, the consequences of infection with *P. falciparum* vary greatly, depending in large part on whether the person in question was previously exposed as a child. Even today,

Across sub-Saharan Africa where the disease [malaria] is holoendemic, most people are almost continuously infected by *P. falciparum*, and the majority of infected adults rarely experience overt disease. They go about their daily routines of school, work, and household chores feeling essentially healthy despite a population of parasites in their blood that would almost universally prove lethal to a malaria-naive visitor. (Doolan et al. 2009, p. 14)

A person with naturally acquired immunity can still get sick from malaria, and repeated bouts of this disease negatively impact the quality of life. But the death rate from malaria for this "immune" person is much lower than for an adult with no prior infection. The catch is that immunity is only against the "same strain of P. Falciparum they have known in childhood," and retaining this immunity requires that the individual be "constantly re-infected" (Curtin 1961, p. 96). Consequently,

In a certain sense, then, the African population pays a price in infant mortality for its later protection. European visitors in the past paid this same price in high mortality—but they paid it as adults and not as infants. (Curtin 1961, p. 96)

Yellow fever, the other main killer of newly arrived Europeans, is a virus transmitted by the mosquito *Aedes aegypti*.<sup>8</sup> The death rate among nonimmune adults is extraordinarily high—as much as 90 percent in some documented epidemics—but

<sup>&</sup>lt;sup>8</sup>This mosquito lives up to four months, tends to stay close to where humans live, and has only a short flight range (less than 100 yards). *A. aegypti* eventually proved much easier to control than mosquitos from the *A. gambiae* group, but the importance of mosquito control was not appreciated until the very end of the nineteenth century, after the pattern of colonization and colonial institutions had been established (Acemoglu and Johnson 2023, chap. 2).

people who survive yellow fever should have a "life-long and complete immunity" (Curtin 1998, p. 9). And the impact on children is typically much less deadly than for nonimmune adults. Hence,

Because most Africans had passed through a light case early in life, yellow fever in West Africa was a strangers' disease, attacking those who grew up elsewhere. (Curtin 1998, p. 10)

Because of its epidemic nature, yellow fever did not kill large numbers of Europeans every year. Rather, epidemics swept through every few years. However, for any European considering a move to West Africa, the high probability of an encounter with yellow fever was a major consideration (Curtin 1989, chap. 1).

West Africa was extreme, in terms of European mortality. But there were plenty of other climates where Europeans knew from experience that they faced an elevated risk of mortality from infectious disease. At the same time, other parts of the world were perceived, accurately, as roughly as healthy for Europeans as Western Europe itself.

By 1800, the Europeans knew at least roughly how moving to various parts of the world would affect their life expectancy. The deadly (to them) disease environments of the tropical regions of the Americas, Africa, and Asia did not keep Europeans from establishing colonies and extracting vast amounts of wealth. Rather, their inability to understand and manage tropical disease led the Europeans to establish institutions that facilitated extraction while reducing the need for settlement.

To understand exactly how disease environments shaped colonial strategies, we need data on the death rates faced by Europeans during colonial expansion. Fortunately, while the Europeans made little progress on understanding malaria and yellow fever during the 1800s, they did greatly improve their collection of relevant statistics.

# D. Disease Environments for Colonial Era Europeans

The British made the first efforts at careful measurement of death rates for Europeans around the world, with a series of reports on England, North America, the Mediterranean, Africa, African islands, Ceylon, and Burma. These reports covered the period 1817–1836 as completely as possible (Curtin 1989, p. 3). Follow-up reports, sometimes including historical retrospective data, covered India (Curtin 1989, p. 4) and other places of colonial interest. French authorities soon produced similar reports for Algeria and other parts of their empire. Other European colonial powers also collected and published data.

An informative randomized controlled trial would have involved sending some young men overseas (randomized across destinations), while others stayed at home. Such experiments were never run explicitly. However, in effect, European governments created a version of this experiment with their military recruits; some were kept at home, and others were sent to various parts of their empires (or places they wanted to control). The military authorities kept "the most careful records of this kind available for any human group of equivalent size anywhere in the world before this [20th] century" (Curtin 1989, p. xv). The published reports are available from

the early 1800s (and sometimes earlier), although they become more comprehensive from the 1860s (Curtin 1989, p. xvi).

There is considerable variation in these mortality data, and we used the full range of observations in AJR (2001b). However, one helpful way to think about these numbers and visualize their implications is to divide the colonial world into three parts.<sup>9</sup>

First, there were places with disease conditions for Europeans similar to (or perhaps better than) Europe during the early colonial period, which we call "low mortality."<sup>10</sup> For British troops in Great Britain during 1830–1836, the death rate was 15.30 per 1,000, and for French troops in France during 1820–1822 and 1824–1826, the death rate was 20.17 per 1,000. These rates were remarkably similar to experience in peacetime conditions in the Northern United States 1829–1838.<sup>11</sup> In New Zealand, British troops in 1846–1855 experienced only 8.55 deaths per 1,000, raising the possibility that movement from Europe to New Zealand could actually extend life expectancy.

In the second group of places, deaths from disease for Europeans were significantly higher than in Europe ("high mortality"). For example, the mortality from disease for British troops in India ranged from 36.99 per 1,000 in Bombay (1830–1838) to 71.41 per 1,000 in Bengal (1830–1838).<sup>12</sup> On islands in the West Indies, death rates for Europeans were usually even higher, ranging from 85.0 in the Windwards and Leewards (1817–1836) to 130.0 in Jamaica (1817–1836). The West Indies was regarded as somewhere Europeans could live, but only for a short time due to the risk of disease. Seven years was commonly regarded as long enough to make a fortune during the colonial era—primarily by operating sugar plantations with enslaved labor.

The Indian subcontinent was also seen as a place Europeans could spend some years, but it was considered inadvisable to live there permanently. One correspondent put her warning vividly,

Captain N ... says that, towards the end of the rainy season [in the jungles], when the health generally gives way, the lowness of spirits that comes on is quite dreadful; that every young man fancies he is going to die, and then he thinks that nobody will bury him if he does, as there is no other European at hand. Never send a son to India! my dear M., that is the moral. (Harrison 2002, p. 111)<sup>13</sup>

<sup>9</sup>The post-1860s data can be combined with earlier data, if done carefully. We explained our approach to this in AJR (2001b), and we showed further robustness checks in data construction in AJR (2012). This three-way division of the data was developed for AJR (forthcoming).

<sup>10</sup>The basic geographic pattern in the data is clear from Curtin (1989) Table 1.1, "Mortality of European Troops Overseas 1817–38." The original data were calculated per 1,000 "mean strength" per year, a measure of how many would die per annum if all those who died were replaced with newly arrived replacements from Europe. This is how military statisticians constructed their variables, as they were thinking about the costs of sending European troops to different geographies, with the goal typically to maintain a garrison of a certain size.

<sup>11</sup>While there were some hardships for early European settlers in North America, once problems with food supply were sorted out, it quickly became apparent that this was a relatively healthy place for Europeans to live. <sup>12</sup>The Royal Commission on India, reporting in 1863, calculated the additional cost of empire from these

<sup>12</sup>The Royal Commission on India, reporting in 1863, calculated the additional cost of empire from these additional deaths and with the explicit objective of lowering the death rate of British soldiers in India (Curtin 1989, pp. 4–5).

<sup>13</sup>Hon. Emily Eden, letter to her sister, published 1866, quoted in Harrison (2002, p. 111).

In the third group of places, however, the rate of European death from disease was simply catastrophic ("extreme mortality"). Some of the worst early experiences were in West Africa, with deaths per 1,000 at 164.66 for French soldiers in Senegal (1819–1838), and 483.0 for British soldiers in Sierra Leone (1819–1836).

The leading British military-medical statistician of the mid nineteenth century summed it up this way, from the European perspective:

[Military reports of disease and death] serve to indicate to the restless wanderers of our race the boundaries which neither the pursuit of wealth nor the dreams of ambition should induce them to pass, and to proclaim in forcible language that man, like the elements, is controlled by a Power which hath said, '*Hither thou shalt come, but no further*.' (Tulloch 1847, p. 259, emphasis added).

Not surprisingly, in the face of these losses, the British (and all other Europeans) scaled back the number of people on the ground. But they did not retreat from West Africa or most other extreme mortality regions. Instead, they pursued strategies of influence and control that lowered the health risks to Europeans. There was no limit to the inventiveness of the people who ran European empires, at least when it came to creating or reshaping institutional arrangements in their favor.

# E. European Colonization Strategies

The choice of colonization strategy, and the creation of institutions consistent with that strategy, was therefore driven in part by how many Europeans were willing to move to specific places. In low-mortality places, the Europeans built more inclusive institutions (for themselves, not for local people). In high-mortality places, the European strategy was more extractive, limiting the presence of Europeans on the ground. And in the most extreme-mortality regions, the European strategy was to get in and out quickly with maximum riches—creating along the way some of the most extractive institutions seen in history.

As they imposed their own preferred arrangements, the Europeans always treated Indigenous people with brutality, overthrowing rulers, taking land, and running forced labor schemes. In places where they sought to extract physical resources—including places they took over (e.g., Central and South America and India) and where they established extractive institutions (e.g., many parts of Africa and Asia)—the Europeans placed as much economic and political power as possible in the hands of a few people: relatively wealthy Europeans and their close allies.

In other places, such as North America, the Europeans established quite different institutions, with the rule of law and protection of property rights available to a broader cross section of society. Most of these rights, of course, were initially extended only to European settlers and people descended from those settlers; Indigenous people typically fared no better than in "extractive" settings. But potential European settlers demanded individual rights that were at least as strong as those they enjoyed in Europe. And if colonial authorities wanted to attract more settlers, it was better to offer reasonable contract law, a stable court system, freedom of religion, and more effective protection against an overbearing state.



FIGURE 4. SHARE OF GLOBAL MANUFACTURING OUTPUT, 1750-1914, FOR USA, UK, AND INDIA

*Notes:* Share of global manufacturing for the United States, United Kingdom, and India. The black dashed line indicates an approximate start date for the beginning of the Industrial Revolution (see Acemoglu and Johnson 2024). Data are from Bairoch (1982).

#### F. Reversals of Fortune: India and the United States

The colonial institutions that Europeans established had a profound effect on the global distribution of income (and wealth) today. We will show this more systematically in Section II, but an illustrative example comes from the "reversal of fortune" experienced by India and the United States following the Industrial Revolution. Figure 4 shows the shares of world industrial production in India, the United Kingdom, and the United States. Prior to the adoption of mechanization in the British textile industry, in the last quarter of the eighteenth century, India was a major producer of industrial goods such as textiles, ceramics, and metal. As Britain industrialized from about 1770, India declined in relative and absolute terms. This is not something that happened by accident or because of bad luck but rather because of institutional arrangements imposed by British colonial control.

In 1700, India had some of the most advanced ceramics, metalworking, and printed textile products in the world, all produced by highly skilled artisans who were well paid by the standards of the time. The much coveted "Damascus steel" was from India, and its calico and muslin were also greatly prized in England. In response, the English woolen goods industry lobbied successfully for import restrictions in order to keep out the high-quality Indian textiles.

In its early years, the East India Company achieved commercial success by bringing finished cotton textiles and clothing into Britain. The company also organized the production of cotton clothing in India, taking advantage of local skilled workers and raw materials. In the first hundred years or so of effective British control over parts of India, exports of finished cotton goods to Europe rose.

Then came the innovation of harnessing waterpower for spinning and then weaving cotton. Britain had fast-moving water and plenty of capital to invest. The cost of transporting raw cotton to Liverpool was low relative to the price of the final product; this was the beginning of the deindustrialization of the Indian economy. By the second half of the 1800s, domestic (Indian) spinners probably supplied less than 25 percent of India's market. Village artisans were driven out of business by cheap imports and had to fall back on growing food or other crops. India deurbanized from 1800 to 1850, and the share of the population living in urban areas declined from around 10 percent to under 9 percent.<sup>14</sup>

Experience with industrialization in the United States could not have been more different. At the Great Exhibition in London in 1851, the United States was not regarded as a serious contender in terms of industrial innovation. But by the 1890s, the United States had become the largest industrial power in the world. By 1914, many—if not most—of the machines made in the United States were measurably superior to those produced anywhere else in the world.

The key to this American success was the strong protection of property rights for people who wanted to invest in and build businesses, and the ability to attract unprecedented numbers of European immigrants seeking better economic opportunities. Underpinning those property rights were a legal system that enforced contracts and a political system that granted voice to the rising industrial elite—while also preventing (most of the time) powerful people from becoming excessively abusive toward their competitors and customers.

Immediately before the Civil War, it took at least three weeks to cross the United States—an impressive achievement, but also an arduous journey that few would choose to make on a routine basis. In the decades that followed, however, the development of the world's greatest railroad network added 150,000 miles of track and lowered this travel time to less than 4 days, creating vast new possibilities for moving crops, manufactured goods, and people.<sup>15</sup> The emergence of a unified national market, spanning a continent, made the growth of larger and more efficient companies not just feasible but irresistible across a wide range of industries.

In stark contrast, instead of economic modernization, railways in India favored British economic interests and intensified colonial control over the Indian population. Between 1848 and 1856, India further deindustrialized, and its export of raw cotton doubled, making the country primarily an exporter of agricultural products. India also became a significant exporter of items such as sugar, silk, saltpeter, and indigo, and greatly increased its exports of opium. From the mid-1800s until the 1880s, opium was India's largest export, sold mostly by the British to China.

Even worse, the railways became effectively a means of oppression, both by commission and omission. The commission was explicit: Rail was used to move troops around the country in response to local trouble. A good railway network can reduce the cost of repression, and this was a key part of how a few thousand British officials could rule over a population of more than 300 million. The omission was horrific. When famine struck parts of the country, it would have been possible to bring food in by rail. But at key moments in the 1870s and again in Bengal in the 1940s, under Winston Churchill's wartime administration, the British authorities declined to do so, and millions of Indians died.

<sup>&</sup>lt;sup>14</sup>See Acemoglu and Johnson (2023), from which these points are drawn directly.

<sup>&</sup>lt;sup>15</sup>See the discussion in Acemoglu and Johnson (2017).



Figure 5. Urbanization from 800 to 1850

Notes: Share of population living in urban areas from 800 through 1800. Data are from AJR (2002).

Figure 5 shows 1,000 years of data on the share of the population living in urban areas (800–1850) in what became the United States, India, and Ghana, a crude but informative measure of commercial and industrial activity (as opposed to agriculture and other rural-based activities), at least until the twentieth century (AJR 2002). There was little urbanization in North America until 1800, and it seems reasonable that for most of this time, India (and perhaps Ghana) had a higher share of the population living in towns. But relative rates of urbanization changed quickly during the era of industrialization. By 1850, the United States was far more urbanized than either India or Ghana (or almost anywhere else that might have been considered "more developed" during the preindustrial age).<sup>16</sup>

This reversal of relative fortunes between the United States and India (and Ghana) was part of a broader shift. As we argue in AJR (2002), many countries that fell under European control that were relatively urbanized and wealthy precolonialism experienced a similar reversal, ending up relatively poor post–Industrial Revolution due to extractive colonial institutions. In the nineteenth century, countries with more inclusive institutions made progress adopting industrial technology, while more extractive places fell far behind.

Figure 6 shows log GDP per capita (in 2011 dollars) since 1900 for the three groups of colonies discussed above, that is, those with low, high, and extreme potential European settler mortality. There are some gaps in data coverage for the early years, as indicated by the dotted lines, but from 1950, we have a consistent and reasonably complete sample. As Figure 6 shows, over the past 120 years, GDP per capita has tended to drift up everywhere, as new technology and new forms of organizations spread around the world. But the gaps that were evident between these



FIGURE 6. GDP PER CAPITA SINCE 1900

*Notes:* GDP per capita for three sets of countries (grouped by level of potential European settler mortality, as described in the text) since 1900; data are from the Maddison Project (Bolt and Van Zanden 2025). The dashed lines indicate that less than half the countries within a given mortality category are included due to data availability. The full sample for all mortality groups is available from 1950, with the exception of Guyana and the Bahamas, for which the Maddison Project does not report data.

three sets of former colonies a hundred or more years ago remain just as large today. Today's world distribution of income was largely established by 1900.

In AJR (2001b) we used GDP data from the mid-1990s. Figure 6 also shows what has happened to income per capita since then for the three groups of former colonies in our sample. Output per person continues to rise, but the gap between the groups has not closed. The relative distribution of income—which countries are relatively rich and which are relatively poor—changed substantially during the nineteenth century. There were major and lasting advantages from being early to adopt industrial technologies, in part because during the twentieth century, the world's division of labor remained remarkably constant.<sup>17</sup>

# G. Historical Assessment

The established historical record strongly suggests the following:

- Colonial strategies varied considerably within empires.
- European colonizers had a profound impact on institutions wherever they took control.
- More inclusive institutions helped to boost GDP per capita once industrial technologies arrived.

<sup>&</sup>lt;sup>17</sup> See Johnson, Ostry, and Subramanian (2007): Almost all cases of sustained growth in countries with initially (post-1945) low income and extractive institutions are in places that managed to expand heavily into the export of manufactured goods.

- Countries that industrialized relatively early experienced faster growth in the nineteenth century and became relatively rich by 1900.
- The relative distribution of income across countries in 1900 persisted, by and large, for the next 125 years.
- Overall, the early establishment of more inclusive institutions had a lasting, positive impact on the development of income per capita.

The question addressed in AJR (2001b) was whether this description of historical events had any foundation in statistical evidence. And, if such evidence existed, could it reasonably be interpreted as supporting a causal relationship from inclusive/extractive institutions to economic outcomes, such as GDP per capita?

### **II. Regression Analysis**

# A. Baseline Dataset<sup>18</sup>

Data on the mortality of Europeans are available from the beginning of their overseas empire building, but the quality of the data is considerably better after 1800. As the understanding and practice of tropical medicine barely advanced between 1500 and the late 1800s, it is reasonable to regard death rates from the early 1800s as generally representative of the entire colonial era. But at some point, Europeans amassed enough accurate information to reduce their vulnerability to tropical disease. What, then, is the right end date for data on the potential mortality of European settlers? Writing in November 1900, the *Washington Post* opined,

Of all the silly and nonsensical rigmarole of yellow fever that has yet found its way into print—and there has been enough of it to build a fleet—the silliest beyond compare is to be found in the arguments and theories

generated by a mosquito hypothesis. (Oldstone 2020, p. 125)

In retrospect, the biggest scientific breakthrough had already happened in 1897, when Ronald Ross established that mosquitoes transmitted malaria from person to person.<sup>19</sup> At roughly the same time, based on experience acquired during the occupation of Cuba, American military doctors began to understand the importance of mosquito elimination, including the value of cutting back vegetation and prohibiting standing water. The US authorities brought these techniques to Panama when they took over canal construction in 1904, transforming health conditions.

Thus, 1900 is the latest date for which settler mortality data can plausibly be considered indicative of the early colonial period. However, some data after about 1850 should be used with care because some short European expeditions were careful about managing mortality—and this is not necessarily informative of the death rates faced by settlers who, by definition, lived somewhere year-round.<sup>20</sup>

<sup>&</sup>lt;sup>18</sup> All the "settler mortality" series discussed here are available in the replication package for AJR (2012). The construction of our various mortality series is explained in more detail in AJR (2000, 2001a, 2011, and 2012).

<sup>&</sup>lt;sup>19</sup>Ross won the Nobel Prize for physiology or medicine in 1902 (the second year that the prize was awarded). <sup>20</sup>Curtin (1998) makes the point that the decline in European mortality in the most dangerous places (for Europeans) was quite limited and inconsistent until at least 1900. For example, the French expedition to Madagascar in 1896 incurred massive losses, despite all the practical and theoretical knowledge that had already been accumulated. After 1900, there was a dramatic drop in the deaths from disease for Europeans in tropical areas; see Curtin (1989, chap. 1).

The settler mortality dataset in AJR (2001b) uses data from before 1900, drawing as much as possible from Curtin (1964, 1989, 1998), monographs that focused on the mortality records for European soldiers around the world. Curtin spent decades assessing these data and putting them into historical context. Whenever possible, we attempt to follow and defer to his judgment, with the goal of being as consistent as possible across countries, regions, and time periods.

The main gap in Curtin's data is in some parts of South America since the Spanish and Portuguese militaries did not keep as comprehensive records of mortality. There are two ways to fill this gap. The first draws from Gutierrez (1987), which uses Vatican records to construct estimates for the mortality rates of bishops in Latin America from 1604 to 1876. Because these data overlap with the Curtin estimates for several countries, AJR (2001b) used them to complete a series for South America.<sup>21</sup> The second approach is to use estimates from the British life insurance industry regarding mortality in Latin America. In AJR (2012), we used these estimates to build an alternative settler mortality series with different estimates for parts of South America and which caps mortality at 250 per 1,000 per annum.<sup>22</sup> As the AJR (2001b) original statistical findings have been widely discussed and replicated (including in AJR 2012), here, we report regression results only with the alternative (second) series, using the latest available data on GDP per capita and institutions.<sup>23</sup>

The differential death rates for newly arrived Europeans (compared with local people) declined (and sometimes disappeared completely) in the twentieth century, which implies that settler mortality in the colonial era cannot have a direct effect on income per capita today. If there is a causal relationship, it must work through some intermediate variable.

### B. Institutions, Incomes, and Settler Mortality

The historical record suggests that the disease environment of colonies likely influenced the institutions established by Europeans, but is this supported by the data? Figure 7 shows the graphical relationship between four different measures of institutions today and log settler mortality (the original AJR 2001b measure). Panels A and B show data from two different measures of institutions, plotted against the original log settler mortality series in AJR (2001b). Panels C and D show the same indexes plotted against the alternative series from AJR (2012).

To measure the quality of institutions, panels A and C use the average of Corruption, Law and Order, and Bureaucracy Quality measures from PRS (as discussed in the

<sup>23</sup> See AJR (forthcoming) for results that use the latest available data on GDP and various measures of institutions, using both the original and alternative settler mortality series as instruments.

<sup>&</sup>lt;sup>21</sup>Since the mortality rates for bishops and soldiers were unlikely to be the same (bishops likely resided in more comfortable and sanitary conditions than soldiers in barracks and generally enjoyed much higher standards of living), the estimates from Gutierrez (1987) were adjusted for comparability with Curtin's data. Specifically, where Curtin's and Gutierrez's data overlapped, Gutierrez's estimates were benchmarked against Curtin's. AJR (2001b) uses the estimate for Mexico as a benchmark. The choice of benchmark country and robustness of results to this choice is discussed in AJR (2012).

<sup>&</sup>lt;sup>22</sup>Results from this series were previously reported in AJR (2011, 2012), where it was referred to as the "Naval Stations 2 series," and in AJR (forthcoming). The insurance company data are from Assurance Magazine (1852). The cap at 250 per 1,000 is in response to concerns that some of the mortality rates in our original series were too high due to the impact of intermittent epidemics.



Panel A. Avg. of Corruption, Law and Order, Bureau. Qual. (PRS, 2010–2020) Panel B. Avg. of Corruption, Rule of Law, Accountability (V-Dem, 2010–2020)



FIGURE 7. INSTITUTIONS AND SETTLER MORTALITY

*Notes:* Panel A is the average of PRS indexes for Protection against Corruption, Law and Order, and Bureaucratic Quality, 2010–2020, against log potential settler mortality (AJR 2001 original series). Panel B is the average of V-Dem indexes for Corruption, Rule of Law, and Accountability, 2010–2020, against log potential settler mortality (AJR 2001 original series). Panel C is average of the PRS indexes for Protection against Corruption, Law and Order, and Bureaucratic Quality, 2010–2020, against log potential settler mortality (AJR 2001 original series). Panel C is average of the PRS indexes for Protection against Corruption, Law and Order, and Bureaucratic Quality, 2010–2020, against log potential settler mortality (AJR 2012 alternative series). Panel D is the average of the V-Dem indexes for Corruption, Rule of Law, and Accountability, 2010–2020, against log potential settler mortality (AJR 2012 alternative series). Panel D is the average of the V-Dem indexes for Corruption, Rule of Law, and Accountability, 2010–2020, against log potential settler mortality (AJR 2012 alternative series). Panel D is the average of the V-Dem indexes for Corruption, Rule of Law, and Accountability, 2010–2020, against log potential settler mortality (AJR 2012 alternative series) is defined in the text. Blue dots denote "low settler mortality" former colonies, green dots denote "high settler mortality," and red dots denote "extremely high settler mortality," with exact rates described in the text. See the Appendix for a detailed description of each institutional quality series. In each figure, the estimated slope and standard errors (in parentheses) from OLS regressions are shown next to the fitted line.

introduction and used in Figures 2 and 3). Panels B and D use the average of Corruption, Rule of Law, and Accountability measures from V-Dem (also as discussed in the introduction and used in Figure 1).

There is a robust negative relationship in all four specifications. Institutions today are more inclusive in former colonies that had lower settler mortality during the colonial period, and less inclusive (or more extractive) in former colonies that had higher settler mortality. This supports the idea that there is a strong "first-stage" relationship running from settler mortality to institutions today.

Figure 8 shows the "reduced-form" relationship between log GDP per capita and log settler mortality (the original AJR 2001b series). The solid black regression



FIGURE 8. GDP PER CAPITA, IN 1995 AND 2023, AND SETTLER MORTALITY

*Notes:* The relationship between log GDP per capita and log potential settler mortality (AJR 2001 original series). Plotted points use data for log GDP per capita in 2023; the solid black line shows the estimated OLS relationship with log settler mortality. The dotted blue line shows the estimated OLS relationship between log GDP per capita in 1995 and the same log settler mortality series. Blue dots denote "low settler mortality," former colonies, green dots denote "high settler mortality," with exact mortality rates described in the text. The estimated slope and standard errors (in parentheses) from OLS regressions are shown next to the relevant fitted line. Appendix Figure A1 shows the same graphic with the three-letter abbreviated names for countries.

line plots the estimated relationship using GDP per capita in 2023 as the dependent variable, while the dotted blue line uses GDP per capita in 1995 (the original dependent variable in AJR 2001b).

The shift up of the regression line reflects the fact that GDP per capita has increased almost everywhere over this 30-year period. But strikingly, the slope of the linear regression is almost unchanged: The estimated coefficient on log settler mortality is -0.57 using 1995 GDP per capita data and -0.61 using 2023 GDP per capita, with a very similar level of statistical significance. Over the past 30 years, there has been no major change in the cross-country relationship between income per person today and potential mortality faced by European settlers during the colonial period.

# C. Two-Stage Least Squares Results

As discussed above, Figure 3 illustrates a robust general relationship between country-level average prosperity (GDP per capita) and measures of inclusive institutions, but it offers no insight into the direction of causality or whether there is any causal relationship at all. However, the relationship between settler mortality and current-day institutions, as shown in Figure 7, allows us to address this question using an "instrumental variable" approach; specifically, AJR (2001b) regressed log GDP per capita in 1995 on contemporary institutions (averaged over 1985–1995), using settler mortality as an instrument for institutions.

For the use of our two-stage least squares (2SLS) approach to be appropriate and informative, settler mortality needs to be a valid instrument for modern institutions, that is, institutions that are contemporary with (or slightly preceding) the GDP measures used. This means settler mortality must (i) be strongly correlated with current-day institutions (satisfying the "relevance" condition), (ii) have no direct effect on current-day GDP per capita, and (iii) have an indirect effect that works only through institutions today (satisfying the "exclusion restriction").

Figure 7 and panel B of Tables 1 and 2 show the strong correlation between settler mortality and institutions, confirming that our proposed instrument is relevant. As Section I emphasized, the preponderance of historical evidence confirms that settler mortality strongly influenced "early" institutions established during colonialism, which in turn had a long-lasting impact on subsequent institutions, including the political and economic arrangements that prevail today. In addition, as discussed in Section I and Acemoglu and Johnson (2007 and 2014), the disease environment that imposed such a heavy cost on Europeans in some places did not have the same impact on Indigenous populations during the colonial period and no longer exists today, in anything like the same form, due to advances in biomedicine.<sup>24</sup> It is therefore likely that the punitive disease environments experienced by European colonists only influenced current-day prosperity through their effects on the colonial institutions established by Europeans, which in turn had long-lasting impacts on present institutions. Under these conditions, we can use settler mortality as an instrumental variable in a 2SLS framework to obtain an unbiased estimate for the causal effects of institutions on GDP per capita.

Table 1 reports the core 2SLS specifications in the same format as the central results in AJR (2001b). In panel A, the dependent variable is log GDP per capita in 1995, and the endogenous regressor is our PRS composite measure of institutions (for which a higher number indicates more inclusive institutions), averaged over the previous decade, instrumented using the alternative potential settler mortality series.<sup>25</sup> Panel B shows the matching first stages of these regressions.

In eight columns we show four pairs of results, in each case without covariates (odd-numbered columns) and then including latitude as a control variable (even-numbered columns). Latitude is used as an omnibus measure of geographic factors potentially influencing long-run economic development. Throughout our specifications, the coefficient on latitude is not significantly different from zero, suggesting that our measure for institutions plays a more important role than geographic factors in explaining prosperity. Columns 1 and 2 include 63 countries; columns 3 and 4 exclude the four countries known sometimes as "neo-Europes" (United States, Canada, Australia, and New Zealand).<sup>26</sup> These four countries have always been an essential part of the theory we seek to test, but we drop them here to confirm they are not driving the entire estimated relationship—and in fact, the

 $<sup>^{24}</sup>$ More detailed discussion regarding the exclusion restriction can be found in AJR (2001b, 2012) and Acemoglu and Johnson (2007).

<sup>&</sup>lt;sup>25</sup> We report 2SLS regressions using modern GDP per capita data and the PRS and V-Dem composite measures of institutions in AJR (forthcoming). The results barely change when we use alternative sources that measure inclusive/extractive institutions; see AJR (forthcoming).

 $<sup>^{26}</sup>$  AJR (2001b) had 64 countries in the base sample, but estimates for GDP per capita in Venezuela are not currently available due to recent very high rates of inflation.

	Dependent variable is log GDP per capita in 1995									
	Base	Base	No neo-Europe	No neo-Europe	No Africa	No Africa	Continent	Continent		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		
Panel A. 2SLS Avg. of PRS Corruption, Law & Order, Bureau. Qual. (1985–1995) Latitude	1.073 (0.219)	1.227 (0.338) -1.498	1.836 (0.702)	1.781 (0.769) 0.432	0.560 (0.0779)	0.582 (0.100) -0.368	0.717 (0.154)	0.787 (0.195) -0.739		
Africa		(1.693)		(1.758)		(0.702)	$-1.194 \\ (0.191)$	(1.010) -1.235 (0.213)		
Asia Others							$\begin{array}{c} -0.542 \\ (0.243) \\ -0.622 \\ (0.556) \end{array}$	-0.597 (0.268) -0.652 (0.601)		
Anderson-Rubin confidence interval	[0.75,1.68]	[0.75,2.54]	[1.01,7.30]	[0.93,9.12]	[0.38,0.80]	[0.36,0.90]	[0.42,1.22]	[0.40,1.69]		
Effective F-stat	19.42	9.50	5.18	3.67	38.32	24.94	10.75	6.72		
Panel B. First stage log settler mortality Latitude	-0.672 (0.152)	-0.546 (0.177) 1.823 (1.330)	-0.355 (0.156)	-0.359 (0.188) -0.0912 (1.239)	-1.187 (0.192)	-1.069 (0.214) 1.729 (1.453)	-0.731 (0.223)	-0.620 (0.239) 1.611 (1.510)		
Africa		. ,		. ,		. ,	(0.539)	0.546		
Asia							0.00444	0.123		
Others							(0.403) 0.963 (0.800)	(0.447) 0.882 (0.779)		
Observations	63	63	59	59	36	36	63	63		

TABLE 1-2SLS RELATIONSHIP BETWEEN LOG GDP PER CAPITA IN 1995 AND INSTITUTIONS, 1985-1995

*Notes:* Panel A shows two-stage least squares estimates from regressing log GDP per capita in 1995 on institutions (average of 1985–1995), instrumented using AJR (2012) alternative settler mortality series (as defined in the text). Institutions are measured as the average of PRS indexes for Protection against Corruption, Law and Order, and Bureaucratic Quality. GDP per capita is from the World Bank. Panel B shows the corresponding first stages. Sample of former colonies is from AJR (2001), with the exception of Venezuela, which is dropped due to the absence of recent comparable data on GDP. To assess the potential issue of "weak instruments," Montiel Olea and Pflueger (2013) effective *F*-statistics are reported in the last row of Panel A. The penultimate line of Panel A reports weak instrumentation–robust Anderson-Rubin confidence intervals corresponding to the coefficient on this measure of institutions. In regressions with continent dummies, the dummy for the Americas is omitted. Standard errors are in parentheses.

coefficients increase (although the standard errors also increase) compared with the first two columns. Columns 5 and 6 similarly exclude Africa to ensure that the relationship between income and institutions is not driven by within-Africa variation or purely by the difference between African and non-African countries. This reduces our sample to 36 countries, the estimated coefficient declines, and the standard error falls. Africa matters to the strength of the relationship, but it remains significant without that continent. Finally, in columns 7 and 8, we add continent dummies, which further demonstrates the robustness of our results.

Since the publication of AJR (2001b), considerable attention has been paid to the issue of "weak instruments," and various new tests have been proposed. Here, we report effective *F*-statistics that are robust to non-homoscedastic standard errors, in line with best practices for testing for weak instruments (Andrews, Stock, and Sun 2019). In four of our specifications, these *F*-statistics do drop below 10, which is

a potential flag.<sup>27</sup> To address this issue further, we include weak instrument–robust Anderson-Rubin confidence intervals, which are comfortably bounded away from zero in all specifications, confirming there is evidence here that institutions have a causal effect on income per capita.<sup>28</sup>

Table 2 shows our 2SLS estimates using the latest available data on GDP per capita around the world (2023), with the same PRS measure of institutions as in Table 1 but now measured over 2010–2020. The sample of countries is identical, and we report the same sequence of regressions as in Table 1. The purpose of this approach is to see if our original results have been weakened over the past three decades—a period of time during which there has been a great deal of discussion about the importance of institutions and even some high-profile attempts, for example, by the World Bank, to press for institutional improvements around the world.<sup>29</sup>

Just as in Table 1, the Anderson-Rubin confidence interval in Table 2 is consistently bounded away from zero in all specifications. The effective *F*-statistic varies, with a value of 58.46 in column 1 (base sample, no covariates) to a low of 12.48 in column 8 (when latitude and continent dummies included).<sup>30</sup> Even in the latter case, the hypothesis that institutions have no effect on prosperity can be comfortably rejected because the Anderson-Rubin lower bound is at least 0.46 (see column 5). And without the neo-Europes, the effective *F*-statistic is still above 20 (columns 3 and 4)

Compared across the decades, our results remain remarkably strong. The 2SLS point estimates for the coefficient on our measure of institutions in the base specification (Table 2, columns 1 and 2) are statistically indistinguishable from those in the matching columns of Table 1. For our other samples in Tables 1 and 2, our results are similarly unchanged. If anything, the first-stage relationship between settler mortality and current-day institutions has strengthened over time, reflected in our consistently higher *F*-statistics and smaller standard errors in panel B of Tables 1 and 2.<sup>31</sup>

#### D. Statistical Assessment

Across various measures of institutions, there is a robust negative correlation between inclusive institutions and settler mortality; that is, former colonies that were less healthy for Europeans before 1900 have more extractive institutions today. There is also a robust negative correlation between GDP per capita today and settler mortality; income per capita today is higher where the mortality of Europeans was

 $<sup>^{27}</sup>$  The effective *F*-statistic we calculate here is from Montiel Olea and Pflueger (2013). In Table 1, the effective *F*-statistics are below 10 when the neo-Europes are excluded in columns 3 and 4, as well as in column 8, with latitude and continent dummies.

<sup>&</sup>lt;sup>28</sup> Anderson-Rubin confidence intervals are efficient regardless of the strength of our instrument, so the boundedness of our confidence intervals suggests that our estimates are not spuriously driven by weak instruments. <sup>29</sup> We are thinking here about the World Bank's Doing Business Indicators, which definitely attracted construc-

<sup>&</sup>lt;sup>29</sup>We are thinking here about the World Bank's Doing Business Indicators, which definitely attracted constructive attention, although the ultimate impact on multilateral lending and country-level policy actions may reasonably be considered controversial.

 $<sup>^{30}</sup>$  Following best practices outlined by Andrews, Stock, and Sun (2019) for testing for, and performing inference with, weak instruments, we report Montiel Olea and Pflueger's (2013) "effective" *F*-statistics and Anderson-Rubin confidence intervals in all tables.

<sup>&</sup>lt;sup>31</sup> AJR (forthcoming) finds a similar "strengthening" result over three decades to be generally robust across multiple measures of institutions.

	Dependent variable is log GDP per capita in 2023									
	Base	Base	No neo-Europe	No neo-Europe	No Africa	No Africa	Continent	Continent		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		
Panel A. 2SLS Avg. of PRS Corruption, Law & Order, Bureau. Qual. (2010–2020) Latitude	1.026 (0.136)	1.201 (0.197) -2.019	1.331 (0.210)	1.418 (0.266) -1.183	0.665 (0.0949)	0.779 (0.120) -1.707	0.881 (0.193)	1.091 (0.287) -2.016		
Africa		(1.124)		(1.252)		(0.711)	-0.868 (0.206)	(1.076) -0.877 (0.246)		
Asia Others							$\begin{array}{c} -0.557 \\ (0.231) \\ -0.883 \\ (0.589) \end{array}$	$\begin{array}{c} -0.795 \\ (0.277) \\ -0.999 \\ (0.684) \end{array}$		
Anderson-Rubin confidence interval	[0.80,1.32]	[0.89,1.66]	[0.97,1.88]	[1.01,2.09]	[0.46,0.92]	[0.53,1.11]	[0.57,1.32]	[0.67,1.85]		
Effective F-stat	58.46	32.42	29.64	20.29	49.49	26.24	17.06	12.48		
Panel B. First stage log settler mortality Latitude	-0.802 (0.105)	$\begin{array}{c} -0.689 \\ (0.121) \\ 1.623 \\ (0.856) \end{array}$	-0.615 (0.113)	$\begin{array}{c} -0.587 \\ (0.130) \\ 0.601 \\ (0.958) \end{array}$	-1.020 (0.145)	$\begin{array}{c} -0.902 \\ (0.176) \\ 1.733 \\ (0.992) \end{array}$	-0.664 (0.161)	-0.539 (0.152) 1.808 (0.890) 0.0126		
Asia							(0.240) 0.423 (0.275)	(0.236) (0.557) (0.279)		
Others							(0.275) 1.032 (0.445)	(0.27) (0.942) (0.423)		
Observations	63	63	59	59	36	36	63	63		

TABLE 2—2SLS RELATIONSHIP BETWEEN LOG GDP PER CAPITA IN 2023 AND INSTITUTIONS, 2010–2020

*Notes:* Panel A shows two-stage least squares estimates from regressing log GDP per capita in 2023 on institutions (average of 2010–2020), using AJR (2012) alternative settler mortality series (as defined in the text). Institutions are measured as the average of PRS indexes for Protection against Corruption, Law and Order, and Bureaucratic Quality. GDP per capita is from the World Bank. Panel B shows the corresponding first stages. Sample of former colonies is from AJR (2001), with the exception of Venezuela, which is dropped due to the absence of recent comparable data on GDP. To assess the potential issue of "weak instruments," Montiel Olea and Pflueger (2013) effective *F*-statistics are reported in the last row of Panel A. The penultimate line of Panel A reports weak instrumentation–robust Anderson-Rubin confidence intervals corresponding to the coefficient on this measure of institutions. In regressions with continent dummies, the dummy for the Americas is omitted. Standard errors are in parentheses.

lower during the colonial period, when different colonization strategies result in very divergent institutions.

As discussed in AJR (2001b, 2012), these findings suggest between 50 and 70 percent of the variation in GDP per capita today can be explained by differences in institutions. The point estimates in column 1 of Table 1 suggest that moving from the twenty-fifth to seventy-fifth percentile of our measure of institutions implies an \$8,575 increase in PPP-adjusted GDP per capita in 1995. Similarly, in 2023, moving from the twenty-fifth to seventy-fifth percentile of institutions implies a \$7,840 increase in GDP per capita.<sup>32</sup>

<sup>&</sup>lt;sup>32</sup>With regard to people running extractive institutions around the world, it is as if "they have learned nothing and forgotten nothing"—a line that is just as relevant as a commentary on oppressive autocracies today as it was on the Bourbon restoration on 1815 and the many other historical episodes when it has been misattributed (most likely) to Talleyrand.



FIGURE 9. LIFE EXPECTANCY AND GDP PER CAPITA, 1930–2000

*Notes:* Panel A shows life expectancy at birth, 1930–2000. Panel B shows GDP per capita, 1930–2000. In each panel countries are divided into three groups: initially rich (blue line), initially middle-income (orange line), and initially poor (red line); definitions are in Appendix A1 of Acemoglu and Johnson (2006). This figure is reproduced directly from Acemoglu and Johnson (2007).

#### **III. Implications**

### A. What Happened in the Twentieth Century?

In the middle of the twentieth century, there was a major global demographic transition (Acemoglu and Johnson 2007).<sup>33</sup> From the 1940s, new therapeutics and vaccines became available in richer countries, and these quickly spread to lower-income countries—along with effective public health measures. In the years that followed, newly independent countries, often working with the World Health Organization, found ways to reduce mortality from infectious disease.

As shown in panel A of Figure 9, life expectancy across countries converged rapidly. In the 1930s, people born in richer countries enjoyed significantly longer lives on average, but by 1980, this gap had closed substantially. However, over roughly the same 50-year period, the gaps between incomes per capita across the same groups persisted (panel B of Figure 9). Why?

Careful study of institutions at the country level suggests one answer: The extractive institutions established by colonial empires were not swept away during independence. On the contrary, in places such as India (Banerjee and Iyer 2005; Iyer 2010; Iyer and Weir 2024), Peru (Dell 2010), and parts of Africa (Nunn 2008), researchers have established strong continuity of institutions over time. It is too strong to say that early institutions have persisted because many details have changed. But there appears to be a strong form of path dependence; early colonial institutions have had long-lasting effects.<sup>34</sup>

<sup>&</sup>lt;sup>33</sup>For more on this global epidemiological transition and the robustness of our results, see Acemoglu and Johnson (2014).

<sup>&</sup>lt;sup>34</sup>Again, see AJR (forthcoming) for a more complete discussion of path dependence.



FIGURE 10. INSTITUTIONS IN THE UNITED STATES, INDIA, AND NIGERIA, 1900–2023

Figure 10 illustrates this point using the V-Dem composite measure of institutions from three countries—the United States, India, and Nigeria—representing low–, high–, and extremely high–settler mortality countries, respectively. These data are available from 1900 for the United States and India, and from the 1910s for Nigeria. The United States, according to this metric, has consistently had inclusive institutions; in fact, this source finds that the American economic and political rules of the game have always been some of the most inclusive in the world. In contrast, Nigeria was run as a highly extractive state by the British colonial authorities, and independence in 1960 seems to have had little effect.

India, by contrast, had relatively less extractive institutions according to V-Dem, although they were significantly less inclusive than the United States. After independence in 1947, institutions in India remained roughly the same or perhaps improved slightly, but from the mid-1960s, this indicator suggests they became more extractive.

Figure 11 shows a similar pattern, using the same V-Dem data for the full three groups of countries: low, high, and extreme settler mortality. Over the twentieth century and more recently, the relative quality of institutions in these three groups stayed roughly the same, and the gaps between these countries barely changed.<sup>35</sup>

Acemoglu, Fergusson, and Johnson (2020) suggest an additional, complementary explanation: Where institutions were weaker, the increase in population was

*Notes:* Institutions are measured as the average of V-Dem indexes for Corruption, Rule of Law, and Accountability. Higher values indicate more inclusive institutions. The United States is a low settler mortality former colony, India is a high settler mortality former colony, and Nigeria is an extremely high settler mortality former colony. Data for Nigeria begin in 1914.

<sup>&</sup>lt;sup>35</sup>Growth is possible in places with extractive institutions in part because improved technology, which originates mostly in places with more inclusive institutions, spreads everywhere (e.g., cars, radio, TV, aircraft, computers, and the Internet). In addition, firms find ways to survive even when it is hard to enforce contracts, for example, through more vertical integration; see Acemoglu, Johnson, and Mitton (2009). Similarly, the different origins of legal systems can shape the structure of financial transactions, but they do not appear to affect long-term economic development, at least not once we control for the effect of inclusive/extractive institutions (Acemoglu and Johnson 2005a).



FIGURE 11. EVOLUTION OF INSTITUTIONS IN THREE SETTLER MORTALITY GROUPS

more likely to provoke an increase in social conflict. One important role of inclusive institutions is to mediate and mitigate conflict. When such institutions are weak or missing, increased economic pressure is more likely to result in social disorder or even civil war. This finding is also consistent with Acemoglu, Johnson, Robinson, and Thaicharoen (2003), which found that countries with more extractive institutions can experience episodes—and even decades—of strong growth before becoming derailed in the face of shocks.<sup>36</sup>

# B. Considering Human Capital

Is it possible that the main effect of settler mortality on economic outcomes across European colonies was not through the intermediate variable of institutions but through human capital?<sup>37</sup>

This seems unlikely, given who went where within the British empire and, in large part, within other empires. British and other colonial administrators were highly educated, and merchants had at least decent numeracy and literacy, while ordinary

*Notes:* Institutions are measured as the average of V-Dem indexes for Political Corruption, Rule of Law, and Accountability. Higher values indicate more inclusive institutions. The blue line shows the average of institutions in "low settler mortality" former colonies, the green line shows the average for "high settler mortality" former colonies, and the red line shows the average for "extremely high settler mortality," with exact mortality rates described in the text.

<sup>&</sup>lt;sup>36</sup> Acemoglu, Johnson, Querubín, and Robinson (2008) looked at the extent to which creating an independent central bank improves macroeconomic outcomes, given the overall institutional context. For more on institutions under pressure, see Acemoglu, Johnson, Kermani et al. (2016). American democracy survived the global financial crisis of 2008, and the value placed on political connections by financial markets in the immediate aftermath likely proved exaggerated. But that crisis further exacerbated a long-standing failure to deliver on shared prosperity within the United States—and government bailouts reinforced the impression that rich Americans receive advantages not available to everyone else. How this fed into broader resentment and problems for American democracy is discussed by Acemoglu and Johnson (2023).

<sup>&</sup>lt;sup>37</sup> In AJR (2001b) we examined directly whether the "percent of European descent" today was significant in our core regressions. It was not.

settlers pre-1900 frequently had very little formal education. It therefore follows that the "best" European human capital (i.e., people with the most formal education and generally most years of study/learning) flowed to places where relatively few Europeans moved—and it was these highly educated people who set up extractive institutions that favored themselves and that have served to effectively oppress the vast majority of local people for centuries.

The British East India Company's operations in India offer one prominent example of extractive institutions built by people with impressive qualifications, but the role of well-educated British and other European merchants in establishing and running the Atlantic slave trade for hundreds of years should not be overlooked. Similarly, most European plantation owners attended school or were tutored privately—and used their eloquence and learning to justify slavery and some of the most horrendous working conditions ever experienced.

In contrast, the Europeans who moved early to the United States (e.g., as indentured servants) or to Australia (as transported prisoners) were for the most part not fully literate. The inscription on the pedestal of the Statue of Liberty in New York Harbor famously does not call for an influx of highly educated Oxbridge graduates; rather, the poem reads in part,

> ... Give me your tired, your poor, Your huddled masses yearning to breathe free, The wretched refuse of your teeming shore. Send these, the homeless, tempest-tossed to me, I lift my lamp beside the golden door!<sup>38</sup>

Providing more (and more useful) education to people is essential to building any modern economy, but this is an entirely different point than the claim that Europeans who moved to settler colonies "brought with them" more education (or higher levels of human capital). Broadening literacy and massively increasing access to education (e.g., through the high school movement) was a brilliant idea to support economic growth, for example, as industrialization took hold across the United States. But this approach was more likely to happen in places with inclusive institutions because at least before 1900, this was a good way to spread and encourage democracy.<sup>39</sup> In contrast, where relatively few Europeans controlled millions of local people, there was underinvestment in mass education systems for political reasons. To the extent that local people were allowed access to higher education and even allowed to study overseas, the goal was to encourage them to buy into and support continued colonial rule.<sup>40</sup>

<sup>&</sup>lt;sup>38</sup> From "The New Colossus," by Emma Lazarus, https://www.nps.gov/stli/learn/historyculture/colossus.htm, written in 1883 and placed in bronze on the pedestal in 1903.

<sup>&</sup>lt;sup>39</sup>The twentieth century is more complicated, and anyone who takes the position that "more human capital necessarily boosts democracy and economic prosperity" should reflect on the history of Soviet and Chinese communism. In both systems there was a systematic effort to use the formal education system to strengthen support for an ideology that cannot be regarded as genuinely democratic and did not lead to shared prosperity in any sustained sense.

<sup>&</sup>lt;sup>40</sup>For more on human capital and economic development, see AJR (forthcoming). On the relationship between education and democracy, see Acemoglu et al. (2005).

#### C. The Role of Geography

At the time we were drafting AJR (2000), there was considerable support for the idea that "geography matters" as a first-order determinant of income per capita, and many audiences felt that a country's location in the world was the primary alternative hypothesis relative to institutions. Latitude is often a significant explanatory variable in cross-country income per capita regressions; however, once we include institutions instrumented by settler mortality, latitude becomes insignificant in all specifications. Under further investigation, several more sophisticated versions of the geography hypothesis—for example, focused on when agricultural technology changed for temperate regions—also lack statistical support (AJR 2002).

However, this does not mean that geographical considerations were unimportant in shaping the colonial experience and therefore determining the long-run fate of nations. For example, Diamond (1999) argued that when and where agriculture first became settled was a key determinant of subsequent development, in part because it led to the development of writing—a force multiplier for knowledge and more complex social systems. In addition, Diamond (1999) argued that the coevolution of humans and pathogens was critical in determining what happened when long-distance travel by ship became possible.

Across Eurasia, people lived in close quarters with large animals for millennia. The availability of animal products helped build civilizations and, perhaps more importantly, robust immune systems. Local people living in the Americas or on small islands without such animals did not experience smallpox—until Europeans arrived. This proved highly consequential because of the way disease evolves.

Modern humans originated in Africa and therefore, at some sufficiently distant epoch, must have had similar immunity to then-prevalent diseases. But subsequent waves of migration created dispersed groups of Homo sapiens who had little physical connection with each other for thousands of years (Tattersall 2008). Consequently, "as human communities in semi-isolation spread [out of Africa], humans and their parasites engaged in a continuous process of adaptation and readaptation" (Curtin 1989, p. xiv). Over tens of thousands of years, these separate processes of coevolution resulted in relatively isolated disease environments around the world (Crosby 1977; McNeil 1976).

For several thousand years, connections between communities in these different places were tenuous, only possible by land travel. After 1500, Europeans could move quickly by sea around the world. When Europeans first came to the Americas, they brought smallpox with them. Because they had been living with smallpox for thousands of years, Europeans had some acquired (and perhaps also genetic) immunity. But adults in North, Central, and South America had no such immunity, and millions died as a result. In these and other encounters with populations isolated from the African-Eurasian landmass, disease helped the Europeans gain the upper hand over an entire continent. But what the Europeans did within the Americas, in terms of building inclusive or extractive institutions, varied greatly.

Our empirical work emphasizes the point that, in other parts of the world, scores of Europeans also died from disease when they arrived. The primary driver of "excess" deaths, estimated relative to the death rates of the same (or very similar) people who

stayed behind in Europe, was the extent to which local conditions favored the spread of deadly strains of malaria and yellow fever, although gastrointestinal diseases sometimes also played a significant role where there was poor sanitation (Curtin 1961, 1989, 1998).

The results in AJR (2001b) are sometimes viewed as suggesting that geography is not important in determining the pattern of economic development. A more reasonable interpretation is that geography matters a great deal, but not in the way that was commonly supposed before we wrote our papers. Geography, understood as disease environments before modern medicine, played a major role in shaping the institutions that Europeans chose to build in different places. And these institutions have shaped much of the modern world.

# D. The Origins of European Institutions

In AJR (2005a) we emphasized the dynamic interaction between institutions (the rules of the game) and the economic and political power of particular groups. For example, when economic power shifts, perhaps due to a technology shock or because of new trade opportunities, that can lead to the emergence of a new elite—likely challenging those who currently hold power. The resolution of these conflicts between the old elite and those with newly acquired wealth will naturally involve some shift in political and other institutions, representing a new alignment of power. Pursuing these ideas, in subsequent work, we looked at the specific interaction of institutions and interests in various historical contexts.

In AJR (2005b) we found evidence that the expansion of transatlantic trade strengthened the economic heft of British merchants. As these merchants gained economic power, they sought increased political voice and tended to oppose the unconstrained power of the monarchy. By definition, absolute kings retain the power to seize property; prosperous merchants are keen to protect their wealth, and the best way to do this is through effective political representation. Over time, the wealth of British merchants proved to be an important source of pressure for democratization. It also created an economic environment within which purely domestic entrepreneurs (i.e., those not initially engaged in international activities) could rise from modest circumstances by stint of innovation and hard work—without being expropriated by people above them in the social hierarchy.<sup>41</sup>

From the perspective of British industrial development, the most positive impact from overseas colonial expansion was the net effect on British institutions. It is hard to quantify this effect precisely, but it is noteworthy that in 1500, Britain was a backwater within Europe, primarily exporting sheep wool, and by 1851, British industry was the wonder of the world. Most of the capital that financed this industrial activity was homegrown (rather than the proceeds of colonial activity; see AJR 2005b). But the sufficiently inclusive institutions that underpinned this "middling revolution" were strengthened, directly and indirectly, by the unprecedented increase in trade through the Atlantic.

<sup>41</sup> In this view, it was the creation of strong property rights that allowed "tinkerers" to rise up; see Acemoglu and Johnson (2023, chap. 5), which draws heavily on the insightful perspective of Joel Mokyr (e.g., Mokyr 2016).

However, this British dynamic alone cannot explain what happened in the rest of Europe, particularly in places where the rise of the Atlantic trade did not undermine the old regime (AJR 2005b). Acemoglu et al. (2011) focused on the effects of the French Revolution in locations where Napoleon took over and substantially reshaped institutions. Not all of Napoleon's reforms were well regarded then or even now, with lively debate about which parts of his impact were truly inclusive. But there is no question that the distribution of prosperity around the modern world is the product of interaction between the ideas of the French Revolution, the wealth created by entrepreneurs with previously unimagined forms of industrial technology, and the long legacy of European dominance over much of the world.

### IV. Extractive Institutions within the American System

### A. Inclusive Institutions for Whom?

Through the lens of institutions, how should we think about the history, current situation, and likely future of the United States of America, a country with great weight in global affairs for over a century?

On the one hand, the long-term growth of the United States might be seen as demonstrating the merits of inclusive institutions. As defined by the V-Dem composite index (Figure 10), the newly independent United States started out relatively democratic, at least compared to other countries, in the late 1700s, and has become more inclusive over time. For example, women gained the right to vote in 1920 with the Nineteenth Amendment, and the Civil Rights Act of 1964 prohibited many forms of discrimination. It is possible to see this as the triumph of individual rights, private property, and the rule of law, creating opportunities across all levels of society.

There have undoubtedly been episodes when oligarchs held the upper hand most notably when new industrial wealth enabled "robber barons" to gain a great deal of political power at the end of the nineteenth century. But in the Progressive Era of the early twentieth century, the country proved capable of repeated reforms, including constitutional amendments requiring direct elections to the Senate and creating a federal income tax.<sup>42</sup>

One problem with this story is the obviously darker side of the American experience, including the early competition for land, followed by the forcible displacement and killing of Indigenous people over the centuries as European settlers expanded westward. The European attitude was consistently without compassion, summed up in General Sherman's message to President Grant: "Both the Sioux and the Cheyennes (sic) must die, or submit to our dictation." From a population in 1500 that was at least 2 million (and perhaps significantly more), the numbers of Indigenous people in America (north of Mesoamerica) declined sharply and are estimated as 600,000 in 1800 and no more than 250,000 in the 1890s (Thornton 1990;

<sup>&</sup>lt;sup>42</sup>See Acemoglu and Johnson (2017). Johnson and Kwak (2010) argued that the global financial crisis of 2008 was caused, in part, by the rising power of the US financial sector, which pushed for excessive deregulation. Subsequently, however, financial sector reforms resulted in lower systemic risks and—at least so far—no repeat episode.

Milner and Chaplin 2010; O'Fallon and Fahren-Schmitz 2011; Koch et al. 2019). Indigenous populations were not only decimated but their descendants today have also been left far less wealthy than the average American.

#### B. A Terrible Legacy

The early American economy also included some of the most extractive institutions in world history: enslaved labor on cotton plantations. Slavery in the Americas was an essential part of the global trading system when the British were in charge, and it is now widely accepted that Thomas Jefferson and other Founding Fathers thought of independence and the Constitution in terms of their interests as enslavers operating significant tobacco and cotton plantations. There were just under 700,000 enslaved people in the newly independent United States in 1790, out of a total population of close to 4 million (US Census Bureau 1909).

The mechanization of British cotton spinning and weaving created an incentive to massively expand the American slavery system.<sup>43</sup> In 1772, Britain imported about 2,000 tons of raw cotton per year, mostly from India. By 1816, imports were 45,200 tons per year, with much of this additional supply coming from the newly independent United States (Beckert 2014). The invention and improvement of the cotton gin from the 1790s made it possible to process upland cotton, which grew well away from the East Coast. Roughly 1 million enslaved people were forcibly moved into what became the Deep South.

By 1860, the United States had 3.95 million enslaved people, out of a total population of 31 million. According to the census in that year, the percentage enslaved was 57 percent in South Carolina and 44 percent or higher in many Southern states. Over 90 percent of the South's adult Black population was illiterate in 1860 because almost all Southern states prohibited the instruction of slaves. Working conditions on cotton plantations were brutal.

The post–Civil War period of Reconstruction brought some economic rights for Black Americans, backed by political representation. In addition to representatives elected at the state level, the United States briefly had its first two Black senators (from Mississippi) and 14 representatives (from Florida, South Carolina, North Carolina, Louisiana, Mississippi, Georgia, and Alabama). But many planters kept their large landholdings and continued to rely on the low-wage work of Black Americans, in coercive employment relationships. And after 1876, the white elite succeeded in turning back the clock, to such an extent that the South became what W.E.B. Du Bois aptly characterized as "simply an armed camp for intimidating black folk"—with extrajudicial killings and the use of local law enforcement for repression. This coercive power was rooted in and complemented by Southern racists' success in persuading the rest of the nation that it was acceptable for Black people to be systematically disadvantaged, discriminated against, and forcibly repressed.<sup>44</sup>

The legacy of American slavery and the systemic racism that followed can be traced over time (Rose and Shepard 2022; Althoff and Reichardt 2024) and has been documented meticulously in the persistent Black-white wealth gap (Derenoncourt

<sup>&</sup>lt;sup>43</sup>On the growth of the UK cotton sector in the late 1700s and early 1800s, see Acemoglu and Johnson (2024).

<sup>&</sup>lt;sup>44</sup>For more history and a longer discussion, see Acemoglu and Johnson (2023).

et al. 2023, 2024). For most of US history, there has been a struggle to make institutions more inclusive, and considerable progress was made for many white Americans (including by broadening the definition of who was considered "white"). But the same broad progress did not happen—and has not happened—for Black Americans. While racial discrimination persists across the entire United States today, its effects are significantly more pronounced in areas where the institution of slavery was more prevalent in 1860. In these places, the enduring legacy of slavery continues to drive higher rates of anti-Black hate crimes (Gunadi 2019) and wider Black-white educational attainment gaps (Collins and Margo 2006; Bertocchi and Dimico 2012).<sup>45</sup> This terrible legacy reveals how essential institutions can be in creating, or crippling, shared prosperity.

#### V. Conclusion

The historical and comparative evidence reviewed here remains relevant for three major issues that loom large in the world today.

First, historical legacies are difficult to overcome, both at the country level and within countries. More extractive institutions tend to continue because some people do well with these arrangements and resist change (AJR 2005a; Acemoglu 2025). Breaking free from the most extractive arrangements may actually become harder as the global economy expands because this expansion increases the demand for energy and raw materials (oil, critical minerals, etc.), and high prices for commodities can help keep authoritarian regimes in power. Higher per capita incomes do not necessarily lead to more democracy or more inclusive economic institutions (Acemoglu, Johnson, Robinson, and Yared 2008, 2009).

Second, even when there is sustained headline growth, many people may be left behind in particular countries (and globally). The postwar experience in the United States, Europe, and other industrial countries was encouraging, as the rising economic tide lifted most boats. But increasing job market polarization in industrial democracies since the 1980s—mostly due to automation and globalization—indicates that genuinely shared prosperity continues to prove elusive. Legitimate feelings of frustration generate a political backlash that can be socially and politically destructive, perhaps even threatening the global system. The development of digital technology—such as the Internet, social media, and artificial intelligence—may well lead to more economic and political polarization, both through direct effects in the labor market and because the net effect has already been to encourage forms of discourse that strengthen pro-authoritarian elites (Acemoglu and Johnson 2023).

Third, more inclusive institutions surely remain essential for better long-term economic outcomes on average, as measured by GDP per capita. But as also emphasized by Acemoglu and Johnson (2023), building more inclusive institutions on average or just for some people within society is not sufficient for shared prosperity. Extractive arrangements can exist even within countries that are considered to have inclusive institutions in some aggregate sense. Long-term prosperity is more likely when people can create flourishing companies and grow rapidly. But allowing these

<sup>&</sup>lt;sup>45</sup>The oppressive system underpinning the institution of slavery and its aftermath also spills over to higher rates of hate crimes against other minority groups today, including LGBTQ and Jewish populations (Gunadi 2019).

(or other) individuals to become powerful oligarchs is likely to tilt institutions in an extractive direction, which will ultimately produce worse outcomes for most people.

From any historical perspective, it is hard to overstate the importance of who has a good job, defined not only by income but also in terms of respect, prospects for advancement, and satisfaction at the personal and family level. The success of the nineteenth-century American System of Manufacturing was, at its core, about hiring relatively uneducated immigrants and turning them into remarkably productive workers, with generally positive global effects as this labor-enhancing organization of work spread internationally (Acemoglu and Johnson 2023). And the "thirty glorious years" after World War II were undoubtedly made possible by the creation of new tasks that increased the demand for labor, even while automation replaced workers with machines in a wide range of activities. Unfortunately, the digital transformation of industrial economies since the 1980s has had profoundly polarizing effects on job market outcomes, society, and politics.

In a future likely dominated by the development of artificial intelligence, can countries with inclusive institutions build a pro-worker version of AI that allows the rising tide of technology to life all boats (Acemoglu, Autor, and Johnson 2023)? Or will AI further undermine the sharing of prosperity in the United States and elsewhere, while making it harder for deliberative democracy to function? If we fail to make these decisions in a reasonably inclusive manner, we may fall into new forms of exploitation, made possible by more authoritarian and extractive institutions.

### APPENDIX. THE PRS AND V-DEM MEASURES OF INSTITUTIONS

# A1. Political Risk Services

The definitions for particular variables summarized here are from the documentation included in the Harvard Dataverse dataset cited in the References (International Country Risk Guide (ICGR) 2014, last accessed April 2025). Note, these data are available for noncommercial research use via Harvard Dataverse, but we are not allowed to include these data in the replication package.

The PRS Corruption index assesses "corruption within the political system," including "financial corruption in the form of demands for special payments and bribes," as well as "excessive patronage, nepotism, job reservations, 'favors-for-favors,' secret party funding, and suspiciously close ties between politics and business."

The PRS Law and Order index evaluates the "strength and impartiality of the legal system" and the "popular observance of the law." A high score on this index requires an impartial and functional judicial system and the routine enforcement of the law.

The PRS Bureaucracy Quality index measures the strength and expertise of a country's bureaucracy. Higher points are given to countries where the bureaucracy is able to govern without drastic changes in policy or interruptions in government service, especially in the context of political transitions. High-scoring nations tend to have bureaucracies relatively "autonomous from political pressure" and have "established mechanisms for recruitment and training."



FIGURE A1. GDP PER CAPITA, IN 1995 AND 2023, AND SETTLER MORTALITY

*Notes:* This figure is a replica of Figure 8 but showing three-letter abbreviated names for countries instead of colored dots. Relationship between log GDP per capita and log potential settler mortality (AJR 2001 original series). Plotted points use data for log GDP per capita in 2023; the solid red line shows the estimated OLS relationship with log settler mortality. The dotted blue line shows the estimated OLS relationship between log GDP per capita in 1995 and the same log settler mortality series.

### A2. Varieties of Democracy

V-Dem offers a comprehensive approach to quantifying and understanding democratization across nations and over time. The following information is summarized from V-Dem's documentation and codebook (Coppedge et al. 2024a). To measure abstract principles underlying democracy (such as egalitarianism and liberalism), and the extent to which individual nations conform with those principles, V-Dem breaks these principles into more than 600 individual subcomponents (measuring more specific concepts like judicial independence, universal suffrage, and media freedom), which are then aggregated into overall measures of democratization. To produce these individual measures of components of democratic institutions, V-Dem gathers data from more than 4,200 country experts, typically 5 per country-year, and pools their judgments using a Bayesian item response theory measurement model.<sup>46</sup>

V-Dem data are available annually from 1789 to present for most countries of the world, with near-complete coverage beginning in 1900 (or, for many former colonies, upon their independence). V-Dem stands apart from its peers in terms of transparency in methodology, clarity of index definitions, data collection practices, and aggregation procedures, making it the preferred dataset for measuring democratization in most cases (Boese 2019). All V-Dem indexes are measured on a scale from 0 to 1, with 1 typically indicating perfect conformance to a given democratic principle.

<sup>&</sup>lt;sup>46</sup>For more detailed information, consult the V-Dem methodology paper (Coppedge et al. 2024c).

We focus on three indexes from V-Dem: Political Corruption, Rule of Law, Accountability.<sup>47</sup> These indexes were chosen to parallel our three PRS measures, which in turn were chosen to get close to the original "protection against risk of expropriation" used in AJR (2001b).

The Political Corruption index asks, "how pervasive is political corruption?" This aggregates measures of public sector, executive, legislative, and judicial corruption. Unlike other V-Dem indexes, 1 on this measure is "worse," in the sense that it indicates high degrees of corruption. For consistency, we invert this measure, by taking the difference between 1 and a given score. For example, if a given country has a 0.3 in the raw V-Dem corruption index, indicating a low degree of corruption, we assign that country a score of 0.7 for our analyses (1 - 0.3).

The Rule of Law index asks the extent to which "laws are transparently, independently, predictably, impartially, and equally enforced, and to what extent do the actions of government officials comply with the law?" This index includes subcomponents measuring the extent of judicial independence, executive adherence to the constitution and the law, impartiality and rigor of the public administration, and transparency of laws and predictability of enforcement.

The Accountability index asks, "to what extent is the ideal of government accountability achieved?" Accountability is defined as "constraints on the government's use of political power through requirements for justification for its actions and potential sanctions." It includes measures of vertical accountability, or "the ability of a state's population to hold its government accountable through elections"; horizontal accountability, "checks and balances between institutions"; and diagonal accountability, or "oversight by civil society organizations and media activity."

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<sup>&</sup>lt;sup>47</sup> The specific indexes are v2x\_corr, v2x\_accountability, and v2x\_rule.

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