

CURSE OF DEMOCRACY: EVIDENCE FROM THE 21ST CENTURY

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Curse of Democracy: Evidence from the 21st Century

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Abstract

Democracy is widely believed to contribute to economic growth and public health. However, we find that this conventional wisdom is no longer true and even reversed; democracy has persistent *negative* impacts on GDP growth since the beginning of this century. This finding emerges from five different instrumental variable strategies. Our analysis suggests that democracies cause slower growth through less investment, less trade, and slower value-added growth in manufacturing and services. For 2020, democracy is also found to cause more deaths from Covid-19.

Keywords: Democracy, Economic Growth, Public Health, Causality

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I Introduction

Does democracy promote economic prosperity and the safety of life? Many believe so, but this question is becoming increasingly debatable. In the past two decades, the spectacular economic growth in China, the collapse of the Arab Spring, and the rise of populist politics in Europe and South and North America, have provoked skepticism about democracy's continued strength as a political system. This sentiment is well expressed by recent bestseller titles such as *How Democracies Die* and *How Democracy Ends*. Furthermore, in 2020 and 2021, the US and other major democracies face historic recessions and death tolls due to the Covid-19 pandemic. The democratic countries stand in stark contrast to China and other autocratic countries that quickly contained the pandemic.

This paper studies how democracy impacts economic growth and public health during 2001-2020. We construct a dataset with historical and present-day information on the demographic, economic, health, geographic, and political characteristics of most of the world's countries. We analyze the data with five different instrumental variables (IV) strategies. Our bottom line is that stronger democracies cause lower economic growth throughout the past 20 years. Moreover, democracy causes not only worse GDP declines but also higher Covid-19 mortality during 2020.

We start by looking at the cross-country correlation between national outcomes and a widely-used electoral democracy index. The index quantifies the extent to which the ideal of electoral democracy is achieved, by aggregating freedom of association, clean elections, freedom of expression, and suffrage. As reported in Figure 1a, democracy is associated with lower growth rates in 2001-2019. This negative correlation is in contrast to the 1990s and 1980s, for which periods we and the prior literature find no such negative association between democracy and economic growth (Figure A1). Furthermore, in 2020, democracy is not only associated with bigger shocks to GDP but also more Covid-19 deaths (Figures 1b and 1c).

Our goal is to investigate whether this recent association of democracy with worse outcomes has any causal meaning. To identify democracy's causal effect, we adopt five of the most influential IVs for current political institutions:

- Mortality of European colonial settlers (Acemoglu, Johnson and Robinson, 2001)
- Population density in the 1500s (Acemoglu, Johnson and Robinson, 2002)
- Availability of crops and minerals, which reflect historical agricultural endowments and influence political organization (Easterly and Levine, 2003)
- Fraction of the population speaking English and a Western European language (Hall and Jones, 1999)
- Legal origin (LaPorta, Shleifer and Vishny, 1998), based on the idea that which origin country in Europe colonized a country influenced its political regime.

These IVs help identify the effects of political institutions by tracing back their origins to geographical and historical determinants. Such determinants of today's democracy level capture the feasibility and incentives of colonial

powers to invest in local institution-building, as well as each country's cultural and industrial affinities with Western culture. Indeed, first-stage regressions show that many of these IVs are important drivers of the cross-country variation in today's democracy levels.

All of these IVs turn out to produce similar two-stage least squares (2SLS) estimates of the impact of democracy. They all show that democracy persistently causes worse outcomes in this century. The median estimate among our five IV strategies is that a standard deviation increase in the democracy level causes a 2 percentage-point GDP decrease *per year* in 2001-2019 (50% of the outcome mean) and a 1.8 percentage-point GDP decrease in 2020 (40% of the outcome mean). Democracy also causes more Covid-19 deaths in 2020, with a median estimate of a 350 increase in Covid-19 deaths per million (120% of the outcome mean) per a standard deviation increase in democracy. To facilitate interpretation of the findings, the political-regime difference between China and the US is equivalent to a three standard deviation difference in the democracy index.

Our finding is robust to various alternative specification and measurement choices. Controlling for latitude, temperature, precipitation, population density, median age, diabetes prevalence, and continent dummies does not change the results. Controls for baseline total or per-capita GDP also have little effect on the estimates. The results change little with alternative indices for democracy or alternative weighting of countries. Moreover, the adverse effect of democracy is robust to excluding outlier nations from the sample. The result is not driven by the US and China alone, nor is it driven by G7 nations. The weakness of democracy is, therefore, a global phenomenon in the 21st century.

We explore many potential mechanisms that underlie democracy's perverse effect in this century. What turned out to be important are investments, trade, and value-added growth in manufacturing and services. 2SLS estimates using IVs for political regimes suggest that democracy decreases investments as a share of GDP, depresses imports and exports, and slows value-added growth in manufacturing and services. These results suggest that since the turn of the 21st century, democracy might have stopped improving these key building blocks for growth. In contrast, other channels such as school enrollment, child mortality, and taxes as a share of GDP appear to be less important for explaining democracy's adverse effect.¹

Related Literature. Any cause of macroeconomic growth and national public health is difficult to identify due to omitted variable biases, measurement errors, and limited data size (Klenow and Rodriguez-Clare, 1997; Durlauf, Johnson and Temple, 2005; Helpman, 2009; Galor, 2011). Classic cross-country regression studies claim that democracy's cumulative effect on economic growth may be negligible (Barro, 1997; Przeworski and Limongi, 1993; Przeworski et al., 2000). With more quasi-experimental research designs, however, later studies show that democracies experience more stable, long-term growth than non-democracies (Acemoglu et al., 2018; Aghion, Alesina and Trebbi, 2007; Madsen, Raschky and Skali, 2015; Papaioannou and Siourounis, 2008; Persson and Tabellini, 2006, 2007; Quinn and Woolley, 2001; Rodrik and Wacziarg, 2005). Similar findings exist for democracy's positive effects on health (Besley and Kudamatsu, 2006; Gerring, Thacker and Alfaro, 2012; Kudamatsu,

¹We also provide evidence that a major channel for democracy's adverse effect in 2020 appears to be weaker and narrower containment policies at the beginning of the pandemic, rather than the speed of policy implementation.

2012). More broadly defined Western social institutions are also shown to positively affect economic growth (Acemoglu, Johnson and Robinson, 2001, 2002; Easterly and Levine, 2003; Hall and Jones, 1999).² The prior work chiefly studies the 20th and earlier centuries, while we analyze the 21st century with quasi-experimental research designs.

Our results suggest that the role of democracy in economic growth may be different between this and previous centuries. This finding echoes a growing set of recent facts that challenge the conventional wisdom about economic growth. For example, as opposed to studies from the 1990s, Kremer, Willis and You (2021) and references therein note a trend towards convergence (poor countries catch up with rich) since 2000. For developing countries, Easterly (2019) reports that policy outcomes in inflation, black market premiums, currency overvaluation, real interest rates, and trade shares to GDP started improving since the late 1990s. Song, Storesletten and Zilibotti (2011) document a series of facts about China’s unprecedented economic transition and present a new growth model to explain the facts. Autor, Dorn and Hanson (2016) and references therein point out that American labor-market adjustments to China’s trade shocks challenge much of the received empirical wisdom.

Our analysis on 2020 also contributes to the literature on the economics of pandemics. Researchers attempt to explain the cross-country heterogeneity in Covid-19-related outcomes. Studies show that obedience to travel restrictions or compliance with social distancing differ by culture, social capital, government communication, and political systems (Allcott et al., 2020; Alsan et al., 2020; Frey, Chen and Presidente, 2020; Grossman et al., 2020; Schmelz, 2021). None of them find a root cause of Covid-19-related outcomes.

We integrate these strands of the literature to find that democracy causes worse economic and public health outcomes since the beginning of the 21st century. To our knowledge, this paper seems to be the only study that shows any substantially adverse effect of democracy on any important national outcome.

We organize this paper as follows. Section II describes our data and provides descriptive statistics. Section III analyzes the correlation between democracy and national outcomes. Section IV presents our 2SLS estimates of the causal effect of democracy. After Section V discusses alternative specifications, placebo tests using 1980-2000, and the channels behind democracy’s effect, Section VI concludes.

II Data

We use the following five types of data to investigate how the performance of different countries in the 21st century depends on their political regimes. Table 1 provides descriptive statistics for our main variables.³

Economic and public health outcomes. The primary outcome we look at is the mean annual GDP growth rate between 2001 and 2019 from the *World Economic Outlook* by the International Monetary Fund. As Figure 1a

²Other studies inspect the micro mechanisms behind democracy’s effects. Some studies use regional differences in democratic representation to find that higher representation leads to greater investments in education and public health (Baum and Lake, 2003; Doucouliagos and Ulubaşoğlu, 2008; Lake and Baum, 2001; Tavares and Wacziarg, 2001). Studies such as Besley and Case (2003) and Burgess et al. (2015) focus on how different political processes within countries lead to different income redistributions and provisions of public goods.

³Descriptive statistics for the remaining variables are in Appendix Table A1. Appendix Table A2 provides details on data sources.

shows, most countries experienced positive economic growth. For our sample of 164 countries, the mean is 3.9% with a standard deviation of 2.1% (Table 1 row 1).

We also look at two outcomes specific to 2020: the GDP growth rate between 2019 and 2020 and the total number of Covid-19 deaths per million. We source data for the GDP growth rate from the IMF and data for Covid-19 deaths from the Covid-19 Data Repository Center for Systems Science and Engineering (CSSE) at Johns Hopkins University. 2020 was a disastrous year, with the average growth rate at -4.8%, the worst since World War II, and the average number of Covid-19 deaths per million at 297 (Table 1 rows 2 and 3). Both outcomes differed drastically across countries, with a standard deviation of 7.9% for GDP growth rates and 381 for Covid-19 deaths per million. Figures 1b and 1c visualize these patterns.

Democracy indices. Measuring the extent of democracy is tricky. Our baseline measure is the electoral democracy index from the *Varieties of Democracy* Project. It considers multiple facets of democracy, such as the freedom of association, clean elections, and freedom of expression. It is increasingly accepted in the economics and political science literature as a measure for democracy (Alesina, Tabellini and Trebbi, 2017). As shown in Table 1, the index captures our intuitive notion of democratic countries. According to the index, the most democratic countries are Sweden and Denmark, while the least democratic country is Saudi Arabia. For robustness, we also use the polity index by the Center for Systemic Peace, the freedom index by Freedom House, and the democracy index by the Economist Intelligence Unit.⁴

Country characteristics. To control for country characteristics and weight countries, we collect country-level data for GDP, absolute latitude, mean temperature, mean precipitation, population density, median age, and diabetes prevalence. We source data from the United Nations, the World Bank, and the International Diabetes Federation.

IVs. To identify the causal effect of democracy, we use five of the most widely-used IVs for political institutions, as listed in the introduction and further discussed below. For each IV, we obtain and extend data from the original authors.

Mechanisms. To assess the mechanisms behind democracy's effect in the 21st century, we obtain data for investment, trade, and value added in manufacturing and services from the World Bank Development Indicators. On average, a country invested 24% as a share of GDP in 2001-2019, with Bhutan having the highest rate of 59%. Although the mean import and export value index between 2001-2019 more than tripled relative to 2000, the extent of the increase was diverse, where countries such as Liberia experienced a decrease in exports. Moreover, many countries experienced strong value-added growth in manufacturing and services, except for countries such as Venezuela and Greece.

⁴The polity index measures democratic and autocratic authority in governing institutions by evaluating executive recruitment, constraints on executive authority, and political competition. Meanwhile, the freedom index focuses more on the political rights and civil liberties that citizens enjoy. The democracy index by the Economist Intelligence Unit rates democracy holistically by considering electoral processes, government functions, political participation, democratic culture, and civil liberties. Appendix Table A10 shows the correlation between the indices.

III Democracy is Associated with Worse Outcomes

Before exploring democracy’s causal effect, we first look at democratic and authoritarian countries’ performance in the 21st century. Figure 1a shows that higher levels of democracy are associated with lower GDP growth rates in 2001-19. For 2020, Figures 1b and 1c show that more democratic nations experience bigger GDP loss and more deaths from Covid-19.

To quantify their magnitude, statistical significance, and sensitivity to controls, we run the following OLS regressions of each outcome against the democracy index at the baseline year⁵:

$$Y_i = \mu + \alpha Democracy_i + X_i' \gamma + \varepsilon_i \quad (1)$$

where Y_i is the outcome for country i , μ is the intercept, $Democracy_i$ is the democracy index (normalized to have mean zero and standard deviation one), X_i' is a vector of other country-level covariates, and ε_i is a residual. The coefficient of interest is α , which quantifies the association between democracy and the outcome. We weight countries by GDP in the baseline specification. Results are similar with weighting by population and with no weighting.

The OLS estimates in Table 2’s Panel B show that democracy is strongly associated with worse performance in the 21st century. In column 9, for example, a standard deviation increase in the democracy measure corresponds to a 1.7 (s.e. = 0.4) percentage-point GDP decrease per year in 2001-2019. Democracy’s negative association is accentuated in 2020, where a standard deviation increase is associated with both a 1.9 (s.e. = 0.5) percentage-point decrease in GDP and a 249.4 (s.e. = 52.3) increase in Covid-19-related deaths per million.

The results are not sensitive to the addition of controls. It is plausible that climate, population density, population aging, and diabetes affect these outcomes. To control for these factors, we add absolute latitude, mean temperature, mean precipitation, population density, median age, and diabetes prevalence as covariates. The resulting estimates in Panel B’s column 10 remain similar. The estimates are -1.2 (s.e. = 0.6) for mean GDP growth rates in 2001-2019, -1.6 (s.e. = 0.3) for GDP growth rates in 2020, and 309.6 (s.e. = 47.0) for Covid-19-related deaths per million. We also show in Appendix Table A3 that controlling for baseline total GDP and GDP per capita preserves the significant negative relationship between democracy and economic growth.

IV Causal Effects of Democracy in the 21st Century

A IVs for Political Regimes

We cannot interpret the above relationship as causal, however. There are many omitted determinants of outcomes that also correlate with democracies. To identify democracy’s causal effect, we adopt five IV strategies. Our choice of instruments considers several centuries of world history as follows.

⁵2000 is the baseline year for outcomes in 2001-2019. 2019 is the baseline year for outcomes in 2020.

European settler mortality IV. European settler mortality is the mortality rate (annualized deaths per thousand mean strength) of European soldiers, bishops, and sailors stationed in the colonies between the seventeenth and nineteenth centuries. Europeans used mortality rates to decide where to settle (Curtin, 1989). In colonies with inhospitable germs, they did not settle and established extractive institutions that extracted local resources and lacked checks and balances against government expropriation. In colonies with hospitable disease environments, Europeans settled and established inclusive institutions that protected individual liberties. The effect of these institutions persists today.

Acemoglu, Johnson and Robinson (2001) use this IV to show that inclusive institutions, which encompass the social, economic, legal, and political organization of society, promote economic growth. Consistent with their hypothesis, Figure 2a shows that countries with higher European settler mortality have lower democracy levels today. This fact motivates us to use European settler mortality as an IV among ex-European colonies.

Past population density IV. Population density in the 1500s is the number of inhabitants per square kilometer in the 16th century. Population density at the beginning of the colonial age determined colonial institutions' inclusiveness. Sparse populations in the 16th century induced Europeans to settle and develop Western-style institutions, while denser populations made extractive institutions more profitable. Acemoglu, Johnson and Robinson (2002) use this IV to show that institutions positively affect economic growth.⁶ Figure 2b confirms that higher population density in the 16th century corresponds to lower democratic levels today. Similar to the European settler mortality IV, we use this IV for ex-European colonies.

Legal origin IV. This IV is a dummy variable for British legal origin that takes the value 1 if the country's legal origin is British (common law) and 0 if it is French, German, or Scandinavian (civil law). Many countries derive their legal systems from European colonization. Such legal origin determines how the law protects civil liberties and political rights. With this IV, LaPorta, Shleifer and Vishny (1998) show that stronger legal protections for investors promote financial development.

Fraction speaking English or European. The fraction speaking English or European is the fraction of the population speaking English or a major Western European language (French, German, Portuguese, and Spanish) as a mother tongue in 1992. As Hall and Jones (1999) argue, an essential feature of world history is the spread of Western European influence, which created an institutional and cultural background conducive to democracy. The language variables are proxies for such influence. Indeed, the fraction of the population speaking a major European language positively correlates with democracy (Figure 2c). Hall and Jones (1999) use these IVs to show that social infrastructure positively affects productivity.⁷ Like the original authors, we include all countries in the world in the sample definition.⁸

The availability of crops and minerals as IVs. Bananas, coffee, maize, millet, rice, rubber, sugarcane, and wheat are dummy variables coded 1 if a country produced the crop in 1990. Copper and silver are coded

⁶They also use urbanization in the 1500s as an IV. Using this IV produces similar estimates.

⁷The original specification also uses absolute latitude and the Frankel-Romer trade share as IVs. Our results stay similar with or without these variables as IVs.

⁸Missing data restricts the actual sample to 136 countries.

1 if a country mined the mineral in 1990. According to Sokoloff and Engerman (2000), certain commodities induced economies of scale and incentivized slave labor, which led to extractive institutions. Meanwhile, other commodities encouraged production by middle-class farmers, which induced inclusive institutions. Thus, the dummy variables reflect the historical agricultural endowments that influenced political regimes. Based on these IVs, Easterly and Levine (2003) show that geographic endowments affect development only through social and political institutions and that better institutions encourage economic growth. We include all countries in the world in the base sample.⁹

We are aware that none of these IVs are ideal. Each IV is likely to be threatened by its own mix of measurement errors, omitted variables, and exclusion violations. Our strategy is to use these five different IVs with the expectation that they work as robustness checks with each other. Importantly, we find no apparent reason to believe that potential exclusion violations by different IVs lead to biases of the same sign. For example, the European settler mortality IV may have excluded negative effects on growth since worse disease environments may directly hamper economic activities. On the other hand, the population density IV may have excluded positive effects on growth thanks to returns to scale and agglomeration effects. These two exclusion violations would result in biases of opposite signs.¹⁰ This observation provides support for the idea of using the different IVs as mutual robustness checks.

B IV Estimation

This section presents our main results. With the above IVs, we estimate democracy's impact by the following 2SLS regressions:

$$Y_i = \mu + \alpha Democracy_i + X_i' \gamma + \varepsilon_i \quad (1)$$

$$Democracy_i = \zeta + Z_i' \beta + X_i' \delta + v_i \quad (2)$$

The second-stage equation (1) is the same as Section III's OLS regression. The coefficient α represents the effect of $Democracy_i$ on Y_i , the outcome variable, conditional on a vector of country characteristics X_i' . Given that $Democracy_i$ is far from randomly assigned, we instrument for $Democracy_i$ by each vector of IVs, Z_i' , in the first-stage equation (2).

Does democracy cause worse economic and public health performance? Reduced-form figures using European settler mortality suggest so. Figures 2d, 2e, and 2f show that higher European settler mortality causes lower democracy levels, which cause slower economic growth in 2001-2019, bigger shocks to GDP in 2020, and more deaths from Covid-19.

Table 2 reports the 2SLS estimates of the effect of democracy, using each of the five IV strategies. They all

⁹Since Easterly and Levine's dataset only contains 71 countries, we extend their data to cover 142 countries, as explained in Appendix A.1.

¹⁰Appendix Table A4 summarizes the likely direction of bias for each IV.

indicate significant adverse effects of democracy. Columns 1 and 2 show our estimates using log European settler mortality as an IV for our base sample of ex-colonies. The first-stage regression in Appendix Table A5 column 1 shows that a 1% increase in European settler mortality is associated with a 0.01 standard deviation decrease in democracy levels today. The corresponding 2SLS regression estimates in Panel A's column 1 show that a standard deviation increase in the democracy measure causes a 2.2 (s.e. = 0.3) percentage-point decrease per year in GDP in 2001-2019. Democracy's effect persists in 2020. We estimate that a standard deviation increase causes a 1.7 (s.e. = 0.5) percentage-point decrease in GDP in 2020 and a 350.0 (s.e. = 75.4) increase in Covid-19-related deaths per million.

Our confidence in the plausibility of the IV estimates is bolstered by the fact that controlling for various potential sources of omitted variable bias has little impact on our estimates. In column 2, we control for climate, population density, population aging, and diabetes prevalence. The coefficients remain similar. The estimates are -3.3 (s.e. = 0.7) percentage points for mean GDP growth rates in 2001-2019, -1.8 (s.e. = 0.3) percentage points for GDP growth rates in 2020, and 332.3 (s.e. = 37.3) for Covid-19-related deaths per million in 2020.

To check whether the above results are sensitive to the choice of IVs, columns 3 and 4 use population density in the 1500s as an IV for a similar sample of ex-colonies. We continue to find a negative effect of democracy. A 1% increase in population density at the beginning of the colonial age is associated with a 0.005 standard deviation decrease in democracy (Appendix Table A5 column 3). The 2SLS estimates in Table 2 column 3 are -2.3 (s.e. = 0.4) percentage points for GDP growth rates per year in 2001-2019, -1.5 (s.e. = 0.7) percentage points for the GDP growth rate in 2020, and 349.1 (s.e. = 70.6) for Covid-19-related deaths per million in 2020. The results stay similar even with controls.

The overall pattern remains the same for the legal origin IV in columns 5 and 6. The first-stage regression shows that British legal origin (common law) leads to a 2.0 (s.e. = 0.6) standard deviation increase in democratic levels (Appendix Table A5). The corresponding 2SLS estimates in Table 2 column 5 are -1.8 (s.e. = 0.5) for GDP growth rates per year in 2001-2019, -1.7 (s.e. = 0.7) for GDP growth rates in 2020, and 298.1 (s.e. = 80.2) for Covid-19-related deaths per million. Adding controls in column 6 preserves the estimates.

Columns 7 and 8 use the fraction of the population speaking English or a European language as IVs. Unlike the previous three IVs, the base sample definition is not limited to former European colonies. Yet, the results remain similar to those in the previous columns. The estimates in column 7 are -1.2 (s.e. = 0.9) for GDP growth rates per year in 2001-2019, -1.8 (s.e. = 0.7) for the GDP growth rate in 2020, and 437.5 (s.e. = 0.7) for Covid-19 related deaths per million in 2020. Controlling for baseline covariates in column 8 barely changes the estimates.

Finally, we use dummies for the ability to grow certain crops and mine minerals as IVs. The estimates among the 142 countries for which data is available are consistent with our baseline results. The coefficients are -2.4 (s.e. = 0.5) for GDP growth rates per year in 2001-2019, -2.2 (s.e. = 0.6) for the GDP growth rate in 2020, and 278.5 (s.e. = 68.2) for Covid-19 deaths per million. The regression with controls in column 10 produces similar results.

To further quantify the importance of the democracy treatment, Appendix Table A6 multiplies the estimated

coefficient with each country's democracy index and subtracts the resulting democracy effect from the country's outcome. Once we account for democracy's effect, countries in Europe, North America, and South America no longer have worse outcomes. This exercise suggests that their relatively poor performance in the 21st-century is largely explained by their more democratic political regimes.

In summary, the several different sources of variation in democracy from the historical democratization process lead to estimates of the impact of democracy on GDP that are of the same sign as the OLS estimates. It is particularly reassuring that the different IV strategies, which use different sources of variation in democracy, nonetheless produce similar estimates. A majority of these estimates also pass Lee et al. (2020)'s 95% confidence level test.

V Discussion

A Alternative Specifications

Our analysis may be sensitive to measurement and modeling choices, such as whether to control for baseline GDP and other important characteristics, how to measure democracy, how to weight countries, and how to measure economic performance in 2020. Extreme nations may also be driving our results. Below we check whether these concerns threaten our findings.

Control for baseline GDP. We test whether our results are due to the mechanical reason that more developed countries tend to grow slower. Appendix Table A7 runs regressions with baseline total GDP or GDP per capita as controls. For economic growth in 2020, as an alternative way to control for baseline GDP, Appendix Table A8 uses as the outcome the difference in GDP growth rates between 2019 and 2020. The resulting estimates all continue to find democracy's negative effect, confirming that baseline GDP conditions do not drive our results.

Control for continents. We additionally control for dummy variables for each continent in Appendix Table A9. Although the estimates are less precisely estimated, we continue to observe democracy's negative effect on economic growth and public health. This suggests that the democracy treatment is significant regardless of continent.

Alternative democracy indices. We adopt alternative democracy indices by the Center for Systemic Peace, Freedom House, and the Economist Intelligence Unit. Appendix Table A10 shows that these indices are highly correlated with each other. Importantly, Appendix Table A11 confirms that our results stay similar regardless of which democracy index to use.

Alternative weightings. Our 2SLS results so far weight countries by GDP. We believe that GDP weighting is reasonable, especially when the outcomes are GDP growth rates. Nonetheless, we compare our results with weighting by population or no weighting in Appendix Table A12. The qualitative pattern is the same among the three ways to weight countries.

Alternative sample definitions. To check if the US and China drive our results, we show our results without

the two countries in Appendix Table A13. We also re-estimate our preferred specification without outlier countries with a standardized residual above 1.96 or below -1.96 in Appendix Table A14. Furthermore, we remove G7 countries from the sample in Appendix Table A15. In all cases, we continue to estimate democracy's adverse effect. Thus, the negative impact of democracy is a global phenomenon and not driven by a small number of countries.

B Placebo Tests using 1980-2000

It is natural to ask whether our finding is specific to the 21st century. Additional evidence suggests so. We apply exactly the same analysis to data from the 20th century. The resulting estimates show that the negative association between democracy and economic growth did not exist in 1981-1990 or 1991-2000 (Appendix Figure A1). More importantly, for the same period, we do not observe a negative causal effect (Appendix Table A16). We therefore conclude that the way democracy matters for economic growth might have changed around the turn of the 21st century.

C Mechanisms Behind Democracy's Adverse Effect

In this final section, we explore the potential mechanisms through which democracy might affect growth in 2001-2019, though we cannot distinguish between these mechanisms or rule out other possible channels at work. We estimate the following 2SLS equations:

$$M_i = \eta + \rho Democracy_i + X_i' \phi + \omega_i \quad (3)$$

$$\text{First Stage: } Democracy_i = \zeta + Z_i' \beta + X_i' \delta + v_i. \quad (4)$$

where M_i is one of several potential channels, including investment, international trade, and value-added growth. We take the mean of each variable during 2001-2019.

Table 3 summarizes our results. We find that, in this century, democracy decreases investments as a share of GDP, decreases trade, and slows value-added growth in manufacturing and services. Investment is measured by the total value of the gross fixed capital formation and changes in inventories and acquisitions less of disposals of valuables for a unit or sector. Panel A column 1 shows that a standard deviation increase in democracy is associated with a 4.8 (s.e. = 1.4) percentage-point decrease in investment as a share of GDP per year in 2001-2019 (20% of the mean). Panels B-F show that democracy causes the decrease in investment, with the median estimate in column 1 at -6.3 (s.e. = 1.5) percentage points (25% of the mean). Adding baseline controls preserves our negative estimates.

Democracy also decreases international trade. We look at the import and export value indices, which are the current value of imports or exports converted to US dollars and expressed as a percentage of that in 2000. Columns 3-4 in Panel A shows that more democratic nations experienced slower growth in imports. Panels B-F show that

democracy causes the slower growth in imports.¹¹ Column 3's median estimate among the five IV strategies is a 146 (s.e. = 30.3) percentage-point decrease in import value relative to 2000 per year in 2001-2019 (45% of the mean). The coefficients in column 4 remain large and significant. Columns 5-6 exhibit similar estimates for exports. All estimates in column 5 estimate that democracy causes slower growth in exports, with a 143.8 (s.e. = 27.8) percentage-point decrease as the median estimate (40% of the mean). We observe similar estimates in column 6. A potential explanation for the dampening effect of democracy on trade is that electoral competition could lead to trade barriers (Anderson, Rausser and Swinnen, 2013).

Columns 7-10 show that democracy also dampens value-added growth in manufacturing and services during 2001-2019. Here, the manufacturing sector consists of industries that physically or chemically transform materials into new products. The service sector includes services such as wholesale and retail trade, transport, education, healthcare, and finance. Value added is the net output of a sector after adding up all output and subtracting intermediate inputs. Panel A's columns 7-10 show that democracy is associated with lower value-added growth in manufacturing and services. Panels B-F show that this relationship is causal¹². The median estimate in column 7 is that a standard deviation increase in democracy causes a 2.3 (s.e. = 0.6) percentage-point decrease in manufacturing value added per year in 2001-2019 (60% of the mean). Similarly, democracy also depresses value-added growth in services. Column 9's median estimate among Panels B-F is -2.7 (s.e. = 0.3) percentage-points (60% of the mean). The addition of baseline controls does not change the direction of our estimates. Appendix Table A17 shows that the results are robust to controls for baseline GDP.

The above analysis suggests that, in the 21st century, non-democracies better foster investment, trade, and value-added growth in manufacturing and services than democracies. In Appendix Table A18, we also consider taxation, school enrollment, and child mortality, but we do not find a strong causal effect of democracy. Ultimately, our results suggest that democracy might have stopped improving building blocks for growth. Appendix A.2 provides separate analysis for policy channels in 2020.

VI Conclusion

We bring data to revisit skepticism about the performance of democratic political regimes, which is as old as the invention of democracy:

“having them [the multitude of the citizens] take part in the greatest offices is not safe: through injustice and imprudence they would act unjustly in some respects and err in others.” (Aristotle, *Politics*, 1281b25)

The collection of evidence from five different IV methods, all leading to similar estimates of the impact of democracy, suggests that democracy dampens economic growth in this century. Likely channels behind democ-

¹¹ Adding a control for the percentage-share of imports in GDP at the baseline does not change the negative estimates.

¹² Adding a control for value added as a share of GDP at the baseline does not change the negative estimates.

racy's negative effect are less investment, less trade, and slower productivity growth. The negative effect of democracy is especially strong in 2020, in which year democracy also causes more Covid-19-related deaths. Overall, political institutions still matter for economic growth, but how they matter might have changed between the prior and current centuries.

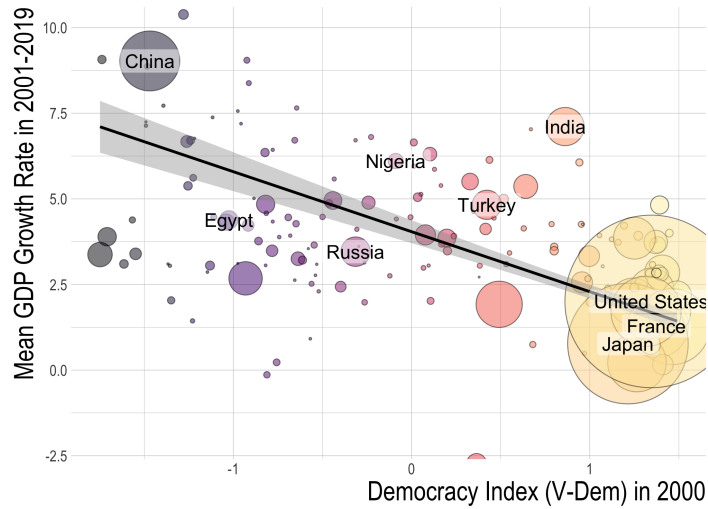
Our analysis leads to a variety of avenues for future work. We plan to measure democracy's effects on other outcome measures, such as economic inequality and citizen's happiness. We also need to see if the negative impact of democracy will result in geopolitical movements away from democracy. We leave these important directions to future work.¹³

The policy implication of our result is not straightforward. Needless to say, our analysis does not imply a general case against democracy, for at least two reasons. First, democracy per se has normative and procedural virtues, regardless of whether they result in good economic and health outcomes. Second, despite our findings on democracy's impacts on economic growth in the 21st century and public health during the pandemic, democracies may produce better outcomes in the long run or in other aspects. Our preferred interpretation of our findings is that there may be room for improvement in particular aspects of democracy in particular situations, so that governments can decisively and thoroughly take potentially unpopular, yet effective actions to support economic growth and protect citizen's lives.

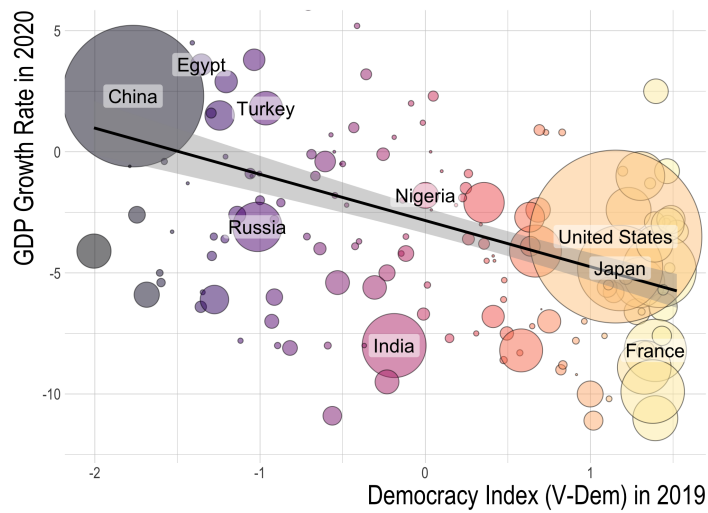
¹³It is also important to update the 2020 analysis with more accurate data for Covid-19 deaths. One potential solution is to look at excess deaths data like the World Mortality Dataset, but its coverage is limited. 2SLS regressions for excess deaths per million in Appendix Table A19 does not exhibit a conclusive relationship.

Figure 1: Correlation Between Democracy and Outcomes

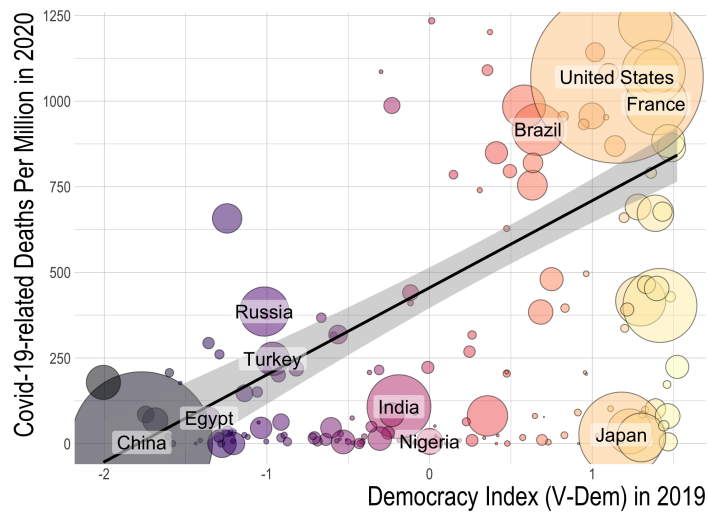
(a) Mean GDP Growth Rate in 2001-2019



(b) GDP Growth Rate in 2020



(c) Covid-19-related Deaths Per Million in 2020



Notes: This figure shows the relationship between democracy and three outcomes: the mean GDP growth rate in 2001-2019 (Panel (a)), the GDP growth rate in 2020 (Panel (b)), and Covid-19 deaths per million in 2020 (Panel (c)). The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. The size of each circle (country) is proportional to its baseline GDP. The colors depend on the level of the democracy index (warmer colors for democracy and darker colors for autocracies). The line is the OLS regression fitted line without controls and weights countries by baseline GDP. The shaded area corresponds to the 95% confidence interval. Variable definitions and data sources are in Appendix Table A2.

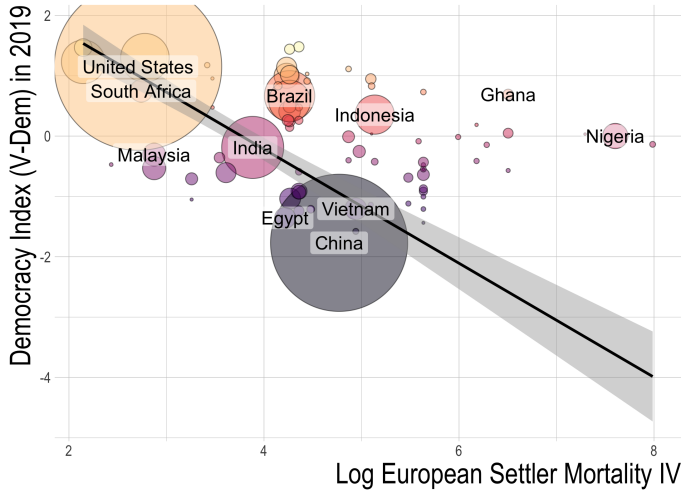
Table 1: Descriptive Statistics

	Variable	N	Mean	St. Dev.	Min	Median	Max
Outcomes	Mean GDP Growth Rate in 2001-2019	164	3.9	2.1	-2.7 (Venezuela)	3.7 (Latvia)	10.4 (Iraq)
	GDP Growth Rate in 2020	164	-4.8	7.9	-59.7 (Libya)	-4.0 (Angola)	43.4 (Guyana)
	Covid-19-related Deaths Per Million in 2020	164	297.1	381.7	0.0 (Bhutan)	86.9 (Maldives)	1,685.0 (Belgium)
Treatments	Democracy Index (V-Dem, 2000)	164	0.0	1.0	-1.8 (Saudi Arabia)	0.01 (Madagascar)	1.5 (Sweden)
	Democracy Index (V-Dem, 2019)	164	0.0	1.0	-2.1 (Saudi Arabia)	-0.02 (Ivory Coast)	1.5 (Denmark)
Controls	GDP (Current USD, Billions, 2000)	164	203.5	920.0	0.1 (Sao Tome and Principe)	11.7 (El Salvador)	10,252.4 (United States)
	GDP (Current USD, Billions, 2019)	164	524.8	2,094.7	0.4 (Sao Tome and Principe)	53.4 (Slovenia)	21,433.2 (United States)
	Absolute Latitude	164	26.2	17.4	0 (Dem. Rep. of the Congo)	23 (Mexico)	65 (Iceland)
	Mean Temperature (°c, 1991-2000)	164	18.6	8.4	-6.2 (Canada)	22.2 (Angola)	28.6 (Mali)
	Mean Temperature (°c, 1991-2016)	164	18.8	8.3	-6.0 (Canada)	22.4 (Iraq)	28.9 (Mali)
	Mean Precipitation (mm per Month, 1991-2000)	164	91.4	63.8	2.7 (Egypt)	78.2 (Angola)	252.7 (Malaysia)
	Mean Precipitation (mm per Month, 1991-2016)	164	92.6	64.7	2.5 (Egypt)	78.9 (Luxembourg)	259.1 (Malaysia)
	Population Density (Number of People per km ² , 2000)	164	152.6	475.6	1.5 (Mongolia)	59.8 (Benin)	5,755.5 (Singapore)
	Population Density (Number of People per km ² , 2019)	164	209.5	692.8	2.1 (Mongolia)	81.1 (Greece)	8,291.9 (Singapore)
	Median Age (2000)	164	25.6	8.0	15 (Burundi)	22.7 (Guyana)	41 (Japan)
	Median Age (2019)	164	30.3	9.2	15.2 (Niger)	29.6 (Lebanon)	48.4 (Japan)
	Diabetes Prevalence (% , 2019)	164	7.5	4.0	1 (Benin)	6.4 (Cambodia)	22 (Sudan)
IVs	Log European Settler Mortality (Annual No. of Deaths per Thousand)	77	4.7	1.2	2.1 (Australia)	4.4 (Barbados)	8.0 (Mali)
	Log Population Density in 1500s (No. of Inhabitants per km ²)	89	0.6	1.6	-3.8 (Canada)	0.4 (Costa Rica)	4.6 (Egypt)
	British Legal Origin	93	0.4	0.5	0.0 (Algeria)	0.0 (Algeria)	1.0 (Australia)
	Fraction Speaking English	136	0.1	0.2	0.0 (Algeria)	0.0 (Algeria)	1.0 (Barbados)
	Fraction Speaking European	136	0.2	0.4	0.0 (Angola)	0.0 (Angola)	1.0 (France)
	Bananas	142	0.7	0.5	0.0 (Albania)	1.0 (Angola)	1.0 (Angola)
	Coffee	142	0.5	0.5	0.0 (Albania)	0.0 (Albania)	1.0 (Angola)
	Copper	151	0.3	0.5	0.0 (Algeria)	0.0 (Algeria)	1.0 (Albania)
	Maize	142	0.9	0.3	0.0 (Bahrain)	1.0 (Albania)	1.0 (Albania)
	Millet	142	0.5	0.5	0.0 (Albania)	0.0 (Albania)	1.0 (Albania)
	Rice	142	0.7	0.5	0.0 (Austria)	1.0 (Albania)	1.0 (Albania)
	Silver	142	0.2	0.4	0.0 (Albania)	0.0 (Albania)	1.0 (Bangladesh)
	Sugarcane	148	0.4	0.5	0.0 (Albania)	0.0 (Albania)	1.0 (Algeria)
	Rubber	142	0.6	0.5	0.0 (Albania)	1.0 (Angola)	1.0 (Angola)
	Wheat	142	0.7	0.5	0.0 (Bahrain)	1.0 (Albania)	1.0 (Albania)
	Potential Mechanisms	Mean Investment Share of GDP in 2001-2019 (%)	154	24.2	7.0	9.8 (Guinea-Bissau)	23.5 (Benin)
Mean Import Value Index in 2001-2019 (2000=100)		163	330.6	145.6	122.5 (Liberia)	301.9 (Guinea)	781.1 (Georgia)
Mean Export Value Index in 2001-2019 (2000=100)		163	364.4	371.7	86.6 (Liberia)	270.4 (Iran)	3,872.5 (Sierra Leone)
Mean Manufacturing Value Added in 2001-2019 (Annual % Growth)		162	3.7	3.7	-5.6 (Venezuela)	3.4 (Slovenia)	28.8 (Gabon)
Mean Services Value Added in 2001-2019 (Annual % Growth)		160	4.5	2.1	0.5 (Greece)	4.2 (Latvia)	11.9 (Liberia)

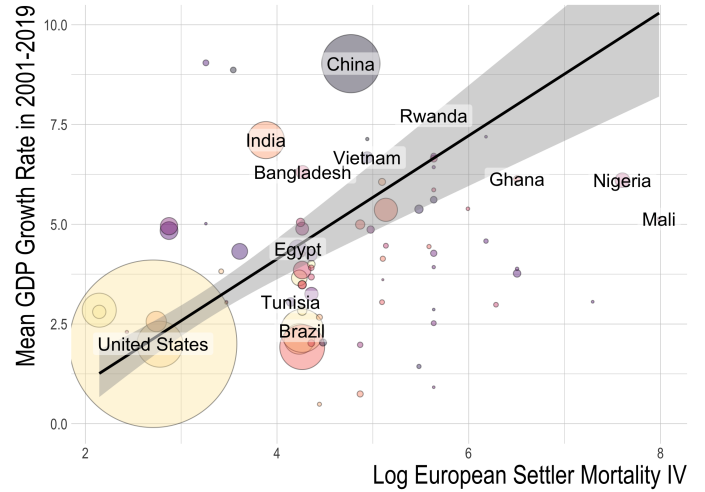
Notes: Parentheses contain country names corresponding to the minimum, median and maximum values of each variable. When we observe multiple countries corresponding to the same minimum, median or maximum, we choose the first country in alphabetical order. When we do not find a country that corresponds exactly to the median, we choose the country with the closest value. Variable definitions and data sources are in Appendix Table A2.

Figure 2: Causal Effects of Democracy

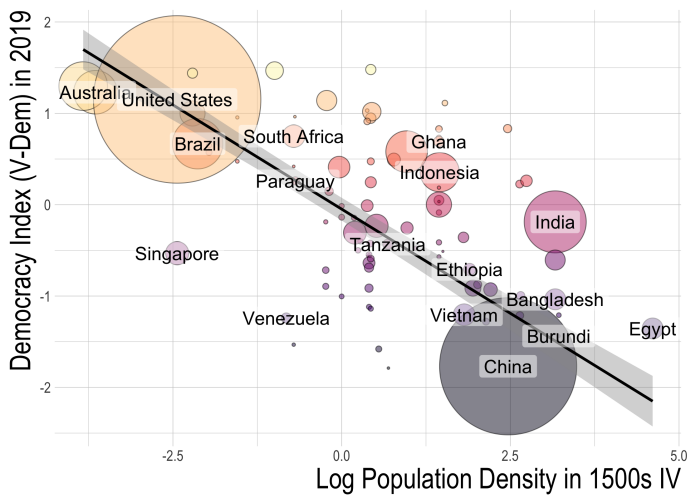
(a) First-stage: Log European Settler Mortality IV



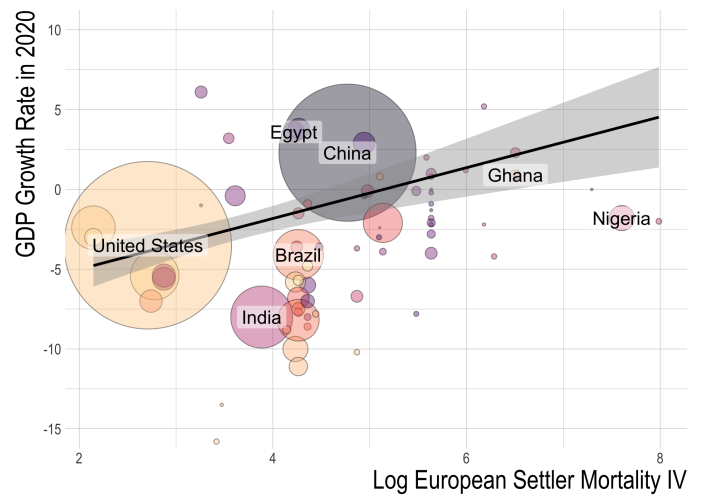
(d) Reduced form: Mean GDP Growth Rate in 2001-2019



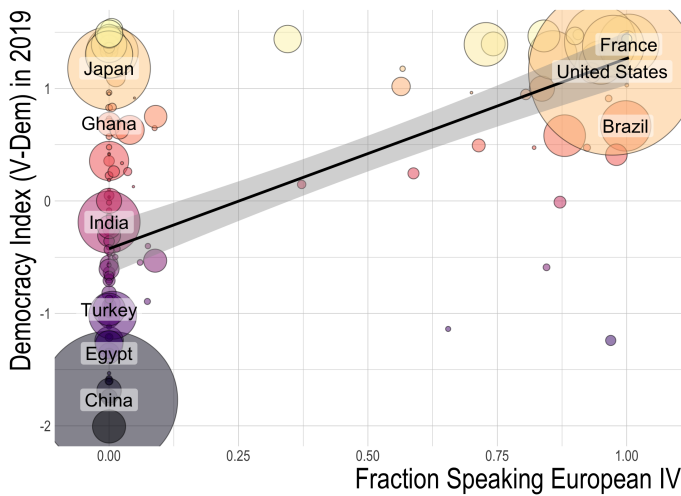
(b) First-stage: Log Population Density in 1500s IV



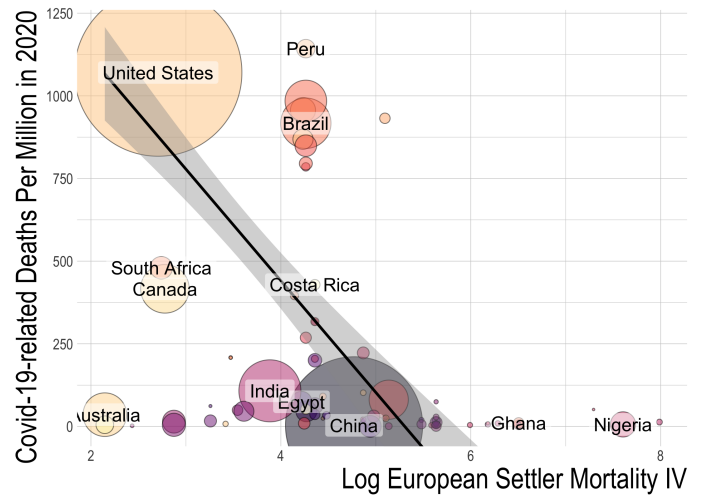
(e) Reduced form: GDP Growth Rate in 2020



(c) First-stage: Fraction Speaking European IV



(f) Reduced form: Covid-19-related Deaths Per Million



Notes: Panels (a), (b), and (c) show the first-stage relationship between democracy in 2019 and three univariate IVs: the log European settler mortality IV, the log population density in 1500s IV, and the fraction speaking European IV. Panels (d), (e), and (f) show the reduced-form relationship between the log European settler mortality IV and three outcomes: mean GDP growth rates in 2001-2019, GDP growth rates in 2020, and Covid-19-related deaths per million. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. The size of each circle (country) is proportional to its baseline GDP. The colors depend on the level of the democracy index (warmer colors for democracy and darker colors for autocracies). The line is the OLS regression fitted line without controls and weights countries by baseline GDP. The shaded area corresponds to the 95% confidence interval. Variable definitions and data sources are in Appendix Table A2.

Table 2: 2SLS Regression Estimates of Democracy's Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Two-Stage Least Squares										
	Dependent Variable is Mean GDP Growth Rate in 2001-2019									
Democracy Index (V-Dem, 2000)	-2.2 (0.3)	-3.3 (0.7)	-2.3 (0.4)	-3.4 (0.8)	-1.8 (0.5)	-1.5 (1.6)	-1.2 (0.9)	-1.3 (0.6)	-2.4 (0.5)	-1.8 (0.6)
p-value	0.00	0.00	0.00	0.00	0.00	0.35	0.18	0.02	0.00	0.00
	Dependent Variable is GDP Growth Rate in 2020									
Democracy Index (V-Dem, 2019)	-1.7 (0.5)	-1.8 (0.3)	-1.5 (0.7)	-1.7 (0.3)	-1.7 (0.7)	-1.5 (0.4)	-1.8 (0.7)	-1.9 (0.5)	-2.2 (0.6)	-2.0 (0.3)
p-value	0.00	0.00	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.00
	Dependent Variable is Covid-19-related Deaths Per Million in 2020									
Democracy Index (V-Dem, 2019)	350.0 (75.4)	332.3 (37.3)	349.1 (70.6)	363.7 (25.6)	298.1 (80.2)	308.3 (51.7)	437.5 (133.6)	432.0 (78.5)	278.5 (68.2)	359.0 (48.5)
p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Number of IVs	1	1	1	1	1	1	2	2	10	10
F-Statistic (First stage)	13.1	46.7	27.0	133.6	12.2	17.1	4.7	14.9	6.6	5.7
Panel B: Ordinary Least Squares										
	Dependent Variable is Mean GDP Growth Rate in 2001-2019									
Democracy Index (V-Dem, 2000)	-2.0 (0.3)	-2.2 (0.4)	-2.0 (0.3)	-2.1 (0.5)	-2.0 (0.3)	-2.1 (0.5)	-1.7 (0.4)	-1.2 (0.6)	-1.7 (0.4)	-1.2 (0.6)
	Dependent Variable is GDP Growth Rate in 2020									
Democracy Index (V-Dem, 2019)	-2.0 (0.4)	-1.9 (0.3)	-1.9 (0.4)	-1.9 (0.3)	-1.9 (0.4)	-1.9 (0.3)	-1.9 (0.5)	-1.6 (0.3)	-1.9 (0.5)	-1.6 (0.3)
	Dependent Variable is Covid-19-related Deaths Per Million in 2020									
Democracy Index (V-Dem, 2019)	323.5 (54.6)	363.3 (26.9)	324.1 (55.8)	359.6 (25.5)	324.0 (55.8)	360.0 (25.6)	248.5 (52.3)	311.0 (47.1)	249.4 (52.3)	309.6 (47.0)
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
N	77	77	89	89	93	93	136	136	142	142

Notes: Panel A reports the 2SLS estimates of democracy's effect on mean GDP growth rates in 2001-2019, GDP growth rates in 2020, and Covid-19-related deaths per million, using five different IV strategies. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). The reported F-statistics are from the first-stage regressions of the IVs against the democracy index in 2019. The corresponding first-stage coefficients are in Appendix Table A5. Panel B reports the OLS estimates. Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. For outcomes in 2020, we also control for diabetes prevalence. Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table 3: Potential Mechanisms in 2001-2019

	Investment Share in GDP (%)		Import Value Index (2000=100)		Export Value Index (2000=100)		Manufacturing, Value Added (Annual % Growth)		Services, Value Added (Annual % Growth)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Panel A: OLS									
Democracy Index (V-Dem, 2000)	-4.8	-5.3	-105.3	-97.8	-101.6	-90.6	-1.4	-0.8	-2.1	-1.5
	(1.4)	(1.6)	(16.0)	(26.7)	(24.6)	(36.8)	(0.2)	(0.3)	(0.4)	(0.6)
N	154	154	163	163	163	163	162	162	160	160
	Panel B: Instrument for Democracy by Settler Mortality									
Democracy Index (V-Dem, 2000)	-5.3	-11.4	-148.5	-169.0	-152.4	-220.0	-1.8	-3.5	-2.7	-3.4
	(1.7)	(2.8)	(19.5)	(51.9)	(20.1)	(64.7)	(0.8)	(4.8)	(0.3)	(0.7)
N	72	72	77	77	77	77	76	76	77	77
	Panel C: Instrument for Democracy by Population Density in 1500s									
Democracy Index (V-Dem, 2000)	-6.3	-11.2	-152.2	-179.9	-143.8	-175.3	-2.7	-8.8	-2.8	-3.6
	(1.5)	(2.2)	(36.8)	(55.6)	(27.8)	(47.4)	(1.2)	(8.4)	(0.5)	(0.7)
N	84	84	89	89	89	89	87	87	87	87
	Panel D: Instrument for Democracy by Legal Origin									
Democracy Index (V-Dem, 2000)	-5.0	-8.6	-122.9	-67.0	-142.8	-161.5	-0.2	-19.6	-2.3	-1.8
	(2.0)	(4.2)	(24.9)	(113.9)	(27.6)	(91.9)	(0.8)	(40.2)	(0.4)	(1.5)
N	88	88	93	93	93	93	91	91	91	91
	Panel E: Instrument for Democracy by Language									
Democracy Index (V-Dem, 2000)	-7.8	-8.4	-134.8	-139.9	-108.4	-121.4	-2.7	-2.8	-1.4	-1.4
	(1.8)	(1.6)	(28.1)	(22.6)	(41.7)	(34.1)	(0.9)	(1.0)	(1.0)	(0.6)
N	128	128	136	136	136	136	135	135	134	134
	Panel F: Instrument for Democracy by Crops and Minerals									
Democracy Index (V-Dem, 2000)	-6.9	-8.8	-146.0	-142.5	-146.0	-141.0	-2.3	-1.3	-2.8	-1.9
	(1.2)	(1.4)	(30.3)	(20.7)	(27.8)	(31.9)	(0.6)	(0.9)	(0.5)	(0.7)
N	133	133	142	142	142	142	140	140	139	139
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓

Notes: This table reports the OLS (Panel A) and 2SLS regression (Panels B-F) estimates of democracy's effect on potential mechanisms in 2001-2019. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. The dependent variables are the mean of each of the following variables in 2001-2019: investment share in GDP (%) (columns 1-2), the import value index (2000=100) (columns 3-4), the export value index (2000=100) (columns 5-6), manufacturing, value added (annual % growth) (columns 7-8), and services, value added (annual % growth) (columns 9-10). For IVs, Panel B uses log European settler mortality, Panel C uses log population density in the 1500s, Panel D uses British legal origin, Panel E uses the fraction speaking English and the fraction speaking European, and Panel F uses the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

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A Appendix

A.1 Extending Easterly and Levine (2003)’s Dataset

Since Easterly and Levine (2003)’s dataset only covers 71 countries, we replicate their data gathering process to extend their dataset to 152 countries. For the dummy variables for crop production in 1990, we first use the values from the replication file. Then, we replace the missing values using data from the Food and Agriculture Association of the United Nations (2020) on crop production in 1990. This data is equivalent to the data that the authors describe in their work. Analogously, for the dummy variables for minerals production in 1990, we first use the replication file’s values and then replace the missing values using production data for 1990 from World Bureau of Metal Statistics (2019a) and World Bureau of Metal Statistics (2019b).

A.2 Policy Mechanisms Behind Democracy’s Effect in 2020

Does having a stronger democracy cause worse economic and public health outcomes during the Covid pandemic? Media and policy discussions point to the speed, coverage, and severity of containment policies as potential proximate mechanisms. Indeed, Paul Krugman blames “*catastrophically slow and inadequate*” responses by the US government for its failure.¹⁴ We explore whether this differential in policy responses explains democracy’s negative effect. Our findings suggest that a key channel for the negative impact of democracy is weaker and narrower containment policies at the beginning of the outbreak. In contrast, the speed of containment policies appears to be less important.

To measure the severity of policy, we use the Containment Health Index at the 10th confirmed case of Covid-19.¹⁵ To quantify how widely initial responses cover aspects of civilian life, we look at the percentage of 13 domains in which the government introduced containment measures at the 10th Covid-19 case. The domains are schools, workplaces, public events, gatherings, public transport, stay-at-home requirements, domestic travel, international travel, public information campaigns, testing, contact tracing, facial coverings, and vaccinations. To assess policy speed, we consider the number of days between the 10th confirmed case and the introduction of any containment policy.¹⁶

For each policy response mechanism M (severity, coverage, or speed of containment response), we estimate the following 2SLS equations:

$$M_i = \eta + \rho Democracy_i + X_i' \phi + \omega_i \quad (5)$$

$$\text{First Stage: } Democracy_i = \zeta + Z_i' \beta + X_i' \delta + v_i. \quad (6)$$

This approach is similar to Acemoglu et al. (2003)’s, which evaluates channels behind democracy’ effects using

¹⁴Krugman, Paul. 2020. “3 Rules for the Trump Pandemic.” *New York Times*. March 19. <https://www.nytimes.com/2020/03/19/opinion/trump-coronavirus.html>

¹⁵We get similar results when we use the index at the 100th confirmed case or the index’s mean during 2020.

¹⁶We get similar results with the 100th confirmed case and January 1st, 2020 as the start date. The introduction date of any containment policy is the date when the Containment Health Index becomes positive.

similar 2SLS.

Table A20 summarizes the results from this analysis.¹⁷ Panel A shows that democracy causes less severe responses at the 10th confirmed case of Covid-19. The median estimate is that a standard deviation increase in democracy causes the Containment Health Index to decrease by 0.4 standard deviations, which corresponds to 20% of the mean. Democracy also narrows containment policies' scope. The median estimate in Panel B suggests that a standard deviation increase in democracy causes a 9.3 percentage-point decrease in the coverage of initial policy. On the other hand, democracy does not appear to cause slower responses. In fact, in Panel C, all columns predict that democracy causes *faster* responses. This leads to the bottom line that the severity and coverage of initial containment policies is a more important mechanism for the adverse effect of democracy than their speed.¹⁸

¹⁷We get similar results with alternative democracy indices, weighting, and sample definitions.

¹⁸To quantify the significance of these channels, we conduct causal mediation analysis in Appendix Table A21.

A.3 Additional Results

Table A1: Additional Descriptive Statistics

	Variable	N	Mean	St. Dev.	Min	Median	Max
Outcomes	Mean GDP Growth Rate in 1981-1990	133	2.8	2.6	-3.8 (Libya)	2.6 (Norway)	10.9 (Botswana)
	Mean GDP Growth Rate in 1991-2000	162	3.4	4.8	-9.3 (Moldova)	3.1 (Republic of the Congo)	44.8 (Equatorial Guinea)
	Mean GDP Growth Rate in 2001-2010	164	4.5	2.8	-3.4 (Zimbabwe)	4.0 (Namibia)	16.5 (Equatorial Guinea)
	Mean GDP Growth Rate in 2011-2020	164	2.5	2.5	-11.6 (Venezuela)	2.5 (Iceland)	9.2 (Ethiopia)
	Excess Deaths Per Million in 2020	72	988.2	870.4	-434.8 (New Zealand)	940.3 (Brazil)	3,326.2 (Armenia)
Treatments	Democracy Index (Polity, 2000)	153	0.0	1.0	-2.1 (Bhutan)	0.4 (Bangladesh)	1.0 (Australia)
	Democracy Index (Polity, 2018)	156	0.0	1.0	-2.4 (Bahrain)	0.4 (Armenia)	0.9 (Australia)
	Democracy Index (Freedom House, 2003)	161	0.0	1.0	-2.2 (Iraq)	-0.01 (Mozambique)	1.5 (Luxembourg)
	Democracy Index (Freedom House, 2019)	159	0.0	1.0	-1.9 (Eritrea)	0.1 (Georgia)	1.5 (Finland)
	Democracy Index (Economist Intelligence Unit, 2006)	158	0.0	1.0	-1.8 (Central African Republic)	0.1 (Albania)	1.9 (Sweden)
	Democracy Index (Economist Intelligence Unit, 2019)	154	0.0	1.0	-2.0 (Dem. Rep. of the Congo)	0.1 (Malawi)	2.0 (Norway)
Controls	GDP (Current USD, Billions, 1980)	130	85.4	291.2	0.03 (Equatorial Guinea)	7.6 (Guatemala)	2,857.3 (United States)
	GDP (Current USD, Billions, 1990)	139	167.8	615.1	0.1 (Sao Tome and Principe)	9.5 (Sri Lanka)	5,963.1 (United States)
	GDP (Current USD, Billions, 2000)	164	203.5	920.0	0.1 (Sao Tome and Principe)	11.7 (El Salvador)	10,252.4 (United States)
	GDP (Current USD, Billions, 2010)	164	398.1	1,406.6	0.2 (Sao Tome and Principe)	37.9 (Burma)	14,992.0 (United States)
	GDP Per Capita (Current USD, 1980)	126	4,344.1	6,240.2	123.4 (Equatorial Guinea)	1,543.3 (Dominican Republic)	40,014.6 (United Arab Emirates)
	GDP Per Capita (Current USD, 1990)	138	5,768.2	8,617.1	87.2 (Sudan)	1,323.6 (Ivory Coast)	39,888.2 (Switzerland)
	GDP Per Capita (Current USD, 2000)	163	6,521.7	10,155.6	128.6 (Ethiopia)	1,675.8 (Paraguay)	49,183.4 (Luxembourg)
	GDP Per Capita (Current USD, 2010)	164	12,888.6	18,546.9	231.5 (Burundi)	4,604.7 (Ecuador)	106,177.0 (Luxembourg)
	GDP Per Capita (Current USD, 2019)	164	14,438.6	20,184.2	257.4 (Burundi)	5,879.9 (Jamaica)	115,838.8 (Luxembourg)
	Population (Millions, 2000)	164	36.6	133.4	0.1 (Seychelles)	8.2 (Azerbaijan)	1,290.6 (China)
	Population (Millions, 2019)	164	46.5	160.0	0.1 (Seychelles)	10.2 (Azerbaijan)	1,439.3 (China)
	Mean Temperature (°c, 1971-1980)	164	18.0	8.5	-7.4 (Canada)	21.5 (Australia)	28.2 (Mali)
	Mean Temperature (°c, 1981-1990)	164	18.3	8.5	-7.0 (Canada)	21.9 (Botswana)	28.6 (Mali)
	Mean Temperature (°c, 1991-2000)	164	18.6	8.4	-6.2 (Canada)	22.2 (Angola)	28.6 (Mali)

Table A1: Additional Descriptive Statistics

Variable	N	Mean	St. Dev.	Min	Median	Max
Mean Temperature (°c, 2001-2010)	164	18.9	8.3	-5.8 (Canada)	22.6 (Iraq)	29.1 (Mali)
Mean Precipitation (mm per Month, 1971-1980)	164	92.6	64.5	3.0 (Egypt)	81.6 (Angola)	260.3 (Costa Rica)
Mean Precipitation (mm per Month, 1981-1990)	164	91.3	64.1	3.1 (Egypt)	79.4 (Albania)	256.5 (Papua New Guinea)
Mean Precipitation (mm per Month, 1991-2000)	164	91.4	63.8	2.7 (Egypt)	78.2 (Angola)	252.7 (Malaysia)
Mean Precipitation (mm per Month, 2001-2010)	164	94.1	66.4	2.2 (Egypt)	81.6 (Angola)	265.7 (Malaysia)
Population Density (No. of People per km ² , 1980)	164	108.7	294.5	1.1 (Mongolia)	41.5 (Malaysia)	3,445.3 (Singapore)
Population Density (No. of People per km ² , 1990)	164	129.1	363.0	1.4 (Mongolia)	50.4 (Cambodia)	4,304.2 (Singapore)
Population Density (No. of People Per km ² , 2000)	164	152.6	475.6	1.5 (Mongolia)	59.8 (Benin)	5,755.5 (Singapore)
Population Density (No. of People Per km ² , 2010)	164	182.8	605.2	1.8 (Mongolia)	72.6 (Bosnia and Herzegovina)	7,330.2 (Singapore)
Median Age (1980)	164	22.3	6.3	15.0 (Kenya)	19.2 (Haiti)	36.5 (Germany)
Median Age (1990)	164	23.6	7.2	14 (Yemen)	20.8 (Lebanon)	38 (Sweden)
Median Age (2000)	164	25.6	8.0	15 (Burundi)	22.7 (Guyana)	41 (Japan)
Median Age (2010)	164	27.9	8.6	15.0 (Niger)	26.1 (Burma)	44.7 (Japan)
Alternative Mechanisms in 2001-2019						
Mean Tax Revenue Share of GDP (2001-2019)	132	16.6	6.6	0.3 (United Arab Emirates)	16.0 (Kenya)	37.0 (Malta)
Mean Primary School Enrollment Rate (net %, 2001-2019)	156	88.2	11.9	40.6 (Liberia)	92.1 (Qatar)	99.7 (Singapore)
Mean Secondary School Enrollment Rate (net %, 2001-2019)	148	65.8	26.6	10.0 (Angola)	76.2 (Thailand)	99.7 (Singapore)
Mean Child Mortality Rate Per 1000 (2001-2019)	164	28.2	25.1	2.1 (Iceland)	18.1 (Brazil)	108.2 (Sierra Leone)
Policy Responses in 2020						
Containment Health Index at 10th Covid-19 Case	155	1.8	1.0	0.0 (Algeria)	1.7 (Vietnam)	3.9 (Djibouti)
Coverage of Containment Policy at 10th Covid-19 Case	156	48.9	23.6	0.0 (Algeria)	46.2 (Azerbaijan)	92.3 (Bhutan)
Days Between 10th Covid-19 Case Until Any Containment Measure	156	-42.8	33.0	-270.0 (Solomon Islands)	-40.0 (Azerbaijan)	34.0 (Thailand)

Notes: Parentheses contain country names corresponding to the minimum, median and maximum values of each variable. When we observe multiple countries corresponding to the same minimum, median or maximum, we choose the first country in alphabetical order. When we do not find a country that corresponds exactly to the median, we choose the country with the closest value. Variable definitions and data sources are in Appendix Table A2.

Table A2: Data Sources and Description

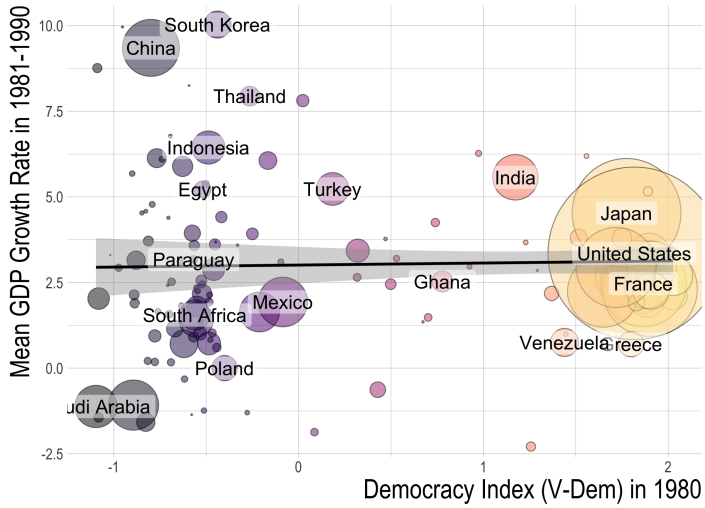
	Variable	Data Source	Short Description
Outcomes	Mean GDP Growth Rate in 2001-2019	International Monetary Fund (2021)	Mean real GDP growth rates between 2001 to 2019.
	GDP Growth Rate in 2020	International Monetary Fund (2021)	Annual percentage change in real GDP between 2019 and 2020.
	Covid-19-related Deaths Per Million in 2020	Center for Systems Science and Engineering at Johns Hopkins University (2021)	Total number of deaths per million attributed to Covid-19 between 2020/01/22 (earliest available in dataset) and 2020/12/31.
	Excess Deaths Per Million in 2020	Glattino et al. (2021); Karlinsky and Kobak (2021)	Number of deaths per million between 2020/01/01 and 2020/12/31 in excess of the the baseline number of deaths we might normally have expected in 2020. The model to calculate the baseline fits a linear trend to years to adjust from long-term increases or decreases in deaths and fixed effects for each week or month.
Treatments	Democracy Index (V-Dem)	Coppedge et al. (2021)	The electoral democracy index from the Varieties of Democracy project. It is on a 0-1 scale and aggregates indices measuring freedom of association, clean elections, freedom of expression, elected officials, and suffrage.
	Democracy Index (Polity)	Center for Systemic Peace (2018)	Index measuring the level of democracy on a 21-point scale ranging from -10 (hereditary monarchy) to 10 (consolidated democracy).
	Democracy Index (Freedom House)	Freedom House (2020)	Index measuring the degree of democratic freedom by taking the sum of the political rights (0 to 40) and civil liberties (0 to 60) scales. Ranges from 0 (least free) to 100 (most free).
	Democracy Index (Economist Intelligence Unit)	Economist Intelligence Unit (2021)	Index measuring the state of democracy. Ranges from 0 (least democratic) to 100 (most democratic).
Weightings & Controls	GDP (Current USD, Billions)	The World Bank Group (2021 <i>b</i>)	Gross domestic product at purchasing power parity in current U.S. billion dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Dollar figures for GDP are converted from domestic currencies using single year official exchange rates.
	GDP Per Capita (Current USD)	The World Bank Group (2021 <i>c</i>)	Gross domestic product divided by midyear population. Data are in current U.S. dollars.
	Population (Millions)	United Nations Department of Economic and Social Affairs, Population Division (2019)	Total population in millions.
	Absolute Latitude	Google Dataset Publishing Language (2021)	Absolute value of the latitude of the centroid of each country (i.e., a measure of distance from the equator).
	Mean Temperature	The World Bank Group (2021 <i>a</i>)	The average of average monthly temperature in degrees Celcius.
	Mean Precipitation	The World Bank Group (2021 <i>a</i>)	The average of average monthly precipitation in millimeters.
	Population Density	United Nations Department of Economic and Social Affairs, Population Division (2019)	The number of people divided by land area, measured in square kilometers.
	Median Age	United Nations Department of Economic and Social Affairs, Population Division (2019)	UN projections of the median age of the population.
IVs	Diabetes Prevalence	International Diabetes Federation (2019)	Percentage of population with diabetes aged 20 to 79.
	Log European Settler Mortality	Acemoglu, Johnson and Robinson (2001)	The log of annualized deaths per thousand mean strength of European settlers between the seventeenth and nineteenth century.
	Log Population Density in 1500s	Acemoglu and Johnson (2005)	The log of the population density in the 1500s measured as the number of inhabitants per square kilometer.
	British Legal Origin	LaPorta, de Silanes and Shleifer (2008)	Dummy variables coded 1 if the country's legal origin is British, and 0 otherwise.
	Fraction Speaking English	Hall and Jones (1999)	The fraction of the population speaking English as a mother tongue in 1992.
	Fraction Speaking European	Hall and Jones (1999)	The fraction of the population speaking English, French, German, Portuguese or Spanish as a mother tongue in 1992.
	Bananas, Coffee, Maize, Millet, Rice, Sugarcane, Rubber, Wheat Copper, Silver	Easterly and Levine (2003); Food and Agriculture Association of the United Nations (2020) Easterly and Levine (2003); World Bureau of Metal Statistics (2019 <i>a,b</i>)	Dummy variables coded 1 if the country produced any of the particular commodity in 1990, and 0 otherwise. Dummy variables coded 1 if the country mined any of the particular commodity in 1990, and 0 otherwise.

Table A2: Data Sources and Description

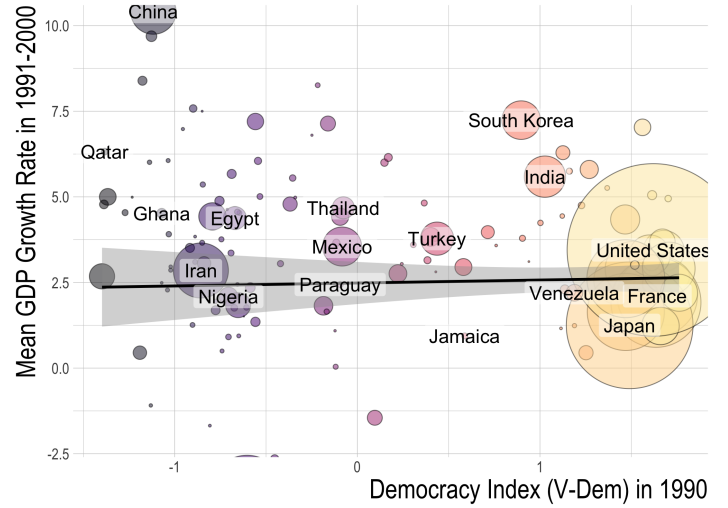
	Variable	Data Source	Short Description
Potential Mechanisms	Investment Share of GDP	The World Bank Group (2021 <i>d</i>)	The ratio of total investment in current local currency and GDP in current local currency. Investment is measured by the total value of the gross fixed capital formation and changes in inventories and acquisitions less disposals of valuables for a unit or sector.
	Import Value Index	The World Bank Group (2021 <i>d</i>)	The current value of imports converted to U.S. dollars and expressed as a percentage of the average for the base period (2000).
	Export Value Index	The World Bank Group (2021 <i>d</i>)	The current value of exports converted to U.S. dollars and expressed as a percentage of the average for the base period (2000).
	Manufacturing Value Added (Annual % Growth)	The World Bank Group (2021 <i>d</i>)	Annual growth rate for manufacturing value added based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. Manufacturing refers to industries belonging to ISIC divisions 15-37. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.
	Services Value Added (Annual % Growth)	The World Bank Group (2021 <i>d</i>)	Annual growth rate for value added in services based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. Services correspond to ISIC divisions 50-99. They include value added in wholesale and retail trade (including hotels and restaurants), transport, and government, financial, professional, and personal services such as education, health care, and real estate services. Also included are imputed bank service charges, import duties, and any statistical discrepancies noted by national compilers as well as discrepancies arising from rescaling. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources.
	Tex Revenue Share of GDP	The World Bank Group (2021 <i>d</i>)	The ratio of tax revenues in current local currency to GDP in current local currency. Tax revenue refers to compulsory transfers to the central government for public purposes. Certain compulsory transfers such as fines, penalties, and most social security contributions are excluded.
	Primary School Enrollment	The World Bank Group (2021 <i>d</i>)	The ratio of children of official school age who are enrolled in primary school to the population of the corresponding official school age.
	Secondary School Enrollment	The World Bank Group (2021 <i>d</i>)	The ratio of the number of students of official school age enrolled in secondary education to the population of the age group which officially corresponds to secondary education.
	Child Mortality Rate	The World Bank Group (2021 <i>d</i>)	The number of infants who die before reaching one year of age, per 1,000 live births in a given year.
Policy Responses in 2020	Containment Health Index at 10th Covid-19 Case	Blavatnik School of Government at the University of Oxford (2021)	A measure of the strictness of government responses. Calculated by taking the average of 13 sub-scores which record severity in a specific domain on an ordinal scale (for example, the school sub-index is on a 0 (no measure) to 4 (require closing) scale) and subtracts 0.5 if it is targeted. It is scaled to take a value between 0 and 100. The domains are schools, workplaces, public events, gatherings, public transport, stay-at-home requirements, domestic travel, international travel, public information campaigns, testing, contact tracing, facial coverings, and vaccinations. We use the index at the date when the 10th case of Covid-19 is confirmed.
	Coverage of Containment Measures at 10th Covid-19 Case	Blavatnik School of Government at the University of Oxford (2021)	The percentage of the 13 domains in which the data records any policy introduction at the date when the 10th case of Covid-19 is confirmed.
	Days between 10th Covid-19 Case and Any Containment Measure	Blavatnik School of Government at the University of Oxford (2021)	The number of days between the date when the 10th Covid-19 case is confirmed and the date when the containment health index becomes positive.

Figure A1: Correlation Between Democracy and Economic Growth by Decade

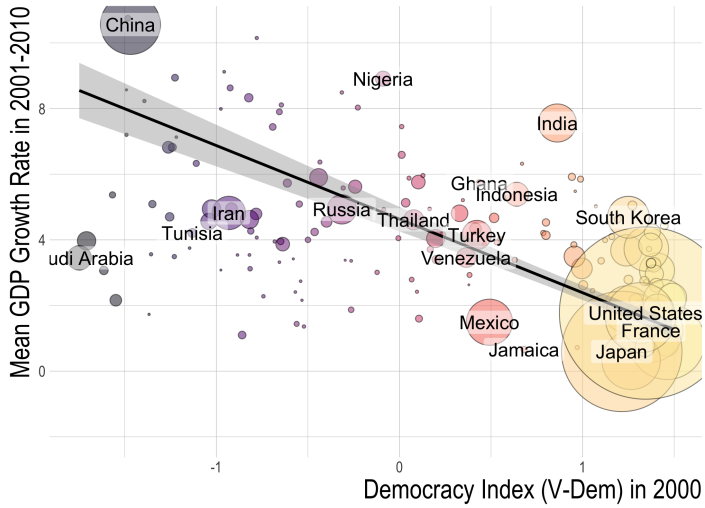
(a) Mean GDP Growth Rate in 1981-1990



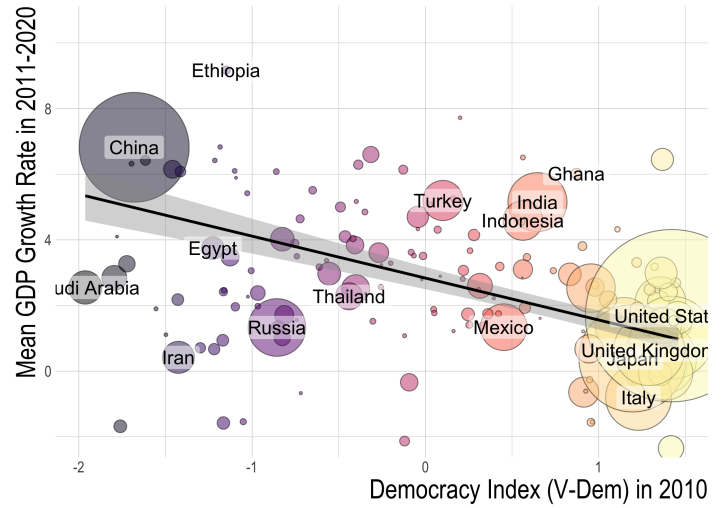
(b) Mean GDP Growth Rate in 1991-2000



(c) Mean GDP Growth Rate in 2001-2010



(d) Mean GDP Growth Rate in 2011-2020



Notes: Panels (a)-(d) show the relationship between democracy and the mean GDP growth rates in four periods: 1981-1990, 1991-2000, 2001-2010, and 2011-2019. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. The size of each circle (country) is proportional to its baseline GDP. The colors depend on the level of the democracy index (warmer colors for democracy and darker colors for autocracies). The line is the fitted line from a univariate OLS regression of the outcome against the democracy index that weights observations by baseline GDP. The shaded area corresponds to the 95% confidence interval. Variable definitions and data sources are in Appendix Table A2.

Table A3: Correlation Between Democracy and Economic Growth With Control for Baseline GDP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variable is Mean GDP Growth Rate in 2001-2019							
Democracy Index (V-Dem, 2000)	-1.7 (0.4)	-1.2 (0.6)	-1.3 (0.5)	-1.0 (0.4)	-1.7 (0.4)	-1.1 (0.5)	-1.2 (0.4)	-1.1 (0.4)
	Dependent Variable is GDP Growth Rate in 2020							
Democracy Index (V-Dem, 2019)	-1.9 (0.5)	-1.6 (0.3)	-2.9 (0.5)	-2.6 (0.5)	-1.9 (0.3)	-1.8 (0.3)	-2.5 (0.5)	-2.6 (0.5)
Baseline Controls Other Than Baseline GDP		✓		✓		✓		✓
Baseline GDP Per Capita Control			✓	✓			✓	✓
Baseline Total GDP Control					✓	✓	✓	✓
N	163	163	163	163	163	163	163	163

Notes: This table reports the results of OLS regressions of GDP growth rates on the democracy index with additional controls for baseline GDP per capita and total GDP. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 2, 4, 6, 8 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. For the GDP growth rate in 2020, we also control for diabetes prevalence. Columns 3, 4, 7, and 8 additionally control for baseline GDP per capita. Columns 5, 6, 7, 8 additionally control for baseline total GDP. Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A4: Summary of the Direction of Potential Bias in the IV Estimates

IV	Base Sample	$Cov(Z, Democracy)$	$Cov(Z, PotentialOmittedVar)$	Likely Direction of Bias $\frac{Cov(Z, PotentialOmittedVar)}{Cov(Z, Democracy)}$
European settler mortality IV	N = 77 (countries formerly under European rule with data available)	Negative (Higher settler mortality led settlers to establish extractive institutions, which correspond to lower levels of democracy)	Likely negative (Worse disease environments may directly hamper growth)	Positive
Population density in 1500s IV	N = 89 (countries formerly under European rule with data available)	Negative (Higher population density at the beginning of colonial rule led European colonizers to establish extractive institutions, which correspond to lower levels of democracy)	Likely positive (Higher population density may positively affect growth through higher returns to scale and agglomeration effects)	Negative
British legal origin IV	N = 93 (countries formerly under European rule with data available)	Positive (British colonial rule led to the establishment of a common-law legal system, which is correlated with less restrictions on individual freedoms and higher levels of democracy)	Likely positive (Being formerly subjected to British rule instead of other European countries such as French, Spanish, Portuguese, or German rule may lead to greater advantages in an Anglo-centric world economy through linguistic or cultural influence)	Positive
Fraction speaking English or European IVs	N = 136 (all countries with data available)	Positive (The fraction of the population speaking English or European corresponds to the extent of Western influence, which is positively related to higher levels of democracy)	Likely positive (Higher fractions of the population speaking English or a European language may result in more globally competitive human capital)	Positive
Crops and minerals IVs	N = 142 (all countries with data available)	Depends on the commodity	Depends on the commodity	Depends on the commodity

Table A5: First-Stage Regression Estimates of IVs' Effects on Democracy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent Variable is Democracy Index (V-Dem, 2019)									
Log European Settler Mortality	-1.0 (0.3)	-1.3 (0.2)								
Log Population Density in 1500s			-0.5 (0.09)	-0.5 (0.04)						
British Legal Origin					2.0 (0.6)	2.0 (0.5)				
Fraction Speaking English							-0.04 (0.2)	0.7 (0.5)		
Fraction Speaking European							1.8 (0.6)	1.2 (0.3)		
Bananas									-0.2 (0.5)	0.1 (0.4)
Coffee									-0.04 (0.3)	0.9 (0.3)
Copper									-0.7 (0.4)	-0.1 (0.4)
Maize									0.8 (0.4)	1.2 (0.4)
Millet									-0.5 (0.4)	-0.3 (0.3)
Rice									-0.9 (0.6)	-0.8 (0.4)
Rubber									-2.2 (0.5)	-2.2 (0.3)
Silver									1.3 (0.4)	0.7 (0.3)
Sugarcane									1.1 (0.6)	0.5 (0.5)
Wheat									-0.4 (0.5)	0.8 (0.5)
F-Statistic (First stage)	13.1	46.7	27.0	133.6	12.2	17.1	4.7	14.9	6.6	5.7
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
N	77	77	89	89	93	93	136	136	142	142

Notes: This table reports the first-stage regression estimates of the effect of the five different sets of IVs on democracy levels in 2019. It complements Table 2's 2SLS estimates of democracy's effects on outcomes. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, median age, and diabetes prevalence. Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A6: GDP and Covid-19 Deaths After Accounting for Political Regimes' Effect

	(1)	(2)	(3)	(4)	(5)	(6)
	Africa	Asia	Europe	N. America	Oceania	S. America
Panel A: GDP Growth Rate in 2001-2019						
Observed Mean	4.3	5.5	2.8	2.8	3.1	2.9
Political Regimes' Effect	1.2	1.5	-1.9	-1.3	-0.6	-1.5
(Observed Mean) - (Political Regimes' Effect)	3.2	3.9	4.6	4.2	3.8	4.4
Panel B: Mean GDP Growth Rate in 2020						
Observed Mean	-3.8	-4.5	-4.8	-7.6	-7.0	-5.0
Political Regimes' Effect	0.7	1.2	-1.3	-0.8	-0.8	-0.9
(Observed Mean) - (Political Regimes' Effect)	-4.5	-5.7	-3.6	-6.9	-6.2	-4.1
Panel C: Total Covid-19-related Deaths Per Million in 2020						
Observed Mean	51.5	138.5	678.5	364.8	7.4	594.8
Political Regimes' Effect	-138.2	-248.7	267.5	160.2	165.5	180.6
(Observed Mean) - (Political Regimes' Effect)	189.7	387.2	411.0	204.6	-158.1	414.1
N	52	38	42	14	6	12

Notes: This table reports each continent's mean GDP growth rates in 2001-2019 (Panel A), mean GDP growth rates in 2020 (Panel B), and total Covid-19-related deaths per million (Panel C) before and after subtracting the estimated effect of democracy in Table 2's column 1. To calculate the estimated effect of democracy for each continent, we multiply the coefficient estimated in Table 2's column 1 with the democracy index (normalized to have mean zero and standard deviation one) for each country and take the average across the countries in the continent.

Table A7: Democracy's Effect on Economic Growth With Control for Baseline GDP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: No Control for Baseline GDP										
	Dependent Variable is Mean GDP Growth Rate in 2001-2019									
Democracy Index (V-Dem, 2000)	-2.2 (0.3)	-3.3 (0.7)	-2.3 (0.4)	-3.4 (0.8)	-1.8 (0.5)	-1.5 (1.6)	-1.2 (0.9)	-1.3 (0.6)	-2.4 (0.5)	-1.8 (0.6)
	Dependent Variable is GDP Growth Rate in 2020									
Democracy Index (V-Dem, 2019)	-1.7 (0.5)	-1.8 (0.3)	-1.5 (0.7)	-1.7 (0.3)	-1.7 (0.7)	-1.5 (0.4)	-1.9 (0.7)	-1.9 (0.5)	-2.2 (0.6)	-2.0 (0.3)
Panel B: Control for Baseline GDP Per Capita										
	Dependent Variable is Mean GDP Growth Rate in 2001-2019									
Democracy Index (V-Dem, 2000)	-1.6 (1.0)	-3.3 (3.6)	-2.5 (0.7)	-3.4 (1.1)	2.5 (6.2)	22.9 (95.4)	-1.9 (0.7)	-1.0 (0.5)	-2.3 (0.8)	-1.4 (0.7)
	Dependent Variable is GDP Growth Rate in 2020									
Democracy Index (V-Dem, 2019)	-4.8 (1.4)	-5.6 (1.5)	-2.9 (0.6)	-3.2 (0.9)	-4.5 (1.4)	-8.7 (21.4)	-3.8 (0.8)	-4.3 (1.2)	-3.9 (0.5)	-4.1 (0.7)
Panel C: Control for Baseline Total GDP										
	Dependent Variable is Mean GDP Growth Rate in 2001-2019									
Democracy Index (V-Dem, 2000)	-2.2 (0.4)	-3.6 (1.2)	-2.5 (0.5)	-3.4 (0.8)	-1.1 (1.5)	0.2 (3.1)	-1.5 (1.0)	-1.2 (0.7)	-2.6 (0.5)	-1.9 (0.8)
	Dependent Variable is GDP Growth Rate in 2020									
Democracy Index (V-Dem, 2019)	-2.2 (0.3)	-2.2 (0.3)	-1.9 (0.4)	-1.9 (0.4)	-2.3 (0.4)	-2.0 (0.4)	-2.3 (0.4)	-2.4 (0.6)	-2.2 (0.3)	-2.3 (0.4)
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Baseline Controls Other Than Baseline GDP	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
N	77	77	89	89	93	93	135	135	141	141

Notes: This table compares the 2SLS regression estimates of democracy's effect on the mean GDP growth rate in 2001-2019 and the GDP growth rate in 2020 without controls for baseline GDP (Panel A), with additional controls for baseline GDP per capita (Panel B), and with additional controls for baseline total GDP (Panel C). The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 2, 4, 6, 8, and 10 also have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. For the GDP growth rate in 2020, we also control for diabetes prevalence. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). The sample sizes are slightly different from those in Table 2 because this table uses only observations for which all GDP per capita and GDP growth rate data are available. Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A8: Democracy's Effect on Change in GDP Growth Rates Between 2019 and 2020

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent Variable is the Difference in the Annual GDP Growth Rate Between 2019 and 2020									
Democracy Index (V-Dem, 2019)	-0.5 (0.4)	-0.6 (0.2)	-0.1 (0.7)	-0.2 (0.4)	-0.7 (0.5)	-0.5 (0.3)	-0.9 (0.6)	-1.0 (0.4)	-0.8 (0.5)	-0.8 (0.3)
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
N	77	77	89	89	93	93	136	136	142	142

Notes: This table shows the 2SLS regression estimates of democracy's effect on (GDP growth rates in 2020)-(GDP growth rates in 2019). The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, median age, and diabetes prevalence. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A9: 2SLS Regression with Continent Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent Variable is Mean GDP Growth Rate in 2001-2019									
Democracy Index (V-Dem, 2000)	-1.4 (0.8)	-2.4 (1.8)	-1.0 (0.8)	-1.4 (0.5)	-0.8 (0.5)	-0.7 (0.5)	-0.2 (1.2)	-6.7 (7.5)	-3.0 (0.6)	-1.7 (0.6)
	Dependent Variable is GDP Growth Rate in 2020									
Democracy Index (V-Dem, 2019)	-3.4 (2.6)	-3.0 (1.3)	1.2 (4.0)	-1.0 (1.6)	-3.4 (2.1)	-1.7 (1.3)	-3.0 (1.9)	-4.2 (3.6)	-2.4 (0.7)	-1.4 (1.4)
	Dependent Variable is Covid-19 Deaths Per Million in 2020									
Democracy Index (V-Dem, 2019)	220.7 (106.6)	194.0 (44.0)	-44.9 (201.5)	118.3 (76.4)	92.1 (30.9)	153.8 (42.2)	206.0 (216.3)	-349.2 (390.4)	32.7 (37.7)	33.1 (118.2)
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
N	77	77	89	89	93	93	136	136	142	142

Notes: This table shows the 2SLS regression estimates of democracy's effect on the mean GDP growth rate in 2001-2019, the GDP growth rate in 2020, and Covid-19 deaths per million in 2020 that adds dummy variables for each continent (Africa, Asia, Europe, North America, Oceania, and South America) as controls. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 1, 3, 5, 7, and 9 only control for continents, while columns 2, 4, 6, 8, and 10 also have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. For outcomes in 2020, we also control for diabetes prevalence. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A10: Correlation Among Democracy Indices

	V-Dem	Polity	Freedom House	Economist Intelligence Unit
Panel A: Democracy Index for 2019				
V-Dem (2019)	1			
Polity (2018)	0.860	1		
Freedom House (2019)	0.946	0.842	1	
Economist Intelligence Unit (2019)	0.894	0.781	0.947	1
Panel B: Democracy Index for 2000				
V-Dem (2000)	1			
Polity (2000)	0.900	1		
Freedom House (2003)	0.935	0.888	1	
Economist Intelligence Unit (2006)	0.910	0.853	0.919	1

Notes: This table reports the pairwise correlations among the V-Dem, Polity, Freedom House, and Economist Intelligence Unit's democracy indices for democracy levels in 2019 (Panel A) and 2000 (Panel B). The publication year of each index is in parentheses. When data for democracy levels in 2019 or 2000 are unavailable, we use the index from the nearest available year. Variable definitions and data sources are in Appendix Table A2.

Table A11: 2SLS Regression with Alternative Democracy Indices

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A										
Dependent Variable is Mean GDP Growth Rate in 2001-2019										
Democracy Index (V-Dem, 2000)	-2.2 (0.3)	-3.4 (0.8)	-2.4 (0.4)	-3.4 (0.8)	-1.8 (0.5)	-1.5 (1.6)	-1.5 (0.9)	-1.4 (0.6)	-2.5 (0.5)	-1.9 (0.6)
Democracy Index (Polity, 2000)	-2.6 (0.3)	-2.9 (0.5)	-2.9 (0.6)	-3.9 (1.1)	-2.0 (0.5)	-1.2 (1.5)	-2.0 (1.0)	-1.7 (0.6)	-3.1 (0.6)	-2.4 (0.5)
Democracy Index (Freedom House, 2003)	-2.1 (0.4)	-2.7 (0.5)	-2.5 (0.4)	-3.9 (0.9)	-1.7 (0.6)	-1.2 (1.4)	-1.5 (0.9)	-1.4 (0.6)	-2.3 (0.5)	-1.8 (0.7)
Democracy Index (Economist Intelligence Unit, 2006)	-2.3 (0.5)	-2.9 (0.7)	-2.8 (0.6)	-4.8 (1.4)	-1.8 (0.7)	-1.4 (1.7)	-1.9 (1.1)	-1.7 (0.8)	-2.4 (0.6)	-1.8 (0.8)
Panel B										
Dependent Variable is GDP Growth Rate in 2020										
Democracy Index (V-Dem, 2019)	-1.7 (0.5)	-1.9 (0.3)	-1.5 (0.7)	-1.8 (0.3)	-1.8 (0.7)	-1.5 (0.4)	-2.2 (0.6)	-1.8 (0.4)	-2.2 (0.6)	-2.1 (0.3)
Democracy Index (Polity, 2018)	-2.2 (0.4)	-2.3 (0.3)	-2.0 (0.6)	-2.3 (0.3)	-2.1 (0.6)	-1.8 (0.5)	-3.2 (0.6)	-2.8 (0.7)	-2.8 (0.4)	-2.5 (0.4)
Democracy Index (Freedom House, 2019)	-1.9 (0.6)	-2.3 (0.3)	-1.8 (0.8)	-2.2 (0.3)	-1.9 (0.7)	-1.7 (0.5)	-2.6 (0.6)	-2.2 (0.6)	-2.5 (0.6)	-2.4 (0.4)
Democracy Index (Economist Intelligence Unit, 2019)	-1.8 (0.6)	-2.2 (0.4)	-1.7 (0.7)	-2.2 (0.4)	-1.9 (0.7)	-1.7 (0.5)	-2.5 (0.7)	-2.1 (0.6)	-2.5 (0.6)	-2.4 (0.4)
Panel C										
Dependent Variable is Covid-19 Deaths Per Million in 2020										
Democracy Index (V-Dem, 2019)	355.7 (76.6)	339.0 (38.0)	356.1 (71.8)	371.3 (26.2)	303.7 (81.8)	314.8 (52.7)	359.7 (97.0)	432.1 (74.6)	283.2 (69.6)	365.7 (49.5)
Democracy Index (Polity, 2018)	468.4 (151.2)	412.9 (62.0)	486.9 (167.8)	478.1 (60.6)	359.8 (134.2)	367.1 (81.7)	492.6 (199.1)	634.3 (172.7)	320.3 (106.3)	400.9 (87.3)
Democracy Index (Freedom House, 2019)	402.2 (98.5)	403.4 (52.9)	427.0 (109.5)	465.9 (46.9)	328.9 (107.5)	354.7 (77.6)	425.5 (131.6)	525.7 (109.9)	303.4 (91.7)	394.5 (70.2)
Democracy Index (Economist Intelligence Unit, 2019)	380.4 (94.9)	391.1 (57.6)	415.1 (106.3)	469.2 (47.0)	317.8 (105.9)	348.9 (81.5)	407.9 (117.1)	503.5 (104.0)	310.0 (84.9)	414.3 (66.6)
IVs	settler mortality		population density		legal origin		language & trade		crops & minerals	
Baseline Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	74	74	85	85	89	89	126	126	131	131

Notes: This table compares the results of 2SLS regressions on the mean GDP growth rate in 2001-2019 (Panel A), the GDP growth rate in 2020 (Panel B), and Covid-19-related deaths per million in 2020 (Panel C) using democracy indices by V-Dem, Polity, Freedom House, and the Economist Intelligence Unit. When data for the democracy index does not exist for the baseline year, we use the value from the closest year. We normalize all indices to have mean zero and standard deviation one. Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. For outcomes in 2020, we also control for diabetes prevalence. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). The estimates in this table are slightly different from those in Table 2 because this table uses only observations for which all of the democracy indices are available. Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A12: 2SLS Regression with Alternative Weightings

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A										
Dependent Variable is Mean GDP Growth Rate in 2001-2019										
Democracy Index (Weighting: GDP)	-2.2 (0.3)	-3.3 (0.7)	-2.3 (0.4)	-3.4 (0.8)	-1.8 (0.5)	-1.5 (1.6)	-1.2 (0.9)	-1.3 (0.6)	-2.4 (0.5)	-1.8 (0.6)
Democracy Index (Weighting: Population)	-1.5 (0.9)	-2.2 (1.0)	-3.9 (2.2)	-4.4 (1.5)	-0.9 (1.0)	-1.0 (1.0)	-3.0 (0.7)	-2.8 (0.7)	-3.3 (1.0)	-1.7 (0.7)
Democracy Index (Weighting: None)	-1.4 (0.6)	0.9 (5.1)	-1.6 (0.4)	-1.9 (0.7)	-1.3 (2.3)	-2.1 (5.3)	-1.4 (0.3)	-1.5 (0.5)	-1.2 (0.3)	-0.7 (0.7)
Panel B										
Dependent Variable is GDP Growth Rate in 2020										
Democracy Index (Weighting: GDP)	-1.7 (0.5)	-1.8 (0.3)	-1.5 (0.7)	-1.7 (0.3)	-1.7 (0.7)	-1.5 (0.4)	-1.8 (0.7)	-1.9 (0.5)	-2.2 (0.6)	-2.0 (0.3)
Democracy Index (Weighting: Population)	-5.2 (3.7)	-2.8 (1.4)	-1.2 (1.9)	-2.0 (0.8)	-5.0 (3.0)	-3.5 (1.6)	-2.4 (1.1)	-2.2 (0.7)	-2.6 (1.3)	-3.1 (0.9)
Democracy Index (Weighting: None)	-5.2 (4.0)	-73.2 (554.4)	-0.8 (2.9)	1.1 (4.9)	6.8 (8.1)	7.0 (7.0)	-2.8 (1.9)	-2.2 (3.0)	-2.8 (1.1)	-4.2 (2.2)
Panel C										
Dependent Variable is Covid-19 Deaths Per Million in 2020										
Democracy Index (Weighting: GDP)	350.0 (75.4)	332.3 (37.3)	349.1 (70.6)	363.7 (25.6)	298.1 (80.2)	308.3 (51.7)	437.5 (133.6)	432.0 (78.5)	278.5 (68.2)	359.0 (48.5)
Democracy Index (Weighting: Population)	514.4 (267.2)	305.5 (56.1)	414.7 (113.3)	391.9 (52.0)	41.1 (170.5)	155.3 (132.8)	467.2 (88.3)	433.6 (65.0)	307.2 (88.6)	291.7 (62.6)
Democracy Index (Weighting: None)	366.8 (150.7)	-271.4 (3870.6)	208.6 (73.3)	166.3 (88.4)	-367.1 (340.0)	-413.1 (275.2)	300.4 (73.2)	296.4 (132.8)	273.9 (65.2)	-154.1 (130.4)
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
N	77	77	89	89	93	93	136	136	142	142

Notes: This table compares the results of 2SLS regressions on the mean GDP growth rate in 2001-2019 (Panel A), the GDP growth rate in 2020 (Panel B), and Covid-19-related deaths per million in 2020 (Panel C) with weighting of observations by baseline GDP, weighting by baseline population, and no weighting. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. For outcomes in 2020, we also control for diabetes prevalence. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A13: 2SLS Regression Excluding the US and China

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A	Dependent Variable is Mean GDP Growth Rate in 2001-2019									
Democracy Index (V-Dem, 2000)	-2.2 (0.3)	-3.3 (0.7)	-2.3 (0.4)	-3.4 (0.8)	-1.8 (0.5)	-1.5 (1.6)	-1.2 (0.9)	-1.3 (0.6)	-2.4 (0.5)	-1.8 (0.6)
Include US & China?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	77	77	89	89	93	93	136	136	142	142
Democracy Index (V-Dem, 2000)	-1.5 (0.8)	-0.5 (3.0)	-2.3 (1.3)	-5.1 (4.9)	4.6 (8.8)	-20.1 (62.2)	-0.8 (1.2)	-1.2 (0.7)	-1.7 (0.5)	-0.08 (1.0)
Include US & China?	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
N	75	75	87	87	91	91	134	134	140	140
Panel B	Dependent Variable is GDP Growth Rate in 2020									
Democracy Index (V-Dem, 2019)	-1.7 (0.5)	-1.8 (0.3)	-1.5 (0.7)	-1.7 (0.3)	-1.7 (0.7)	-1.5 (0.4)	-1.8 (0.7)	-1.9 (0.5)	-2.2 (0.6)	-2.0 (0.3)
Include US & China?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	77	77	89	89	93	93	136	136	142	142
Democracy Index (V-Dem, 2019)	-1.5 (2.1)	-22.7 (202.7)	0.2 (1.4)	3.1 (4.1)	4.0 (20.2)	15.7 (82.3)	-2.4 (1.2)	-3.0 (1.3)	-1.8 (0.9)	-3.7 (2.0)
Include US & China?	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
N	75	75	87	87	91	91	134	134	140	140
Panel C	Dependent Variable is Covid-19-related Deaths Per Million									
Democracy Index (V-Dem, 2019)	350.0 (75.4)	332.3 (37.3)	349.1 (70.6)	363.7 (25.6)	298.1 (80.2)	308.3 (51.7)	437.5 (133.6)	432.0 (78.5)	278.5 (68.2)	359.0 (48.5)
Include US & China?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	77	77	89	89	93	93	136	136	142	142
Democracy Index (V-Dem, 2019)	-64.2 (197.2)	16004.9 (149508.4)	205.7 (150.6)	364.1 (274.2)	-4976.4 (21202.9)	-9580.3 (42301.8)	449.7 (207.6)	534.6 (219.3)	208.1 (117.3)	150.2 (143.1)
Include US & China?	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
N	75	75	87	87	91	91	134	134	140	140
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓

Notes: This table compares the results of 2SLS regressions on the mean GDP growth rate in 2001-2019 (Panel A), the GDP growth rate in 2020 (Panel B), and Covid-19-related deaths per million in 2020 (Panel C) under two sample definitions (include the US and China vs. exclude the US and China). The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. For outcomes in 2020, we also control for diabetes prevalence. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A14: 2SLS Regression Excluding Outliers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent Variable is Mean GDP Growth Rate in 2001-2019									
Democracy Index (V-Dem, 2000)	-2.1	-2.0	-2.0	-1.9	-2.0	-2.0	-0.9	-0.9	-2.1	-2.2
	(0.3)	(0.4)	(0.3)	(0.4)	(0.4)	(0.4)	(1.0)	(1.0)	(0.4)	(0.4)
N	72	75	84	86	87	86	127	126	133	134
	Dependent Variable is GDP Growth Rate in 2020									
Democracy Index (V-Dem, 2019)	-1.7	-1.7	-1.5	-1.5	-1.8	-1.8	-1.8	-1.8	-2.1	-2.1
	(0.5)	(0.5)	(0.7)	(0.7)	(0.6)	(0.6)	(0.7)	(0.7)	(0.6)	(0.6)
N	75	75	86	86	90	90	134	134	137	136
	Dependent Variable is Covid-19-related Deaths Per Million in 2020									
Democracy Index (V-Dem, 2019)	355.9	350.0	350.1	349.1	301.5	300.4	442.6	440.9	273.1	276.5
	(74.5)	(75.2)	(69.6)	(70.5)	(78.6)	(78.7)	(136.3)	(135.8)	(71.3)	(70.0)
N	76	74	88	88	92	89	132	132	138	138
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓

Notes: This table shows the results of 2SLS regressions on the mean GDP growth rate in 2001-2019, the GDP growth rate in 2020, and Covid-19-related deaths per million in 2020 excluding countries with a standardized residual above 1.96 or below -1.96. For each 2SLS regression, we run the baseline specification, calculate the fitted values, use the fitted values to calculate the residual in the second stage regression, standardize the residuals to have mean zero and variance one, and finally rerun the 2SLS regression with the sample definition limited to countries that have a standardized residual between -1.96 and 1.96. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. For outcomes in 2020, we also control for diabetes prevalence. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A15: 2SLS Regression Excluding G7 Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent Variable is Mean GDP Growth Rate in 2001-2019									
Democracy Index (V-Dem, 2000)	-2.0 (0.5)	-4.6 (4.6)	-2.5 (0.7)	-3.6 (1.6)	0.2 (2.8)	-25.5 (98.4)	-2.3 (0.6)	-2.9 (0.8)	-1.9 (0.6)	-1.1 (0.5)
	Dependent Variable is GDP Growth Rate in 2020									
Democracy Index (V-Dem, 2019)	-3.1 (1.4)	-2.8 (1.2)	-2.1 (0.9)	-1.4 (1.4)	-3.7 (1.9)	2.9 (16.3)	-2.5 (0.7)	-2.9 (1.0)	-2.3 (0.7)	-2.0 (0.9)
	Dependent Variable is Covid-19-related Deaths Per Million in 2020									
Democracy Index (V-Dem, 2019)	88.2 (91.5)	9.3 (158.4)	203.4 (108.7)	334.6 (98.3)	-108.8 (178.0)	-2866.5 (7920.8)	302.9 (98.4)	504.2 (113.3)	205.0 (47.4)	204.5 (114.1)
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
N	75	75	87	87	91	91	129	129	135	135

Notes: This table shows the 2SLS regression estimates of democracy's effect on the GDP growth rate in 2020, the mean GDP growth rate in 2001-2019, and Covid-19 deaths per million in 2020 that excludes G7 countries (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) from the sample definitions. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. For outcomes in 2020, we also control for diabetes prevalence. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A16: Democracy's Effect on Economic Growth by Decade

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: No Control for Baseline GDP										
	Dependent Variable is Mean GDP Growth Rate in 1981-1990									
Democracy Index (V-Dem, 1980)	-0.3 (0.6)	0.1 (1.4)	-1.1 (0.8)	-62.0 (420.2)	0.1 (0.7)	0.6 (1.0)	-0.6 (0.8)	-0.5 (1.0)	-1.0 (0.6)	-0.1 (1.0)
	Dependent Variable is Mean GDP Growth Rate in 1991-2000									
Democracy Index (V-Dem, 1990)	-0.9 (0.7)	-7.1 (6.6)	-1.2 (0.6)	-5.2 (2.9)	-0.7 (0.7)	-4.5 (6.6)	0.3 (1.2)	0.6 (1.0)	-1.0 (0.6)	0.3 (1.2)
	Dependent Variable is Mean GDP Growth Rate in 2001-2010									
Democracy Index (V-Dem, 2000)	-2.9 (0.4)	-4.2 (1.0)	-2.8 (0.5)	-3.5 (0.9)	-2.6 (0.5)	-2.8 (1.7)	-1.7 (1.1)	-1.9 (0.7)	-3.0 (0.6)	-2.5 (0.6)
	Dependent Variable is Mean GDP Growth Rate in 2011-2020									
Democracy Index (V-Dem, 2010)	-1.4 (0.3)	-1.7 (0.2)	-1.8 (0.3)	-2.3 (0.5)	-1.0 (0.6)	-1.0 (0.5)	-1.4 (0.5)	-1.4 (0.3)	-1.9 (0.3)	-1.8 (0.3)
Panel B: Control for Baseline GDP Per Capita										
	Dependent Variable is Mean GDP Growth Rate in 1981-1990									
Democracy Index (V-Dem, 1980)	2.0 (0.9)	1.6 (0.9)	90.4 (1941.6)	8.6 (10.6)	1.9 (0.7)	1.4 (0.6)	-0.2 (1.3)	-0.2 (0.9)	-0.7 (1.0)	0.5 (0.8)
	Dependent Variable is Mean GDP Growth Rate in 1991-2000									
Democracy Index (V-Dem, 1990)	-0.4 (2.3)	-0.9 (6.5)	-2.5 (1.3)	-4.4 (2.6)	2.4 (9.6)	9.2 (34.2)	0.1 (1.1)	0.7 (0.8)	-0.1 (0.6)	0.3 (0.9)
	Dependent Variable is Mean GDP Growth Rate in 2001-2010									
Democracy Index (V-Dem, 2000)	-1.8 (1.1)	-2.3 (3.5)	-2.2 (0.7)	-3.0 (1.2)	1.2 (4.7)	17.5 (66.2)	-2.2 (0.8)	-1.3 (0.5)	-2.6 (0.8)	-1.8 (0.6)
	Dependent Variable is Mean GDP Growth Rate in 2011-2020									
Democracy Index (V-Dem, 2010)	-1.3 (1.1)	0.8 (4.0)	-3.2 (1.0)	-4.9 (2.4)	1.2 (3.0)	12.6 (24.5)	-2.1 (0.7)	-1.5 (0.4)	-2.6 (0.6)	-1.7 (0.4)
Panel C: Control for Baseline Total GDP										
	Dependent Variable is Mean GDP Growth Rate in 1981-1990									
Democracy Index (V-Dem, 1980)	-0.7 (0.9)	-0.2 (1.5)	-3.5 (3.1)	-12.6 (14.6)	0.2 (1.1)	0.6 (1.1)	-3.6 (3.4)	-3.2 (3.5)	-1.0 (0.6)	-0.9 (1.6)
	Dependent Variable is Mean GDP Growth Rate in 1991-2000									
Democracy Index (V-Dem, 1990)	-1.1 (0.9)	-7.5 (7.8)	-1.7 (0.7)	-5.1 (2.3)	-0.8 (1.3)	-4.5 (7.5)	-0.5 (1.2)	0.7 (0.8)	-1.4 (0.6)	0.3 (1.1)
	Dependent Variable is Mean GDP Growth Rate in 2001-2010									
Democracy Index (V-Dem, 2000)	-2.7 (0.5)	-4.1 (1.6)	-2.6 (0.6)	-3.5 (0.9)	-1.9 (1.4)	-0.8 (3.5)	-1.7 (1.3)	-1.3 (0.7)	-3.2 (0.6)	-2.3 (0.8)
	Dependent Variable is Mean GDP Growth Rate in 2011-2020									
Democracy Index (V-Dem, 2010)	-1.7 (0.2)	-2.1 (0.4)	-2.1 (0.4)	-2.7 (0.5)	-1.1 (0.7)	-0.8 (0.8)	-1.8 (0.4)	-2.0 (0.6)	-2.1 (0.3)	-2.2 (0.4)
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Baseline Controls Other Than Baseline GDP	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
N	69	69	77	77	80	80	118	118	124	124

Notes: This table shows the 2SLS regression estimates of democracy's effect on mean GDP growth rates in 1981-1990, 1991-2000, 2001-2010, and 2011-2020. Panel A does not control for baseline GDP. Panel B controls for baseline GDP per capita. Panel C controls for baseline total GDP. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 2, 4, 6, 8, and 10 also have the following controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). The sample size is slightly different from that in Table 2 because this table uses only observations for which all GDP per capita and GDP growth rate data are available. Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A17: Potential Mechanisms in 2001-2019 with Control for Baseline GDP

	Investment Share in GDP (%)		Import Value Index (2000=100)		Export Value Index (2000=100)		Manufacturing, Value Added (Annual % Growth)		Services, Value Added (Annual % Growth)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: OLS										
Democracy Index (V-Dem, 2000)	-4.8	-4.3	-72.8	-76.6	-59.5	-63.2	-1.2	-1.0	-1.4	-1.3
	(1.6)	(1.4)	(19.3)	(18.4)	(26.7)	(23.0)	(0.3)	(0.3)	(0.4)	(0.4)
N	154	154	162	162	162	161	161	159	159	159
Panel B: Instrument for Democracy by Settler Mortality										
Democracy Index (V-Dem, 2000)	1.7	1.0	105.5	542.7	37.7	72.9	3.1	-2.9	-0.08	1.3
	(8.8)	(34.3)	(146.4)	(2927.5)	(142.0)	(644.4)	(5.5)	(3.9)	(2.0)	(18.3)
N	72	72	77	77	77	77	76	76	77	77
Panel C: Instrument for Democracy by Population Density in 1500s										
Democracy Index (V-Dem, 2000)	-8.3	-9.1	-105.5	-98.5	-68.2	-54.5	-3.3	-3.6	-2.4	-2.9
	(2.6)	(2.7)	(54.6)	(51.3)	(39.5)	(33.7)	(1.8)	(1.5)	(0.7)	(0.8)
N	84	84	89	89	89	89	87	87	87	87
Panel D: Instrument for Democracy by Legal Origin										
Democracy Index (V-Dem, 2000)	6.1	44.4	585.9	2847.0	173.8	1495.4	-20.0	-22.4	8.3	159.8
	(26.7)	(260.8)	(1513.1)	(21265.3)	(572.2)	(11203.5)	(44.4)	(45.2)	(29.1)	(4974.5)
N	88	88	93	93	93	93	91	91	91	91
Panel E: Instrument for Democracy by Language										
Democracy Index (V-Dem, 2000)	-8.0	-7.5	-115.6	-123.7	-80.1	-82.4	-3.2	-3.7	-1.6	-1.4
	(1.6)	(1.9)	(27.9)	(36.2)	(33.2)	(37.2)	(1.1)	(1.3)	(0.5)	(0.6)
N	128	128	135	135	135	135	134	134	133	133
Panel F: Instrument for Democracy by Crops and Minerals										
Democracy Index (V-Dem, 2000)	-9.8	-8.4	-113.7	-108.3	-93.5	-95.2	-2.4	-1.9	-2.0	-1.9
	(1.5)	(2.0)	(33.8)	(23.5)	(37.7)	(36.2)	(0.7)	(1.0)	(0.8)	(0.6)
N	133	133	141	141	141	141	139	139	138	138
Baseline Controls Other Than Baseline GDP	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓

Notes: This table reports the OLS (Panel A) and 2SLS (Panels B-F) regression estimates of democracy's effect on potential mechanisms in 2001-2019 with controls for GDP per capita and total GDP in 2000. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. The dependent variables are the mean of each of the following variables in 2001-2019: investment share in GDP (%) (columns 1-2), the import value index (2000=100) (columns 3-4), the export value index (2000=100) (columns 5-6), manufacturing, value added (annual % growth) (columns 7-8), and services, value added (annual % growth) (columns 9-10). For IVs, Panel B uses log European settler mortality, Panel C uses log population density in the 1500s, Panel D uses British legal origin, Panel E uses the fraction speaking English and the fraction speaking European, and Panel F uses the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). All columns control for GDP per capita and total GDP in 2000. Columns 2, 4, 6, 8 additionally control for absolute latitude, mean temperature, mean precipitation, population density, and median age. Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A18: Additional Mechanisms in 2001-2019

	Log of Tax Share in GDP		Log of Primary-School Enrollment		Log of Secondary-School Enrollment		Log of Child Mortality	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: OLS							
Democracy Index (V-Dem, 2000)	0.2	0.1	0.02	0.005	0.1	0.003	-0.5	-0.002
	(0.1)	(0.1)	(0.01)	(0.01)	(0.03)	(0.03)	(0.10)	(0.07)
N	132	132	156	156	148	148	164	164
	Panel B: Instrument for Democracy by Settler Mortality							
Democracy Index (V-Dem, 2000)	-0.008	0.04	0.06	0.004	0.5	0.07	-0.8	-0.2
	(0.07)	(0.1)	(0.03)	(0.2)	(0.08)	(0.2)	(0.4)	(0.2)
N	57	57	73	73	66	66	77	77
	Panel C: Instrument for Democracy by Population Density in 1500s							
Democracy Index (V-Dem, 2000)	0.02	0.2	0.06	0.10	0.4	0.10	-0.7	-0.2
	(0.05)	(0.1)	(0.03)	(0.09)	(0.08)	(0.2)	(0.3)	(0.1)
N	66	66	84	84	76	76	89	89
	Panel D: Instrument for Democracy by Legal Origin							
Democracy Index (V-Dem, 2000)	-0.06	-0.10	-0.02	0.8	0.4	0.8	-0.7	0.3
	(0.09)	(0.2)	(0.02)	(1.4)	(0.09)	(1.0)	(0.3)	(0.3)
N	69	69	88	88	80	80	93	93
	Panel E: Instrument for Democracy by Language							
Democracy Index (V-Dem, 2000)	-0.08	-0.1	0.001	-0.02	0.1	0.03	0.1	0.1
	(0.2)	(0.1)	(0.02)	(0.06)	(0.05)	(0.07)	(0.6)	(0.1)
N	109	109	131	131	124	124	136	136
	Panel F: Instrument for Democracy by Crops and Minerals							
Democracy Index (V-Dem, 2000)	0.2	-0.04	0.03	0.03	0.2	0.008	-0.8	-0.05
	(0.1)	(0.09)	(0.02)	(0.03)	(0.06)	(0.05)	(0.3)	(0.09)
N	112	112	135	135	127	127	142	142
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓

Notes: This table reports the OLS (Panel A) and 2SLS (Panels B-F) regression estimates of democracy's effect on potential mechanisms in 2001-2019. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. The dependent variables are the mean of each of the following variables in 2001-2019: log tax share in GDP (columns 1-2), log primary school enrollment (columns 3-4), log secondary school enrollment (columns 5-6), and log infant mortality (columns 7-8). The reported coefficient for democracy is multiplied by 100. For IVs, Panel B uses log European settler mortality, Panel C uses log population density in the 1500s, Panel D uses British legal origin, Panel E uses the fraction speaking English and the fraction speaking European, and Panel F uses the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, and median age. Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A19: Democracy’s Effect on Excess Deaths in 2020

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent Variable is Excess Deaths Per Million in 2020									
Democracy Index (V-Dem, 2019)	-774 (945)	17631 (76623)	-889 (842)	2242 (1909)	-177 (782)	6708 (11461)	1170 (1408)	98 (385)	-134 (362)	4 (334)
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
N	19	19	19	19	20	20	53	53	52	52

Notes: This table shows the results of 2SLS regressions on excess deaths per million in 2020. Excess deaths per million in 2020 is the total number of deaths in 2020 in excess of the number of deaths which we might normally have expected in 2020. The model to calculate the baseline fits a linear trend to years to adjust from long-term increases or decreases in deaths and fixed effects for each week or month. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, median age, and diabetes prevalence. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A20: 2SLS Regressions on Potential Policy Mechanisms Behind Democracy's Effect in 2020

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Severity	Dependent Variable is Containment Health Index at 10th Covid-19 Case (unit: std. deviation)									
Democracy Index (V-Dem, 2019)	-0.5 (0.07)	-0.4 (0.04)	-0.4 (0.05)	-0.4 (0.03)	-0.4 (0.06)	-0.4 (0.04)	-0.4 (0.08)	-0.4 (0.05)	-0.3 (0.06)	-0.4 (0.04)
Panel B: Coverage	Dependent Variable is Coverage of Containment Measures at 10th Covid-19 Case (unit: %)									
Democracy Index (V-Dem, 2019)	-11.7 (2.0)	-8.9 (0.8)	-10.4 (1.5)	-9.3 (0.5)	-9.6 (1.7)	-7.9 (1.3)	-9.5 (2.4)	-9.1 (1.2)	-8.3 (1.4)	-9.2 (0.8)
Panel C: Speed	Dependent Variable is Days Between 10th Covid-19 Case and Any Containment Measure (unit: days)									
Democracy Index (V-Dem, 2019)	-0.8 (3.2)	-2.6 (1.1)	-3.2 (2.3)	-4.2 (1.3)	-3.4 (2.7)	-4.5 (1.7)	-1.0 (2.8)	-1.3 (1.9)	-0.8 (2.3)	-5.3 (1.5)
IVs	settler mortality		population density		legal origin		language		crops & minerals	
Baseline Controls	✗	✓	✗	✓	✗	✓	✗	✓	✗	✓
N	76	76	87	87	91	91	133	133	136	136

Notes: This table reports the 2SLS estimates of democracy's effect on potential policy mechanisms behind democracy's negative impact in 2020, using five different IV strategies. Panel A reports the 2SLS estimates of democracy's effect on the containment health index at the 10th confirmed case of Covid-19. It is normalized to have standard deviation one. Panel B reports the 2SLS estimates of democracy's effect on the coverage of containment measures at the 10th confirmed case of Covid-19. Panel C reports the 2SLS estimates of democracy's effect on the number of days between the 10th confirmed case of Covid-19 and the introduction of any containment measure. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. Columns 1, 3, 5, 7, and 9 have no controls, while columns 2, 4, 6, 8, and 10 have the following baseline controls: absolute latitude, mean temperature, mean precipitation, population density, median age, and diabetes prevalence. For IVs, columns 1 and 2 use log European settler mortality, columns 3 and 4 use log population density in the 1500s, columns 5 and 6 use British legal origin, columns 7 and 8 use the fraction speaking English and the fraction speaking European, and columns 9 and 10 use the ability to grow crops and mine minerals (bananas, coffee, copper, maize, millet, silver, sugarcane, rice, rubber, and wheat). Robust standard errors are in parentheses. Variable definitions and data sources are in Appendix Table A2.

Table A21: Causal Mediation Analysis of Potential Policy Mechanisms in 2020

	(1) Severity	(2) Coverage	(3) Speed
Panel A	Dependent Variable is GDP Growth Rate in 2020		
Total Effect of Democracy	-5.1 (4.0)	-5.1 (4.0)	-5.1 (4.0)
Direct Effect of Democracy	-0.4 (1.9)	-0.6 (1.6)	-0.1 (4.2)
Indirect Effect Through Mediator	-4.7 (5.6)	-4.5 (5.1)	-5.0 (13.7)
Panel B	Dependent Variable is Covid-19 Deaths Per Million in 2020		
Total Effect of Democracy	363.3 (149.9)	363.3 (149.9)	363.3 (149.9)
Direct Effect of Democracy	109.2 (49.9)	119.5 (42.7)	91.5 (202.4)
Indirect Effect Through Mediator	254.0 (173.4)	243.7 (157.1)	271.7 (701.8)
N	76	76	76

Notes: This table reports the results of causal mediation analyses of democracy's effect on each outcome in 2020 with three potential mediators: severity, coverage, and speed of policy responses. All regressions use log European settler mortality as an IV. The Democracy Index (V-Dem) is normalized to have mean zero and standard deviation one. We proxy for severity by Oxford COVID-19 Government Response Tracker's Containment Health Index at the 10th confirmed Covid-19 case, for coverage by the number of domains the policy covers at the 10th confirmed Covid-19 case, and for speed by the number of days between the 10th case of Covid-19 and the date when the government introduces any containment measure. This analysis implements the causal mediation analysis framework for linear IV models introduced by Dippel et al. (2020). It estimates three effects: (i) the total effect of a single treatment variable (democracy) on the outcome (GDP growth rates in 2020 or Covid-19 deaths per million in 2020), where the treatment variable is instrumented by a single IV (log European settler mortality), (ii) the direct effect of treatment on the outcome, net of the effect of the mediator, and (iii) the indirect effect (mediation effect) of a mediator (severity, coverage or speed of initial response) through which the treatment variable affects the outcomes. Under linearity, the resulting identification framework is estimated using three separate 2SLS estimations of the effect of treatment on the mediator, the effect of treatment on the outcome, and the effect of the mediator on the outcome conditional on treatment. All regressions are unweighted. The estimates in this table are slightly different from those in Table A12 because this table uses only observations for which data for all mediators are available. Robust standard errors are in parentheses.

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