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Impact of democracy on economic, human, and societal development

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How does democracy affect economic, human, and societal development? We review the scientific evidence on this question from 2010 to present, finding that democracy improves economic growth, population health, gender equality, and peace. However, we find that empirical findings are either mixed or null for democracy's effect on economic inequality and poverty, corruption, and education. Our review goes beyond the summary statistics of meta-analyses, considering also the methodological rigor and effect sizes of the studies reviewed in order to provide a more insightful answer to the question of what we really know about the impact of democracy. Where democracy is found to have a robust effect, the impacts are often substantial. Finally, we critically discuss challenges to the study of societal impacts of democracy and outline ways of improving research going forward.

Is regime type consequential for economic, human, and societal development? If so, how and why does it matter whether a country is a democracy or not? To answer those research questions is the objective of this review. Our findings show that there is robust evidence that democracies produce better outcomes on some—but not all—economic, human, and societal developments.

The social impact of how we govern our societies has occupied generations of thinkers, wondering if dissimilarities between autocracy and democracy could be partially responsible for differences in economies, human and societal development. The perhaps most well-known is Nobel Laureate Amartya Sen's (Sen, 1999) observation that democracies avoid the worst outcomes, such as famines.

Yet we lack a comprehensive evaluation of accumulated knowledge. Some existing efforts employ illuminating meta-analyses (Colagrossi et al., 2020; Gerring et al., 2022). However, these accounts overlook two critical questions that influence what we really know: Are research designs strong or weak; and are effect sizes substantively meaningful? The former question is important given the leaps taken in both data and statistical modelling over the last decades. The latter matters since, among findings with statistical significance, only those indicating a substantively meaningful impact of democracy really matter in the real world.

Widespread democratic backsliding (Bermeo, 2016), or autocratization (Lührmann and Lindberg, 2019), enveloping populous and internationally powerful countries such as India, the Philippines, and Türkiye, makes these questions even more consequential. By one recent

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estimation, 71% of the world population lives in autocracies—up from 46% ten years earlier—while 42 countries are autocratizing (Wiebrecht et al., 2023).

Meanwhile, authoritarian governments, most notably China, now claim superiority in delivering goods and services to their citizens (Dukalskis, 2017; Dukalskis, 2021). Buttressed by sizable economic growth rates in recent years, states like Rwanda have emphasized efficient rule as opposed to democratic accountability. Autocracies are increasingly using trade, aid, and diplomatic ties to promote autocratic rule (Bader, 2015; von Soest, 2015).

What is 'democracy'?

There are two main schools of thought on what constitutes modern representative democracy. The minimalist definition draws the line at competitive elections and somewhat widespread suffrage (Schumpeter, 2013). A more inclusive conceptualization also stresses freedom of expression and association (Dahl, 1971) and is the most widely accepted. Several characteristics have been suggested on top of this (Coppedge et al., 2011), but these two are the common ground. The studies reviewed below use varying measures of regimes, but the specific choice of conceptualization is not part of our selection criteria. Autocracies also vary. Among "classic" dictatorships, authors distinguish between, e.g., monarchies, one-party, and military dictatorships (Linz, 1978; Geddes et al., 2014). More recent classifications add "hybrid", "competitive", or "electoral" authoritarian regimes (Levitsky and Way, 2010; Schedler, 2013; Lührmann and Lindberg, 2019). Yet, what unites autocracies is that they are lacking in the core aspects of free, fair, and competitive elections and/or freedoms of expression and association in the definitions of studies reviewed here (Geddes et al., 2018). Most studies reviewed use indices capturing degrees between the extremes rather than categorical measures, and do not analyze differences between other variations.

Why should democracy outperform autocracy?

We review here recent advances in research across a range of disciplines that analyze the effect of political regimes. Yet theoretical contributions to this line of questions go back a long time. Plato famously argued that an absolutist philosopher monarchy—rule by an enlightened autocrat—constituted a superior form of government to democracy. Kant theorized that democratic polities would have better outcomes by creating a "democratic peace". Contemporary thinkers have suggested different theories providing distinct expectations on the relationship between regimes and social outcomes. Our purpose is not to evaluate these, but we touch briefly on two examples to convey the intuitions of two main strands of thinking.

Some scholars expect democracies to perform worse than autocracies, pointing to myopic decision-making that prioritizes short-term gains over long-term goals in order to win elections, and that the larger number of "veto players" slows down decision-making processes (Tsebelis, 2011; Jacobs, 2016). Authoritarianism has therefore sometimes been suggested as a more efficient regime type (Beeson, 2010; Mittiga, 2022).

Others argue that democracies outperform autocracies. Likely the most intuitive formulation of this logic is "selectorate theory" (Mesquita et al., 2005). Used to explain variations across and within regimes, it posits that political leaders stay in power by distributing benefits to those that keep them in power—the selectorate. This is a small faction in autocracies but a broad electorate in democracies. Consequently, democratic governments should be motivated to generate growth, distribute public goods including education and health services, pursue popular policies benefitting the broad citizenry, and avoid imposing suffering. Meanwhile, autocrats should be inclined to only dispense rents and spoils to regime elites and be less sensitive to the public's opinions and suffering.

Selectorate theory is influential in explaining differences across and within regimes, but there are also other theoretical frameworks that explain these relationships. For example, many studies on economic growth are inspired by "institutionalists" who argue that democratic systems, with their individual rights and rule of law, provide credible commitments that enable investment and growth (North, 1990). Theories of democracy's impact on inequality typically relate more to models on the median voter and income distribution within the electorate (Meltzer and Richard, 1981).[1] A throughline across these arguments, however, is the intuition that the size of the "selectorate" impacts a range of outcomes in fundamental ways.

Contemporary debates on the impacts of political regimes first applied rudimentary statistical analysis (Lipset, 1959) and fed into "modernization theory" with empirics showing higher levels of development among democracies. It became one of the most intensely debated relationships in the social sciences, including discussions of reverse causality (Bollen and Jackman, 1985; Przeworski et al., 2000; Boix and Stokes, 2003). The scientific quest to understand the effects of democracy later spread to other societal outcomes, not least economic and human development.

The voluminous scholarly literature on how and why political regimes impact societies not only engage social scientists but increasingly researchers in health, medicine, biology, and technology. Across sciences, success in this research depends critically on the quality of underlying data and methodological rigor. Advances have been made in both areas in recent years.

Quantifying regimes and their impact. Greater sophistication in the conceptualization and measurement of political regimes, access to detailed data covering long stretches of time, and advances in analytical techniques for cross-country time-series data have catalyzed recent advances in research on the effects of democracy. In this section, we review the advances in these areas.

Identifying political regimes

Measuring democracy and categorizing countries into democracies and autocracies has been wrought with difficulties, such as how to capture unobservable, latent traits (e.g., the quality of elections or the extent of de facto media freedom). Important steps have been taken to deal with these difficulties, and a number of cross-country measures with long time series have made the current advances in assessing the impact of democracy possible (Coppedge et al., 2017; Boese, 2019).

Four measures are prominent in the literature we review here. The Polity2 measure has data going back to 1800 based on a minimal definition of democracy, with ratings given by in-house coders. Freedom House's more detailed measures of political and civil liberties have data going back to 1972 and offer some capacity for disaggregation into the components of rights and liberties. Third, building on Przeworski's and others' (2000) earlier work, Boix et al. (2013) provide a dichotomous measure of regime type based on whether free and fair elections with extended suffrage take place. The most recent and detailed source of data on democracy is the Varieties of Democracy (V-Dem) dataset, which includes over 30 million data points going back to 1789. The V-Dem dataset leverages over 4,200 country experts to provide ratings across 500 indicators and 202 entities. It then aggregates these responses using Bayesian item response theory models, which correct for experts' differential item functioning (DIF) and varying reliability (Pemstein et al., 2018). Indicators are used to construct indices of democracy that allow for extensive

disaggregation. These advances in data enabled a new generation of analyses across the sciences that we review here. While V-Dem arguably offers the most advanced and comprehensive measure of democracy, most studies in this review use Polity or Freedom House to measure democracy.

Allowing more robust causal inference

Studying effects of regime type on socio-economic and human outcomes is naturally restricted to observational analysis, posing issues of potential reverse causality and endogeneity (Przeworski et al., 2000). The evolution in this field has now left behind fairly rudimentary models, and recent advances include varying time lags (Bellemare et al., 2017), estimating reverse causality (Leszczensky and Wolbring, 2022), more complex model specifications (Bell and Jones, 2015), including appropriate robustness tests (Neumayer and Plümper, 2017) and counterfactuals (Liu et al., 2024), incorporating synthetic controls (Abadie et al., 2015) or instrumental variables (Sovey and Green, 2011), and employing difference-in-differences designs. Some of these developments reflect a move towards causal identification strategies striving to approximate exogenous variation and assumptions for causal identification. (Torreblanca et al., 2025).

Methodological advances and higher-quality data thus enable recent studies to produce more precise and reliable estimates of the societal impacts of democracy and autocracy, especially since around the year 2010. Nevertheless, limitations remain regarding causal identification given the primary reliance on observational data (Imai and Kim, 2021). Thus, while research designs have been influenced by causal identification strategies, truly exogenous variation in treatment assignment will remain impossible in studies of political regimes.

There may also be concerns surrounding issues of p-hacking and pro-democracy biases, i.e., studies that confirm democracy's positive effects may be more likely to be published (Knight, 2003). As a problem affecting studies across most, if not all, fields, we cannot entirely rule out these concerns. Yet, we have reason to believe that by focusing on more recent studies with more advanced modeling strategies and studies published in higher-ranking journals, we at least alleviate these apprehensions. The sample of studies we include is generally less subject to such biases (Gerring et al., 2022), in part because publication bias has been reduced over time (O'Hara, 2011).

Inclusion criteria

We identify outcomes for this review based on the Sustainable Development Goals (SDGs), because they represent a globally accepted set of development goals. We exclude SDGs that relate to sustainability, the environment, and climate change. Studies on the relationship between democracy and these outcomes encapsulate a vast variety of literature that necessitates a separate treatment. Further, two recent reviews on democracy's impacts on the environment and climate change (Pickering et al., 2022; Lindvall and Karlsson, 2023) already provide evidence in these areas. The economic, human, and societal outcomes under review here (growth, economic inequality, poverty, corruption, public goods, health, education, gender equality, interstate peace, and intrastate peace) map onto SDGs 1–6, 8–10, and 16.

We review studies published in peer-reviewed journals going back to 2010.[2] The justification for this cut-off follows from the methodological and data improvements detailed above. Our inclusion criteria are based on three factors. First, we only include studies specifically designed to assess the direct impact of regime type on each outcome and that use data fit to make credible claims about generalizable impacts. We thus exclude studies that, by design do not allow for inference about the direct and generalizable effects of democracy, for instance, when regime type is merely included as control or moderating variable, or data is only cross-sectional. In practice, the cutoff before 2010 excludes many of the studies lacking requisite statistical sophistication or sufficiently solid underlying data.

Second, we focus exclusively on the outcomes mentioned previously, rather than policy outputs. For example, we exclude studies that look at public spending or the introduction of certain policies. To determine the impact of regimes, we focus only on those studies that immediately study the outcomes of interest, such as levels of poverty, rather than spending on poverty-alleviating measures. Third, we follow Gerring et al. (2022) in excluding studies whose sample is to small (N countries < 60) to avoid regional- or level of development-specific effects. Table A1 in the supplementary materials includes a comprehensive list of excluded studies along with reasons for exclusion.

These criteria allow us to focus on the most rigorous available studies analyzing the direct effects of regime type, rather than every study that in one way or another speaks to the subject, regardless of its quality.

Our contribution

Our review primarily offers a qualitative, in-depth reading of the literature. We scrutinize the research beyond summary statistics to evaluate the state of knowledge, focusing especially on the methods employed and the size of effects identified by existing studies.

This approach responds to two key limitations of existing reviews in this area, such as Gerring et al. (2022) (see also Colagrossi et al. (2020) and Knutsen (2021) for reviews of economic growth). First, previous reviews do not consider large variation in the sophistication, quality, and robustness of existing research designs, beyond simple indicators such as whether the baseline model is cross-sectional, whether the model uses fixed effects, etc. (Gerring et al., 2022). Many existing studies feature research designs that deal poorly with endogeneity, have small sample sizes, utilize doubtful underlying data, and include weak or nonexistent robustness tests, among other limitations. Existing reviews give the same weight to results from studies with these limitations and the most well-designed studies. In contrast, our review evaluates not only the findings of existing research but also our confidence in these findings based on the sophistication of the underlying research designs. Our research thus makes an important contribution to existing knowledge, especially given the above-mentioned improvements in research designs and data in the last 15 years.

Second, existing work overlooks effect sizes or assesses them crudely and in aggregate using partial correlation coefficients (Colagrossi et al., 2020), despite effect sizes being critical to the discussion of the impact of democracy on economic and societal outcomes. In practice, miniscule substantive effects are largely irrelevant to practitioners. Our approach thus moves beyond current knowledge, which is based merely on meta-analyses of statistical significance, by evaluating the *substantive effects* of democracy.

These improvements upon existing work allow us to speak both to how important regime type is (if at all) for each of the outcomes as well as the precision and credibility with which current research can make such claims. Moreover, the approach here also allows us to identify common challenges to these research fields that have not been visible in existing work.

Naturally, given the number of studies, we have sought to give a more in-depth account of some studies that are nonetheless representative of the state of what we know. The full sample of studies is found in the supplementary materials. When discussing

the state of each field, we at times make use of literature outside of the inclusion criteria if they offer important insights. For example, we reference some micro-level natural experiments that clarify causal mechanisms. Hence, additions exclusively aid the interpretation.

Finally, we believe our review improves upon previous studies by use of more unremitting inclusion criteria. In contrast with previous work, we exclude studies where research designs less reliably allow for inferences about the effects of democracy or the underlying data is weak. Our sample, therefore, speaks to the direct effects of regime type and leverages the best available quantitative evidence, rather than including most or all studies available regardless of their quality.

Effects of democracy on societies

Statistical meta-level analysis. As a first step, and to provide a generalized picture, we replicate the analytical strategy of Gerring et al. (2022) meta-analysis for our sample. We report "normatively adjusted *t*-statistics," from the benchmark (i.e., baseline) model of each study, where positive signs mean that democracy has a normatively good outcome (e.g., less poverty) and negative signs indicate the opposite. Figure 1 presents these results, allowing for easy comparison of the statistical significance and direction of the effects of democracy on various outcomes.

In terms of an overall picture of democracy's dividends, Fig. 1 shows some variation. While there is overall support for positive effects of democracy on growth, health, gender equality, and peace, there are more mixed findings for the effect of democracy on inequality and poverty, education, and corruption. These summary statistics provide an overview of the sample of studies and hint at the findings.

It is important to note the variation in the number of analyses included for each area. This variation reflects the available evidence and influences our confidence in the general effects that the Figure identifies. The mean number of countries exceeds 100, and the mean number of years studied is 30 or more in all areas. The mean number of observations varies quite a lot, with inequality and poverty having the fewest, and interstate peace studies being an outlier due to studies assessing country-dyads that multiply the number of observations. The full dataset is available for download alongside the supplementary material.

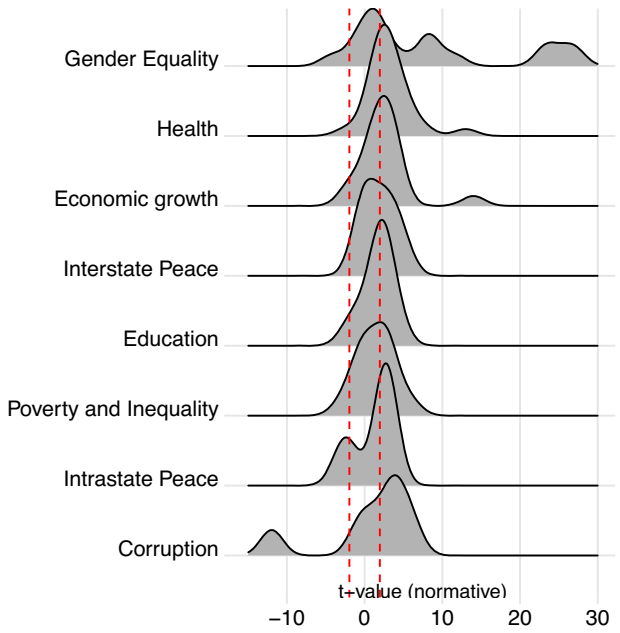

Fig. 1 Distribution of normative t-statistics by outcome.

In the appendix, Table A2 provides summary statistics for the full sample of 120 analyses, derived from 87 studies, that meet the criteria. It includes the number of analyses; mean number of countries, years, and observations for each of the eight outcomes, as well as the mean and median of the normative *t*-values; and the number of analyses demonstrating negative, null, and positive effects of democracy.

Economic impact: growth. Democracies typically have higher economic growth rates than autocracies. Between 1800 and 2009, democracies averaged 2.6% annual growth, while autocracies averaged 1.5% (Knutsen 2021). Democracies are also less subject to catastrophic economic outcomes than autocracies. For example, between 1990 and 2009, 7.1% of democracies experienced negative growth, whereas, 28.3% of autocracies did (Knutsen 2021).

Several recent articles suggest that democracy causes growth (Knutsen and Wig, 2015; Gründler and Krieger, 2016; Colagrossi et al., 2020). An influential study using a dynamic panel model, propensity score matching allowing for the generation of a control group comparable to democratizers, and instrumental variables on a panel of 175 countries from 1960 to 2010, finds consistent evidence that democratization led to 20 percentage points higher GDP per capita 25 years after transition (Acemoglu et al., 2019). Scrutinizing these findings by adopting the same dataset but relaxing the assumption that the effect of democratization is homogenous, a difference in difference estimation finds that the average effect size of democratization is rather at around 10% increase in GDP per capita (Eberhardt, 2022). Another recent difference in difference estimation that employs tools to account for the selection into the "treatment" of democratization finds that it yields around 30 percentage points higher economic growth 50 years post transition (Boese-Schlosser and Eberhardt, 2024). A panel study of 141 countries between 1820 and 2000 employing an instrument for democracy based on the level of democracy in linguistically similar countries finds that moving from autocracy to democracy leads to a national income increase between 125 and 278% (Madsen et al., 2015).

Yet not all studies find a robust effect on growth. For example, after employing system GMM estimation (Murtin and Wacziarg, 2014) and fixed effects panel data regression (Cheibub et al., 2010) for large cross-national time-series panels, some studies find no robust relationship between democracy and growth (Yang, 2011; Wu, 2012; Williams, 2014; Magee and Doces, 2015). Others suggest that the effect is conditional by mediating factors (Cervellati and Sunde, 2014; Kim and Han, 2015; Sen et al., 2018). For example, one study using a fixed effects regression on a panel of 153 countries from 1960 to 2010 finds that democratization on average increasing GDP per capita by 35% in more developed economies, but has no discernable effect in low-income settings (Sima and Huang, 2023).

The analysis of how growth impacts democracy has become more sophisticated as causal identification strategies have improved. With this development, we also observe more consistent evidence of a positive effect of democracy, and typically of a quite large magnitude. Given the mixed findings from studies published before 2010, however, the relationship remains contested. Some scholars suggest that the variation in results is attributable to choices of model specification, control variables, democracy measures, and temporal scope (Knutsen and Wig, 2015; Knutsen, 2021) or to failing to account for the time frame of the expected effect (Acemoglu et al., 2019; Knutsen, 2021). Yet, the case for a causal effect of democracy on growth has gained substantial strength over the last 15 years. Further

scrutinizing of the causal connection is needed, given that there is good reason to expect some endogeneity, and researchers should probe what explains the varying effect sizes.

Economic impact: poverty and inequality. The impact of democracy on poverty is contested. Many studies have used proxies for poverty, such as infant mortality, with only a few recent articles empirically examining the relationship directly. One study finds in a panel of 140 countries between 1980 and 2018, no robust association in a dynamic panel regression, but finds an 11-14% reduction in poverty in the five years following democratization when estimating non-parametric treatment effects (Dörffel and Freytag, 2023). Another study employing a difference-in-differences estimation of 114 countries between 1995 and 2015 finds that democracy reduces the share of poor citizens by about 5% (Gao and Zang, 2022).

While some studies find that democracy reduces income inequality (Islam, 2016; Padovano et al., 2021), most research has repeatedly failed to find any robust association even when accounting for issues of endogeneity, as most studies in this line of work do (Timmons, 2010; Knutsen, 2015; Nikoloski, 2015; Scheve and Stasavage, 2017). For example, a fixed effects panel regression on a sample of 184 countries between 1960 and 2010 finds no impact of democratization on economic inequality (Acemoglu et al., 2015). Others have shown that the relationship might be conditional, for example, that democratization only improves redistribution if elites are weak during transition (Albertus and Menaldo, 2014), or if levels of inequality are extreme (Dorsch and Maarek, 2019). Others highlight the importance of economic factors such as capital exit options, FDI, and globalization as important mediating variables (Wong, 2016; Bahamonde and Trasberg, 2021).

The relatively weak cumulative evidence of democracy's effect on reducing poverty, and the seeming non-relationship to reducing inequality, is surprising given theoretical expectations that more accountability should lead to further redistribution. There are many potential explanations for this. For example, research shows that autocracies redistribute more via taxes and cash transfers, whereas democracies focus resources on public goods (Kammas and Sarantides, 2019), and in some wealthy democracies, many policies serve the interests of the rich (Gilens, 2012).

Further attempts at causally identifying the effects of democracy are needed, as well as analyses of conditionality. Micro-level evidence could serve as an inspiration here, as a number of (quasi-)experimental studies have shown important effects through precise causal channels (Pande, 2020). Electoral mechanisms are evidenced in an experiment in Sierra Leone where increased accountability led to legislators spending 2.5 times more funds on development projects (Bidwell et al., 2020). Another experiment demonstrated that fairer elections led members of parliament in Ghana to spend 19% more on local development (Ofosu, 2019). There is limited cross-national evidence finding that democracy reduces poverty, and even less showing that it has a direct effect on reducing inequality.

Economic impact: corruption. Analyses of the relationship between democracy and corruption have repeatedly found it to be ∩-shaped: the most authoritarian and the most democratic states are the least corrupt (Charron and Lapuente, 2010; Peyton and Belasen, 2012; Saha et al., 2014; Jetter et al., 2015). As a result, some studies have found insignificant results when estimating linear models (Kalenborn and Lessmann, 2013). Analysis of panel data with fixed effects regressions, including 174 countries over a span of 50 years, shows that democratization curtails corruption and that "having one year of democracy contributes to a 13–28% standard deviation increase in state capacity" (which includes the lack of bureaucratic corruption) in the long term (Wang and Xu, 2018). A study assessing a panel of 179 countries between 1900 and 2015 using year- and country-fixed effects finds similar effects (McMann et al., 2020). The introduction of free and fair elections, for instance, is linked to a modest but statistically significant decrease in corruption of 0.007 on V-Dem's Corruption Index, ranging from 0 to 1. This study also demonstrates that freedom of expression and association are driving this curvilinear relationship, and elections only reduce corruption when they become highly free and fair, suggesting that deficient democracies are not 'good enough' to curtail corruption.

While the relationship is quite consistent across studies, the effect of democracy on corruption suffers from serious concerns of endogeneity. In other words, we lack the type of causal probing necessary for inference about the effects of democracy on this outcome. Again, there is micro-level evidence that can suggest causal mechanisms to test cross-nationally. For instance, some studies that leverage random variation of audits of municipal use of funds in Brazil show that audits reduced corruption in local municipalities by 8% (Avis et al., 2018) and mayors no longer accountable due to term limits stole about USD 55,000 more than those up for reelection (Ferraz and Finan, 2011). Such findings suggest that the accountability mechanisms of democracy do influence corruption, but when and how so remains relatively understudied in current cross-country research. While democracy is associated with lower corruption overall, the underlying mechanisms behind the effect are yet to be teased out.

Human development impact: population health. A large body of evidence shows that democracy is conducive to better population health (Wigley and Akkoyunlu-Wigley, 2011; Justesen, 2012; Lin et al., 2012; McGuire, 2013; Martel García, 2014; Krueger et al., 2015; Miller, 2015; Welander et al., 2015; Patterson and Veenstra, 2016; Wigley and Akkoyunlu-Wigley, 2017; Okada, 2018; Cronert and Hadenius, 2021; Mejia, 2022; Salazar et al., 2023). For example, a study of 170 countries from 1970 to 2014 using fixed effects panel regression found that 22% of the variation in cardiovascular diseases, 16% in tuberculosis, and 18% in transport injuries was due to differences in experience of democracy. Substantively, the effect of democracy was larger than that of GDP. Using synthetic controls, the same study found that HIV-free life expectancy at age 15 increased by 3% 10 years after a transition to democracy (Bollyky et al., 2019). Autocratization has been found to have the opposite impact. Creating synthetic controls from a panel of 136 countries between 1989 and 2019, another study finds that autocratizing countries had worse estimated life expectancy, health service coverage, and levels of out-of-pocket spending on health (Wigley et al., 2020).

These estimated effects are often sizeable. One study finds, in a panel of 115 countries from 1960 to 2015, that a one standard-deviation increase in democracy corresponds to an increased life expectancy of 5 years for a country with an initial mean life expectancy of 54 years (Oyèkọ́lá, 2023). In a sample of 192 countries between 1960 and 2000, another estimation finds that the effect of 10 years of full democracy translates into a 10% reduction in infant mortality rates, equivalent to a GDP per capita increase of 40% over a decade (Gerring et al., 2012). In a global panel ranging from 1900 to 2012, another analysis estimates a reduction by 32% of infant mortality from a ten-year democratic experience without any change in wealth in a country with a GDP per capita of $1000 and no democratic history—approximating many African countries at the time of independence (Gerring et al., 2021).

Some studies find less consistent effects. For example, some suggest that state capacity rather than democracy affects infant

mortality (Dietrich and Bernhard, 2016; Rosenberg, 2018), although others find state capacity and democracy to be complementary (Hanson, 2015). Others argue that the effects of democracy start to materialize only when reaching relatively high levels on democracy indices (Wang et al., 2019). Studying 61 democratic transitions between 1970 and 2009, a recent study found that democratization led to decreased early-life mortality in 21 countries, increased mortality in eight countries, and no change in 32 countries (Ramos et al., 2020).

Most findings suggest that democracy does lead to better population health, and that the effect of democracy is sizeable. This has been increasingly corroborated with more advanced designs such as those using instrumental variables and synthetic controls, although a lot of the evidence is drawn from fixed effects regressions of panel data. It is necessary to further scrutinize the causal effects and examine whether they are conditional or heterogeneous relative to other factors. Micro-level evidence, for example, suggests clear effects from electoral accountability: a natural experiment in Brazil of the introduction of voting technology enabling illiterate voters to cast valid ballots resulted in a 34% increase in public health spending over the following eight years (Fujiwara, 2015). Delving further into such mechanisms in cross-country settings would strengthen our knowledge of how democracy impacts population health, and with what magnitude.

Human development impacts: education. Multiple studies leveraging large panels of data demonstrate a clear relationship between more democracy and higher school enrollment rates and years in education (Murtin and Wacziarg, 2014; Acemoglu et al., 2015; Hanson, 2015; Miller, 2015; Dietrich and Bernhard 2016), though there are exceptions to this finding and it may be less pronounced when compared to competitive autocracies (Aghion et al., 2019; Miller, 2015). Analyzing between 128 and 184 countries from the 1960s to 2010 and using instrumental variables, one study finds that average years of schooling increased by 1.3 in a country moving from the lowest to the highest levels of democracy (Dahlum and Knutsen, 2017). Using fixed effects linear regressions for a panel of 184 countries from 1960 or independence to 2010, another study found that, relative to autocracy, democracy increases secondary school enrollment by almost 70% in the long run (Acemoglu et al. 2015). A difference-in-differences design with 109 countries between 1820 and 2010 shows that effects for primary school only occur in countries with very low previous enrollment, but that secondary education enrollment rates increased by about 18% compared to autocracies, regardless of prior levels (Paglayan 2021).

Finally, few studies have found a positive association between democracy and literacy. One study identifies democracies as having, on average, 6.5% higher literacy rates than non-democracies without competitive elections based on two-way fixed-effects regressions with a sample of 158 countries between 1960 and 2007 (Miller, 2015). However, beyond this analysis, the relationship to education quality is unclear in part due to the inherent difficulty in measuring education quality cross-nationally (Dahlum and Knutsen, 2017).

Taken together, there is substantial evidence that democratization leads to greater quantity of education, especially at the secondary level. Individual-level survey data across Sub-Saharan Africa also suggests that the effect is greater in large rural populations in developing countries (Harding, 2020). Yet more research is needed to establish the relationship between democracy and education quality. One study suggests voters have little ability to hold leaders accountable for the quality of education (Harding, 2020). To make substantial advances in this direction, measurement problems must be addressed.

Societal development impacts: gender equality. Gender equality is a multifaceted concept, but our focus here lies on gender equality in politics, including access to liberties and representation. Although democracies do not accede to international conventions for women's rights at a higher rate than autocracies (Cho, 2014), democracies do provide higher levels of female empowerment and political gender equality relative to autocracies (Cole, 2020). Analyzing panel data from 149 countries between 1900 and 2012 with two-way fixed-effects regressions, one study finds that an increase in one standard deviation in a country's polity score leads to an increase of 0.11 and 0.09 on the 0 to 1 scale for women's civil liberties and civil society participation (Sundström et al., 2017). Also studying V-Dem's aggregate index of political gender equality, a shock-based instrumental variables panel data design identified a causal effect of democracy on gender equality (Andersen, 2023). This study finds that an increase by one standard deviation in democracy leads to a 0.63 standard deviation increase in women's political empowerment.

While some authoritarian countries set high legislative quotas to showcase gender equality in representation (Hughes et al., 2019), increasing female representation has been a lengthy process in democracies (Paxton et al., 2010; Fallon et al., 2012; Stockemer and Kchouk, 2017), to the effect that differences in average levels of representation are small. Yet, the proportion of women in cabinets is on average 5.7 percentage points higher in democracies, and women hold more important portfolios in democracies than in autocracies (Högström, 2015; Nyrup et al., 2023).

Thus, current evidence suggests that democracies perform better on gender equality, although many fall short of equal representation and participation by gender. Nevertheless, to establish a more complete picture of political gender equality, future research should study a broader variety of different indicators. Currently, research predominantly focuses on the proportion of women in leadership positions, which may mask some broader societal dynamics.

Societal development impacts: interstate peace. Empirical analyses have regularly found that democracies do not fight wars with each other (Dafoe, 2011; Bernhard et al., 2017). For example, studying a global set of country-dyads of militarized interstate disputes between 1900 and 2000, one study demonstrates that pairs of states with scores of above 0.61 (out of 1) on V-Dem's electoral democracy index have never gone to war with each other (Altman et al., 2021). Using a non-parametric sensitivity analysis to analyze dyads across 186 countries between 1950 and 1992, another recent study finds that for the observed relationship between democracy and peace to be invalidated, there would need to exist an unmeasured confounder 47 times more common in democratic pairs of states than other pairs (Imai and Lo, 2021). For context, the authors note that this means the relationship between democracy and peace is five times more robust than the association between smoking and lung cancer. In a sample of 173 countries between 1900 and 2010, and assessing militarized interstate disputes at the dyad-level, another study finds that accountability stemming from civil society, as opposed to elections and checks and balances, has the greatest and most consistent explanatory power on the likelihood of interstate peace (Hegre et al., 2020).

The association between democracy and interstate peace is thus very robustly established, but the causal mechanisms are trickier to flesh out. The most common arguments of spuriousness revolve around the peace being based on market economy rather than democracy (Mousseau, 2013; Mousseau, 2018). However, this has come under significant scrutiny with more recent studies showing that these empirical findings are due to e.g.,

misspecification, unfounded operationalizations, and poor data (Dafoe, 2011; Dafoe et al., 2013). While causal identification remains challenging in a field so reliant on cross-country observational analysis, teasing out mechanisms has been advanced through breaking down and testing constituent parts of democracy.

Societal development impacts: intrastate peace. Consolidated democratic states tend to run a lower risk of intrastate conflict (Skrede Gleditsch and Ruggeri 2010). One study that models conflict on specific institutions in a global sample of countries from 1817 to 2006 shows that free and fair electoral competition leads to the lowest risk of civil conflict (Bartusevičius and Skaaning 2018). Other evidence demonstrates that moving from the 10th to 90th percentile on vertical (electoral) constraints reduces the probability of conflict onset in a given year from 2.9 to 0.9 percentage points, even if the risk of conflict is at its lowest when combined with horizontal (checks and balances) constraints (Fjelde et al., 2021).

Yet, countries undergoing regime transitions, i.e., moving from autocracy to democracy or the other way around, are often found to be the most prone to civil conflict (Cederman et al., 2010; Cook and Savun, 2016; Jones and Lupu, 2018). In such settings, as well as in post-conflict settings, democratic exercises like fraudulent elections can trigger domestic violence rather than operate as a medium for peaceful coordination (Flores and Nooruddin, 2012; Brancati and Snyder, 2013; Donno et al., 2022).

In terms of casual identification, the study of intrastate conflict suffers from much the same challenges as that of interstate conflict. The main challenge here is, however, to try and causally understand why there is "more violence in the middle" (Jones and Lupu, 2018), i.e., why regimes in transition tend to be so prone to violence, and when transitions towards democracy are safe and not, or if it is inherent in such processes that they include a high risk of civil strife. Causality aside, there is robust empirical evidence that consolidated autocracies and democracies have much lower levels of intrastate conflict.

Critical challenges for future research. Research in the areas we review has reached different levels of maturity. Especially in the areas of growth, health, and peace, a significant number of studies examine the impact of democracy. Studies in this vein also dissent the mechanisms linking democracy to these outcomes, address potential confounders, and rely on extensive, high-quality data. In these areas, scholars should further explore the extent to which we observe these relationships and determine the causal mechanisms and size of effects. For the other outcomes—economic inequality and poverty, corruption, and education—future research should inquire further into the heterogeneous effects and test specific mechanisms relating to each outcome.

There are other policy areas where regime type may matter, such as challenges related to climate change and environmental protection. Recent research indicates diverging effects of democracy on these outcomes, including positive (Clulow, 2019), null (Chesler et al., 2023), and negative (Aller et al., 2021) effects, depending on the specific outcome of focus within these multifaceted areas. Interest in the impact of political regimes on the environment and the climate is quickly growing, and the climate science community has called for social scientists to engage more in this area (Brutschin and Andrijevic, 2022; Davidson et al., 2024). Additional efforts from the scholarly community are needed to broaden and deepen our knowledge of how and why political regimes matter for the environment, sustainability, and climate change.

We would also like to point to three more general but critical challenges for scholarship on the effects of political regimes. First, scholars need to pay more attention to the methodological and substantive consequences of measures of democracy. Most comparative studies have made use of broad-based, aggregate measures of democracy such as Polity and Freedom House (Gerring et al., 2022). While the advantages of different democracy measures are discussed in detail elsewhere (Coppedge et al., 2011; Boese, 2019), future research should further disentangle which institutions matter and what components of democracy are substantial drivers of observed empirical relationships. The more sophisticated research reviewed in this article finds evidence of specific and diverging effects of components such as elections, media freedom, and an unconstrained civil society (e.g. Hegre et al., 2020; McMann et al., 2020). Relatedly, in some cases, the impact of democracy comes to the fore when analyzing high-quality democracies (Altman et al., 2021; Wang et al., 2019), an effect that cannot be found using measures with too low a bar for "full democracy". Teasing out when and how democracy matters is necessary to advance research in this field.

Thirdly, one should investigate why autocracies perform as well as democracies in some areas. This is partly about incorporating knowledge of how imperfections in democratic rule can lead to the overrepresentation of the interests of a select few (Hicken, 2011; Gilens, 2012). Yet incentives for dictators to improve their performance and image must not be ignored. Dictators can send inexpensive signals concealing their authoritarian rule to the international community, for instance, through signing international treaties or by increasing the share of female parliamentarians and upholding rights on paper (Bjarnegård and Zetterberg, 2022). Dictators can also have "genuine", albeit ulterior, motives to improve their track records. Ensuring primary education can allow dictators to instill a patriotic ideology among citizens (Paglayan, 2021). Dictators often also need to provide some public goods to their citizens and engage in redistribution to retain power (Pelke, 2020). Similarly, while we have largely treated autocracies as a homogenous category, yet there is substantial variation across types of autocracies that future research needs to investigate in more detail.

Fourthly, research on political regimes typically relies on high data quality at the country level. One challenge is the significant variation across regimes regarding data availability and reliability. Some countries partly or fully lack the capacity to collect certain data (Devarajan, 2013; Jerven, 2013). In other areas, divergent statistical standards and missing data patterns, particularly in developing countries, may limit inferences we can draw from cross-national analyses. There is also mounting evidence that autocratic regimes manipulate data strategically and intentionally (Guriev and Treisman, 2019). Comparisons of reported economic growth with satellite imaging of nighttime lights demonstrate that autocracies overstate real GDP growth rates by roughly 35% on average (Martínez, 2022), or around 0.5–1.5 percentage points per year (Magee and Doces, 2015). There are systematic data discrepancies also for environmental emissions (Tang et al. 2022), tax revenues (Carlitz and McLellan, 2021), school enrollment (Sandefur and Glassman, 2015), and populations (Akinyoade et al., 2017). Data quality became a particularly prominent issue in the wake of the COVID-19 pandemic. Contrary to early reports of an "autocratic advantage", most evidence demonstrates that lower official case and death numbers in autocracies are a product of missing and/or manipulated data. Once statistical models account for these discrepancies, there is little evidence that authoritarian countries had fewer deaths than democracies (Annaka, 2021; Liu et al., 2024). Data quality and manipulation can have far-reaching political implications, for

instance, for the allocation of public resources and foreign aid (Sandefur and Glassman, 2015). Yet variation in data quality across regime types also poses a real challenge for robust scientific inference. The extent of manipulation implies a downward bias in the studies reviewed here: the effects of democracy discussed above may, in fact, be larger than what current evidence shows.

Conclusion

The key research question for this review was if regime type is consequential for economic, human, and societal development? We find, first, that advances in the measurement of political regimes, along with better computation and methods, have improved the reliability with which we can analyze these relationships.

Second, our findings show that there is evidence that democracies produce better outcomes on some—but not all—economic, human, and societal developments. When it comes to growth, health, peace, and gender equality, there is convincing evidence of a positive effect of democracy. While the size of the effects and the consistency of the results vary between different aspects of each outcome, the effect size is often substantial and thus consequential for those areas in which a relationship is repeatedly found. Critically, very few studies suggest that autocracies outperform democracies.

For the other outcomes—economic inequality and poverty, corruption, and education—the evidence is less consistent.

The academic community must also answer a pressing question: If democracy is making life better for people living in democracies, why is it currently receding around the world?

Finally, this review of the evidence does not address the relative importance of democracy compared to other major political, social, and economic factors for improving performance on these critical outcomes. That is an important avenue for future research.

Data availability

All data generated or analyzed during this study are included in the supplementary information files.

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Notes

1 We acknowledge a wide variety of other important theoretical insights, including the idea of veto players (Tsebelis 2011). Unfortunately, it is beyond the scope of this review article to review all these frameworks.

2 Nevertheless, we acknowledge the importance of pre-2010 studies in shaping the discipline today in terms of substance and method. Przeworski et al. (2000), for instance, had an enormous influence on future literature by calling attention to issues of reverse causality, endogeneity, and selection bias. Due in large part to this seminal work, later studies account for these issues in much more sophisticated ways than did previous research.

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