

Have autocrats governed for the long term?

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ABSTRACT

The short answer is no. Using cross-country data, we construct a statistical proxy for the extent of long-term orientation, to infer the priorities of national governments and leaders. Using informal evidence and statistical tests, we show that its distribution under democracy first-order stochastically dominates its distribution under autocracy. This suggests that variation in long-term orientation is not a good candidate to explain the ‘autocratic gamble’ – the well-known tendency for growth rates to vary more widely across autocracies than across democracies. The true sources of the autocratic gamble remain a conundrum.

Keywords: Democracy, Autocracy, Long-term orientation

JEL Classifications: H11, O40, O43.

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1 Introduction

The merits of democracy are so obvious that its critics often have to fall back on a small set of arguments, of varying plausibility. Perhaps chief among these is the argument that autocrats, insulated from electoral pressures and media opposition, are well placed to make decisions that have short-term costs and long-term benefits. Some early analysis of the Covid-19 pandemic argued that autocrats had managed it more effectively than democracies; more recently, though, it has been argued that open societies have often had better outcomes. Likewise, there has been debate over environmental policies and how these vary between regimes. In this paper, we examine whether there is any support in the data for the more general proposition that some autocrats govern for the long term.

The question has become more urgent for two reasons. First, humanity faces major environmental challenges that require long-term strategies. Second, the third wave of democratization, towards the end of the twentieth century, has given way to a “democratic recession” (Diamond 2008, 2015). The 2020 V-Dem Democracy Report noted that, for the first time since 2001, autocracies were in the majority, home to 54% of the global population; and almost 35% of the world’s population, or 2.6 billion people, live in countries moving in an autocratic direction.¹ In a number of countries, even where formal elections remain, political rights and democratic social norms have been eroded. This makes it especially relevant to investigate how outcomes differ under democracy compared to autocratic rule.

The balance of recent evidence suggests that democratizations are followed by faster growth (Acemoglu et al. 2019, Eberhardt 2022). The starting point for our analysis is slightly different, however. It is well known that the cross-section variance of growth is higher across autocracies than across democracies. As Rodrik (2000, p. 18) put it, “The bottom line is that living under an authoritarian regime is a riskier gamble than living under a democracy.” Autocracies have seen both very good outcomes for growth and very bad. This has been confirmed by a range of studies and methods, and can be considered

¹See Lührmann et al. (2020). **The latest data display a worsening situation with 72% and 43% as the corresponding figures in 2022 (see Papada et al., 2023).**

one of the more firmly established facts in the empirical literature on democracy and autocracy.²

A natural explanation for the ‘autocratic gamble’ is that some autocratic leaders have planned for the long term, while others — the kleptocrats — have achieved little beyond self-enrichment. In this paper, we construct a statistical proxy for long-term orientation (LTO), to infer the priorities of governments and leaders. Examples of countries with high LTO in the most recent period (2010-19) include Denmark, Germany, Japan, Norway, and Switzerland. Those judged to have low LTO in the same period include the Central African Republic, Guinea, Haiti, and Pakistan.

We then examine whether this proxy for LTO varies more across autocracies than across democracies. We find no evidence for that idea, and we also show that the distribution of LTO under democracy first-order stochastically dominates the distribution of LTO under autocracy. These results call into question the use of varying long-term orientation to explain the autocratic gamble. The true origins of that gamble remain an intriguing conundrum.

As background, the role of long-term orientation has not been an easy question to investigate. This characteristic of governments and national leaders is hard to observe directly, which means we must look for indirect approaches. In this paper, we treat long-term orientation as a latent factor. By extracting principal components from a disparate set of measures, we hope to use the variation they have in common to proxy for the long-term orientation, or lack of it, of national governments.³

In principle, we could distinguish between at least three forms of long-term orientation: pro-growth policies, investment in education, and indicators of environmental sustainability. Even modest increases in growth rates can bring huge gains in present value terms; see Pritchett et al. (2016). Investment in education is likely to be a pro-growth policy in the medium to long term, but should also bring other long-term gains, such as better health, enhanced capabilities, and more fulfilling lives. Finally, it now seems clear that, in the

²For recent analyses, see Knutsen (2021a,b) and Monteforte and Temple (2020) and the references there. One of the earliest papers was Weede (1996).

³Previous applications of principal components analysis to country-level data include Sirimaneetham and Temple (2009) on macroeconomic stability, and O’Reilly and Murphy (2022) on state capacity.

twenty-first century, responsible governments must seek to limit harm to the biosphere.⁴

We draw together a set of variables under the first two of these headings (we have to set sustainability to one side because of the lack of long-term data). We then apply a principal components analysis to the collection of indicators. We favour indicators that can respond relatively quickly to changes in policy and national priorities. For example, as an education measure, we use a measure of current education equality, rather than adult literacy rates; the latter reflect a much longer history of government decisions and cannot be altered quickly.

In some cases, our chosen indicators overlap with distinct concepts, not least state capacity and the quality of government. This should not be a major concern, because a leader governing for the long term should invest in state capacity. What our measures have in common is that they are influenced by government, can change in response to changes in the political regime, and have longer-term returns than some other dimensions of the quality of government. Although the final collection of indicators is heterogeneous, this should not be a concern: it is their common variation that we extract and use to measure long-term orientation, so their diversity is not in itself a problem.

In a classic paper, Jones and Olken (2005) found evidence that national leaders matter for growth, using exogenous transfers of power arising from deaths in office. They showed that the deaths of leaders in autocratic regimes lead to changes in growth, but the deaths of leaders in democratic regimes do not. The effects of autocratic leaders are found to be larger when there are relatively few constraints on their power. At least in principle, we could similarly link our measure of long-term orientation to exogenous transfers of power, but the short-run measurement error in LTO may be too great for this to yield reliable results.

The rest of the paper is organized as follows. The next section describes data and methods. Section 3 presents our findings, while section 4 concludes.

⁴For more on this, see Dasgupta (2021) and Heal (2016).

2 Data and methods

We use version 13 of the V-Dem dataset (Coppedge et al., 2023 and Pemstein et al., 2023). The data on growth are from the Penn World Table v.10.01 (Feenstra et al., 2015). The growth data raise the issue of whether the data have sometimes been distorted under autocratic rule; see Magee and Doces (2015) and Martínez (2022). We have no obvious way to adjust for that here, but our main focus is the distribution of long-term orientation rather than of growth under autocracy.

The time span considered is 1960-2019, and we computed averages over six non-overlapping ten-year periods, so that country-decades are the unit of observation. We use country-decades because ten years should be long enough for the stabilization of a political regime, and for the effects of political priorities and decisions to be apparent in the data. The group of countries considered is first restricted to those available in the Varieties of Democracy (V-Dem) dataset (v.13), leading to a sample of 160 countries, which is then reduced further by data availability.

The classification of country-decades follows the same approach as in Monteforte and Temple (2020): relying on the classification provided by the Regimes of the World variable (RoW) in V-Dem data, country-decades earn the label of stable democracies if, throughout the entire decade, they were consistently categorized as either electoral or liberal democracies. Conversely, stable autocracies are countries that were continuously classified as closed or electoral autocracies throughout the decade. The remaining country-decades are classified as undetermined, and arise where countries are partial or hybrid democracies, or when they are undergoing a political transition. The frequencies of the three regime types are summarized in Table 1 below.

To construct a statistical proxy for long-term orientation, we select a set of indicators among those available in the V-Dem dataset that could reflect long-term orientation. Those indicators are listed in table 2 below, together with their related description. We limited our selection to indicators that had not been previously utilized in the construction of our classification variable, the RoW index of the political regime.

Note that, individually, each of these variables could easily be questioned as an un-

Table 1: Dataset summary for polities

<i>Polity</i>	<i>Freq</i>	<i>Percent</i>
Democracies	289	34.20
Autocracies	439	51.95
<i>Closed Autocracies</i>	147	17.40
<i>Electoral Autocracies</i>	148	17.51
<i>Undetermined Autocracies</i>	144	17.04
Undetermined	117	13.85

This table reports frequencies of political regimes, for a sample based on the LTO dataset.

persuasive measure of long-term orientation. Our argument is that, if we analyze several together, their common variation may be informative. Once we have constructed the measure of LTO, we will take various steps to show that it may carry genuine information about the extent to which governments and leaders act with the longer-term in mind.

A related point is that our measure of LTO may ultimately be a measure of ‘benevolence’ instead. Discussions of benevolent autocrats have a long and sometimes controversial history; for a critique of the concept see Easterly (2013). In practice such a concept will overlap with the extent to which leaders consider the long term, and the distinction between the two is somewhat blurred. Since we do not have the data to distinguish them, readers can decide for themselves whether the measure we construct is best interpreted as long-term orientation, or as capturing forms of benevolence.

Table 2: V-Dem set of variables used for PCA

<i>Variable</i>	<i>V-Dem Name</i>	<i>Description</i>
Reasoned justification	v2dlreason	When important policy changes are being considered, i.e. before a decision has been made, to what extent do political elites give public and reasoned justifications for their positions?
Common Good	v2dlcommon	When important policy changes are being considered, to what extent do political elites justify their positions in terms of the common good?
Respect Counterarguments	v2dlcountr	When important policy changes are being considered, to what extent do political elites acknowledge and respect counterarguments?
Particularistic or public good	v2dlencmps	Considering the profile of social and infrastructural spending in the national budget, how "particularistic" or "public goods" are most expenditures?
Education equality	v2pedueq	To what extent is high quality basic education guaranteed to all, sufficient to enable them to exercise their basic rights as adult citizens?
Health equality	v2pehealth	To what extent is high quality basic healthcare guaranteed to all, sufficient to enable them to exercise their basic political rights as adult citizens?

This table lists variables used in the principal component analysis to extract our measure of LTO. Source: V-Dem dataset v.13.

In Table 3 we present descriptive statistics for growth and the constituent indicators for our measure of long-term orientation, for the sample of country-periods that we will be using in our analysis. The table shows means, medians, standard deviations, and the minimum and maximum. The standard deviations are of particular interest. Looking at the more detailed summary of the descriptive statistics provided in Table 4, we can see that the constituent indicators tend to vary more across autocracies than across democracies, but in some cases only modestly. The ratio of standard deviations is much greater for the growth rate. It is this disconnect between the ‘autocratic gamble’ for growth and the lack of a similar contrast for the LTO indicators that we will investigate further.

Table 3: Summary statistics for growth rates and LTO constituent indicators, 1960-2019

	n	Mean	Median	St. Dev.	Min	Max
<i>Stable country-decades</i>						
Growth rate	845	1.63	1.76	2.66	-11.93	12.36
Reasoned justification	845	0.51	0.55	1.29	-2.59	3.73
Common good	845	0.49	0.70	1.09	-2.95	2.88
Respect counterarguments	845	0.22	0.38	1.33	-3.22	3.033
Particularistic or public good	845	0.57	0.70	1.17	-2.70	3.29
Education equality	845	0.44	0.46	1.52	-3.10	3.53
Health equality	845	0.41	0.32	1.55	-3.01	3.66
<i>Excluding high-income countries</i>						
Growth rate	699	1.57	1.76	2.84	-11.93	12.36
Reasoned justification	699	0.22	0.28	1.13	-2.59	3.23
Common good	699	0.32	0.49	1.09	-2.95	2.88
Respect counterarguments	699	-0.02	0.14	1.27	-3.22	2.64
Particularistic or public good	699	0.32	0.49	1.08	-2.70	2.90
Education equality	699	0.07	-0.13	1.35	-3.10	3.46
Health equality	699	0.01	-0.27	1.36	-3.01	3.32

This table reports summary statistics for growth rates and LTO constituent indicators, 1960-2019, using pooled country-decades and excluding politically unstable country-decades.

As in Sirimaneetham and Temple (2009), we carry out a preliminary check on the use of principal component analysis. In a limiting case where all the variables were orthogonal to each other, a principal component analysis would be of little value. To examine this, we carry out a Bartlett test for sphericity (Bartlett, 1950). This test rejects sphericity at a significance level of 1%.⁵

Results from the principal component analysis are summarized in Table 5 and Figure 1 below. The variables are first normalized so that higher values correspond to greater long-

⁵To implement this test, we used the STATA `factortest` command developed by João Pedro Azevedo.

Table 4: Summary statistics for growth rates and LTO constituent indicators, 1960-2019

	n	Mean	Median	St. Dev.	Min	Max
Growth rate						
<i>Stable country-decades</i>						
Democracies	289	2.09	1.97	1.68	-4.01	9.47
Autocracies	439	1.28	1.32	3.10	-11.93	12.36
<i>Excluding high-income countries</i>						
Democracies	158	2.29	2.28	1.93	-4.01	9.47
Autocracies	430	1.24	1.31	3.09	-11.93	12.36
Reasoned justification						
<i>Stable country-decades</i>						
Democracies	289	1.69	1.67	0.85	-0.65	3.73
Autocracies	439	-0.30	-0.32	0.99	-2.59	2.32
<i>Excluding high-income countries</i>						
Democracies	158	1.34	1.31	0.75	-0.65	3.23
Autocracies	430	-0.31	-0.32	0.98	-2.59	2.17
Common good						
<i>Stable country-decades</i>						
Democracies	289	1.26	1.30	0.66	-0.92	2.63
Autocracies	439	-0.04	0.05	1.07	-2.95	2.88
<i>Excluding high-income countries</i>						
Democracies	158	1.09	1.18	0.72	-0.92	2.44
Autocracies	430	-0.05	0.05	1.07	-2.95	2.88
Respect counterarguments						
<i>Stable country-decades</i>						
Democracies	289	1.40	1.45	0.63	-0.26	3.03
Autocracies	439	-0.64	-0.56	1.12	-3.22	1.91
<i>Excluding high-income countries</i>						
Democracies	158	1.23	1.29	0.61	-0.26	2.64
Autocracies	430	-0.64	-0.56	1.12	-3.22	1.91
Particularistic or public good						
<i>Stable country-decades</i>						
Democracies	289	1.41	1.35	0.85	-0.91	3.29
Autocracies	439	-0.005	0.06	1.09	-2.70	2.90
<i>Excluding high-income countries</i>						
Democracies	158	1.02	1.05	0.76	-0.91	2.67
Autocracies	430	-0.02	0.05	1.09	-2.70	2.90
Education equality						
<i>Stable country-decades</i>						
Democracies	289	1.55	1.87	1.36	-2.41	3.53
Autocracies	439	-0.21	-0.44	1.26	-3.10	2.61
<i>Excluding high-income countries</i>						
Democracies	158	0.84	0.78	1.34	-2.41	3.46
Autocracies	430	-0.23	-0.46	1.27	-3.10	2.61
Health equality						
<i>Stable country-decades</i>						
Democracies	289	1.71	2.05	1.26	-1.44	3.66
Autocracies	439	-0.37	-0.64	1.24	-3.01	3.01
<i>Excluding high-income countries</i>						
Democracies	158	1.07	1.19	1.25	-1.44	3.32
Autocracies	430	-0.39	-0.66	1.22	-3.01	3.01

This table reports summary statistics for growth rates and LTO constituent indicators, 1960-2019, using pooled country-decades and excluding politically unstable country-decades.

term orientation; we therefore expect all the loadings for the first principal component to have the same sign. The first principal component accounts for around two-thirds of the total variance, with positive loadings of roughly equal magnitude on all the indicators. The other components account for between 15 and 1.5 percent of the total variance and

display contrasting signs on the loadings. The pattern of results suggests that the first principal component seems to capture something the indicators have in common, and hence may carry genuine information about long-term orientation.

Table 5: Results of Principal Component Analysis

Variable	1st principal component		2nd principal component	
	Loading	Correlation	Loading	Correlation
Reasoned justification	0.431	0.862	-0.355	-0.342
Common good	0.407	0.813	-0.255	-0.245
Respect counterarguments	0.386	0.773	-0.465	-0.448
Particularistic or public good	0.411	0.822	-0.008	-0.008
Education equality	0.394	0.787	0.585	0.564
Health equality	0.418	0.837	0.500	0.481
<i>Variance explained (percent)</i>		66.62		15.45

This table reports the values of the loadings and the correlation between the first two principal components and the corresponding variables. See table 2 for definition of variables.

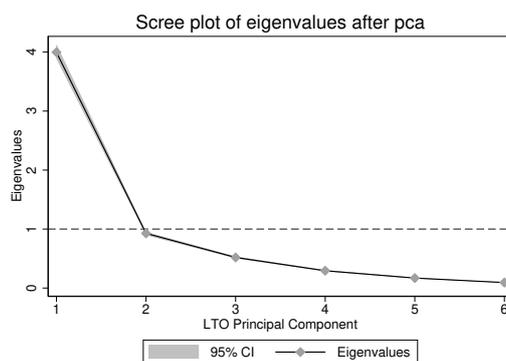


Figure 1: Scree plot displaying the proportion of variance explained by each component

In the top panel of Table 6 we list the twenty country-periods with the highest long-term orientation in the most recent data, while in the bottom panel of the same figure we list those with the lowest. We can see that the good performers include Denmark, Germany, Japan, Norway, and Switzerland. Countries where the index suggests low long-term orientation include the Central African Republic, Guinea, Haiti, and Pakistan. (In the appendix, we present a version of this table which draws on all the country-decades, rather than just the most recent period.)

We can see that all the best performers on LTO are democracies, while there are very few democracies among the worst LTO performers; the only exception is Paraguay. This is strikingly different from the patterns seen when looking at growth rates (e.g., Monteforte

and Temple 2020) and already suggests that variation in LTO may not take a form that can explain the autocratic gamble.

Table 6: Highest and lowest LTO in most recent country-decade

<i>Country</i>	<i>Years</i>	<i>LTO</i>	<i>Growth rate (%)</i>	<i>Democracy score</i>
Highest LTO				
Norway	2010-19	4.61	0.48	1
Denmark	2010-19	4.18	1.35	1
Luxembourg	2010-19	4.05	0.65	1
Germany	2010-19	3.66	1.17	1
Switzerland	2010-19	3.39	0.71	1
Japan	2010-19	3.36	0.99	1
Sweden	2010-19	3.35	1.19	1
Costa Rica	2010-19	3.28	2.10	1
Netherlands	2010-19	3.26	1.03	1
Portugal	2010-19	3.20	0.98	1
Iceland	2010-19	3.20	2.47	1
Uruguay	2010-19	3.04	1.97	1
Estonia	2010-19	2.91	3.45	1
France	2010-19	2.88	0.81	1
Italy	2010-19	2.84	-0.12	1
Bhutan	2010-19	2.83	3.34	1
South Korea	2010-19	2.82	2.26	1
Australia	2010-19	2.74	0.79	1
Canada	2010-19	2.66	0.97	1
Belgium	2010-19	2.64	0.75	1
Lowest LTO				
Bahrain	2010-19	-1.70	0.09	0
Tajikistan	2010-19	-1.81	4.05	0
Pakistan	2010-19	-1.82	2.06	0
Haiti	2010-19	-1.85	0.71	0
Guinea	2010-19	-1.90	3.15	0
Central African Republic	2010-19	-1.93	-2.40	0
Honduras	2010-19	-2.01	1.63	0
Democratic Republic of the Congo	2010-19	-2.05	2.38	0
Paraguay	2010-19	-2.09	2.01	1
Cambodia	2010-19	-2.14	4.80	0
Burundi	2010-19	-2.30	-0.10	0
Bangladesh	2010-19	-2.43	5.00	0
Chad	2010-19	-2.44	-1.02	0
Cameroon	2010-19	-2.69	1.67	0
Turkmenistan	2010-19	-2.70	5.57	0
Venezuela	2010-19	-2.82	-10.04	0
Sudan	2010-19	-2.82	1.24	0
Yemen	2010-19	-2.98	-10.68	0
Azerbaijan	2010-19	-3.27	0.01	0
Syria	2010-19	-3.89	-5.46	0

Note: 0 denotes country-decades classified as stable autocracies, 1 denotes stable democracies, 99 denotes undetermined country-decades.

2.1 Scatterplots

Next, to gauge whether our measure of long-term orientation is genuinely capturing something useful, we plot it against a series of variables. These variables are taken from the World Development Indicators v.22.⁶ They include: (i) the cost of business start-up pro-

⁶Data as downloaded on September 5th, 2023

cedures, measured as percentage of gross national income per capita, to get a proxy of the ease of doing business within a country; (ii) measures of a methodological assessment and overall statistical capacity (spanning the range 0-100) as a proxy of the quality of information on which policies can be based; (iii) the policies for environmental sustainability rating (measured on a range 1-6, where highest values reflect better polices from an environmental perspective); and (iv) government expenditure on education, measured as share of GDP. These can all be seen as indicators of the long-term quality of government, potentially explicable in terms of variation in long-term orientation; but lack of long-term data precludes them from inclusion in the principal components analysis.

We can see from these figures that, in line with expectations, the cost of business start-ups is negatively correlated with LTO, while the other variables are positively correlated with LTO. The associations are strong enough to suggest that the LTO measure reflects genuine differences across governments, despite the measurement error intrinsic to an exercise of this kind. These differences can be alternatively interpreted as long-term orientation or ‘benevolence’, with either making for a higher quality of government in specific areas (such as environmental sustainability, or the quality of statistics) where policies have benefits that amass over time.

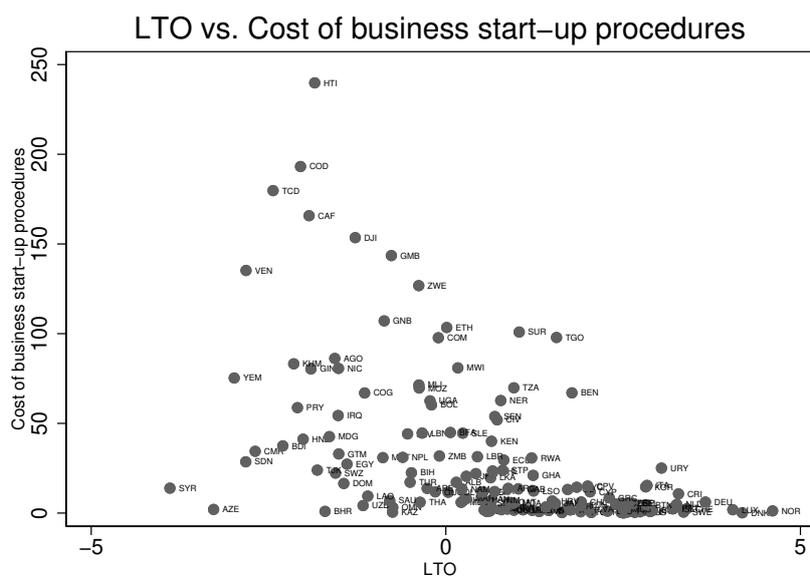


Figure 2: Scatter plot of cost of business start-up procedures against LTO

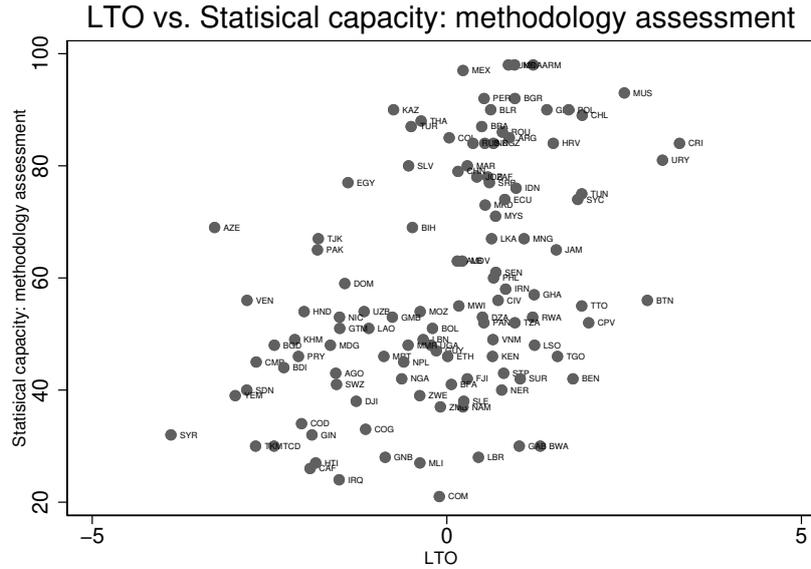


Figure 3: Scatter plot of statistical capacity: methodology assessment against LTO

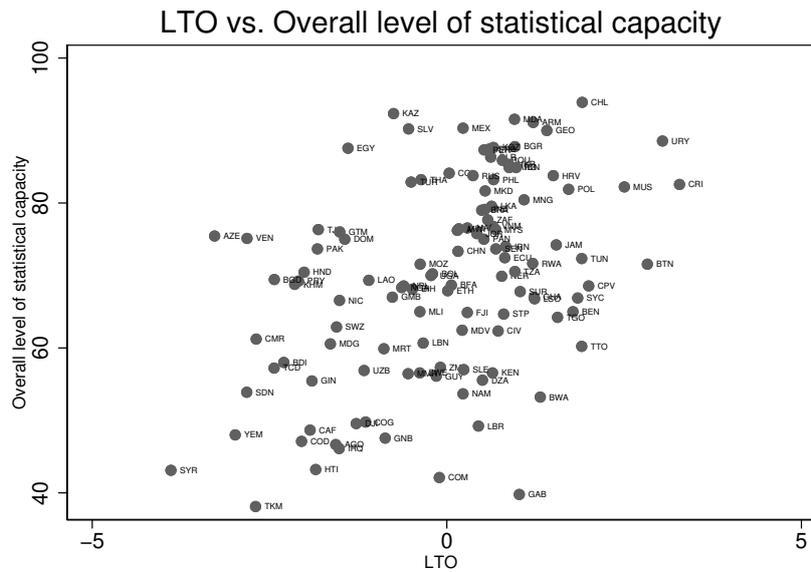


Figure 4: Scatter plot of overall level of statistical capacity against LTO

2.2 Scatterplots by polity

3 Findings

We first present the distributions of growth rates for autocracies and democracies, to indicate the support for an autocratic gamble in our dataset. The Tukey box-plots are shown in the left panel of Figure 12, while kernel density estimates can be found in

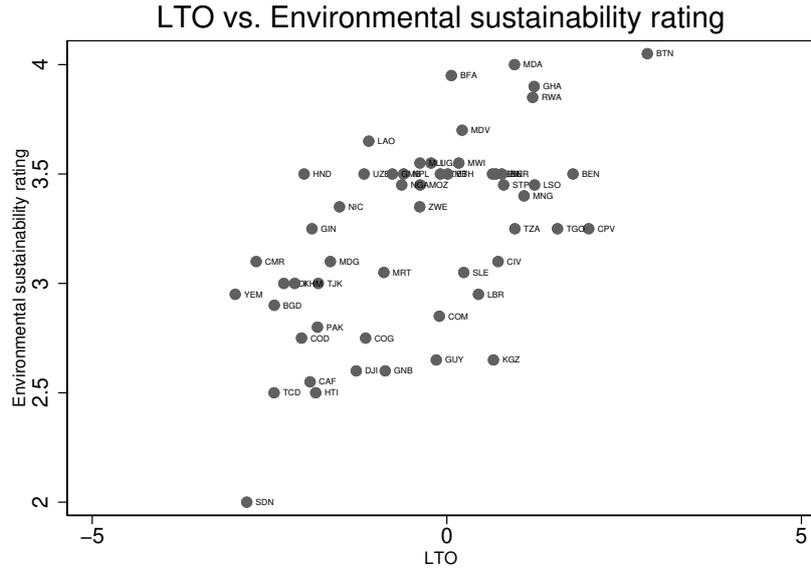


Figure 5: Scatter plot of environmental sustainability rating against LTO

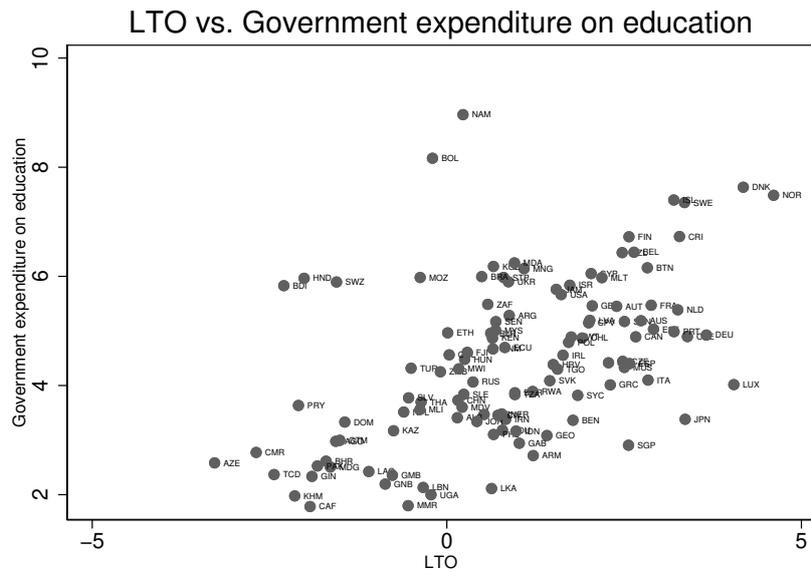


Figure 6: Scatter plot of government expenditure on education against LTO - decade averages

the right panel of the same figure. These confirm the pattern established by previous researchers: the variance of growth rates across autocracies clearly exceeds the variance of growth rates across democracies.⁷

Next, we present the Tukey box-plots and kernel density estimates for our measure of long-term orientation, in Figure 13. It can be seen that the distribution of LTO for

⁷For references to the literature, discussion, and robust variance tests, see Monteforte and Temple (2020).

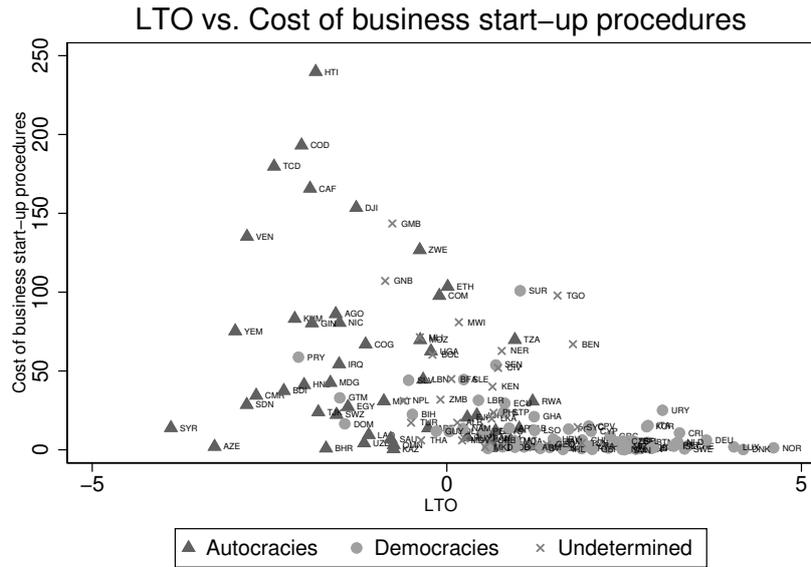


Figure 7: Scatter plot of cost of business start-up procedures against LTO

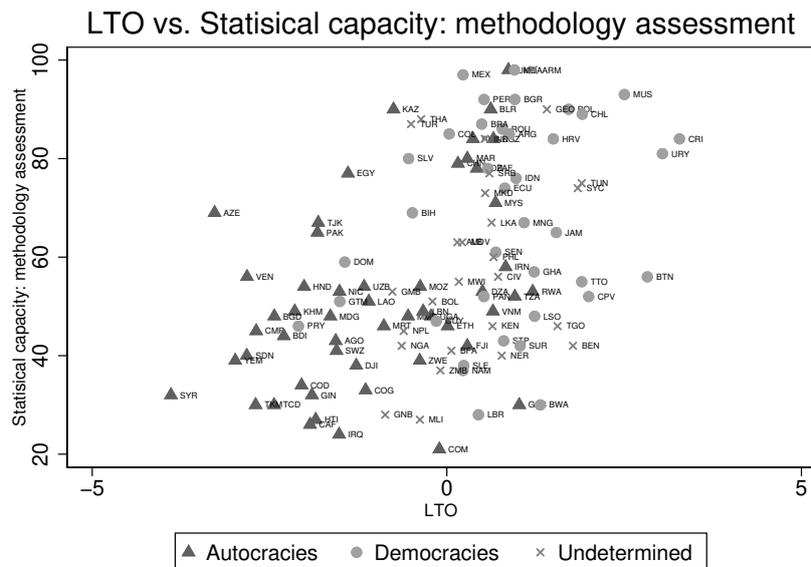


Figure 8: Scatter plot of statistical capacity: methodology assessment against LTO

autocracies is clearly displaced well to the left of that for democracies. There is no evidence that some autocracies especially excel in long-term policies; on average, democracies seem to do better.

Since many democracies are high-income countries, we also consider the variation of LTO when we exclude high-income countries. (The countries excluded are the twenty countries with the highest GDP per capita in 1960, plus Germany, Greece, Japan, Portugal and Spain.) These patterns are shown in Figure 14. We then distinguish between

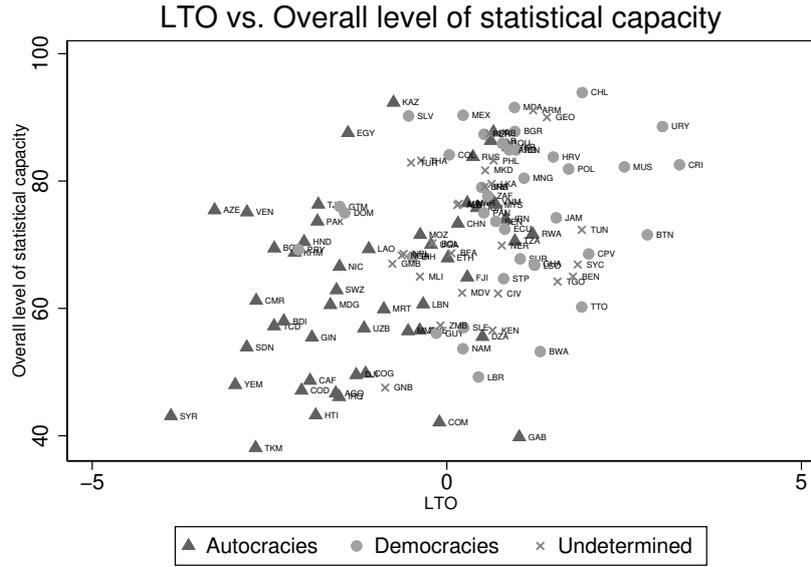


Figure 9: Scatter plot of overall level of statistical capacity against LTO

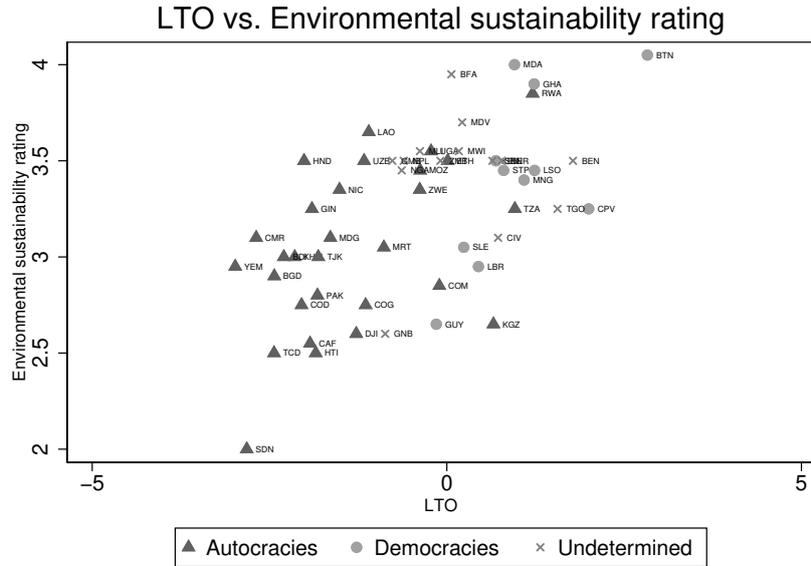


Figure 10: Scatter plot of environmental sustainability rating against LTO

closed autocracies and electoral autocracies, as in Figures 15 and 16. In all these cases, the patterns are similar to those previously shown. Contrary to popular belief, we find no evidence that some autocracies score especially highly for LTO.

To establish this with greater rigour, we next plot empirical cumulative distribution functions in Figure 17, left panel for growth and right panel for LTO. Denote the cumulative distribution function of LTO under democracy by $F_d(LTO)$ and that of LTO under autocracy by $F_a(LTO)$. It should be clear from the figure that the distribution

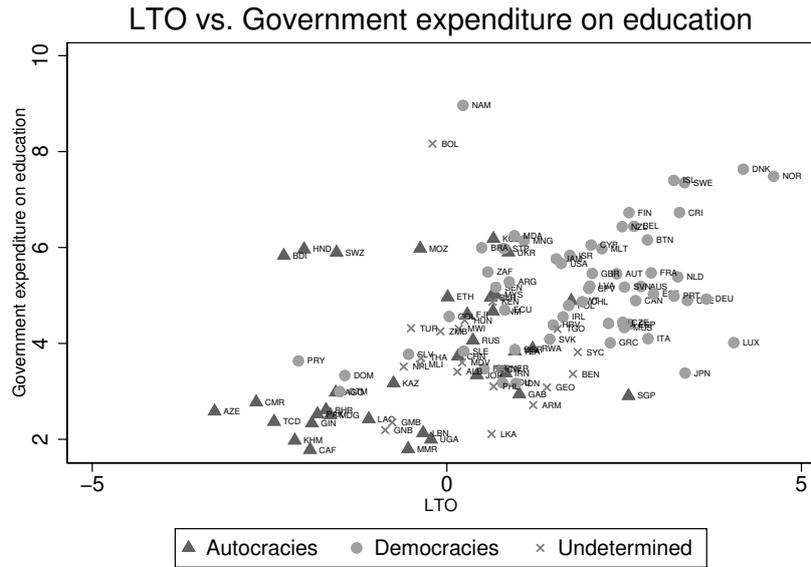


Figure 11: Scatter plot of government expenditure on education against LTO - decade averages

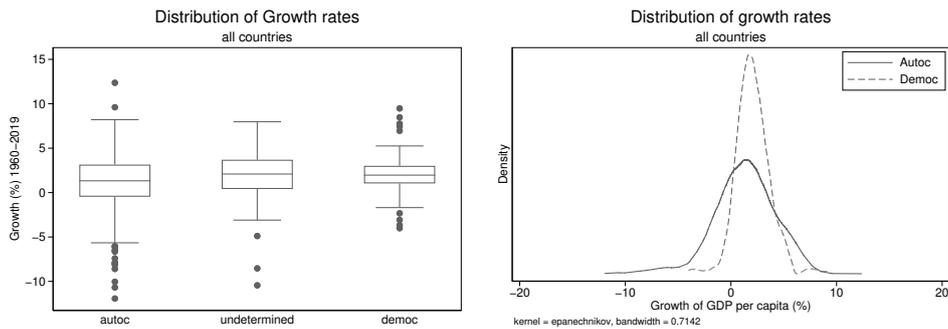


Figure 12: Tukey box-plots and kernel density estimates of distribution of growth rates across political regimes

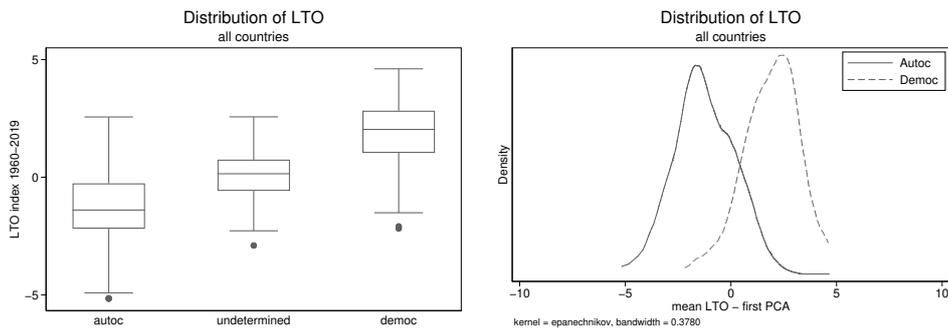


Figure 13: Tukey box-plots and kernel density estimates of distribution of LTO across political regimes

of LTO for democracies first-order stochastically dominates the distribution of LTO for

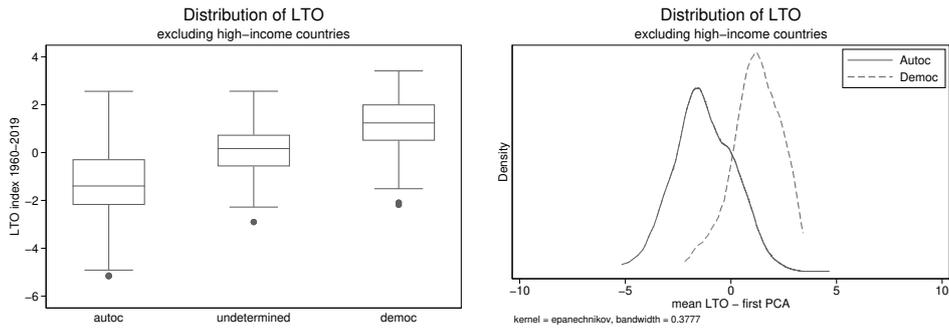


Figure 14: Tukey box-plots and kernel density estimates of the distribution of LTO across political regimes excluding high-income countries.

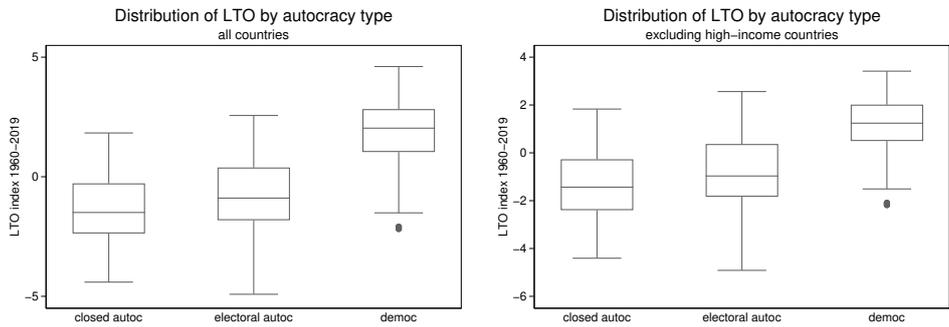


Figure 15: Tukey box-plots of distribution of LTO by autocracy types and excluding high-income countries

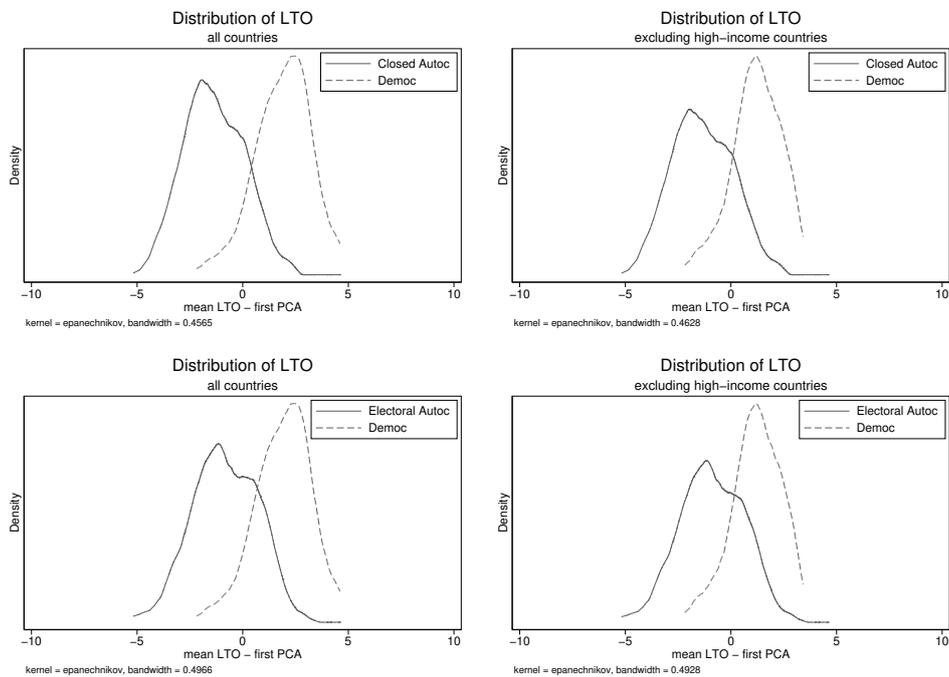


Figure 16: Kernel density estimates of distribution of LTO by autocracy types and excluding high-income countries

autocracies. That is, we are interested in whether

$$F_d(LTO) \leq F_a(LTO)$$

with strict inequality for at least part of the support of LTO. In words, if this condition holds, the probability mass ‘to the left’ of a given level of LTO is less under democracy than under autocracy. Much more loosely, this corresponds to a probability density under autocracy that is displaced firmly to the left of that under democracy.

The thick horizontal line in the figures indicates those sections of the support where the cumulative distribution functions are significantly different from each other; this uses the method of Goldman and Kaplan (2018) and the associated software of Kaplan (2019). This can be used to assess first-order stochastic dominance; we have also confirmed this dominance for the case of LTO more formally, using the approach of Davidson and Duclos (2000).⁸ Not surprisingly, given the kernel density plots and empirical cumulative distribution functions already shown for the growth rate, there is no first-order stochastic dominance in the case of that variable.

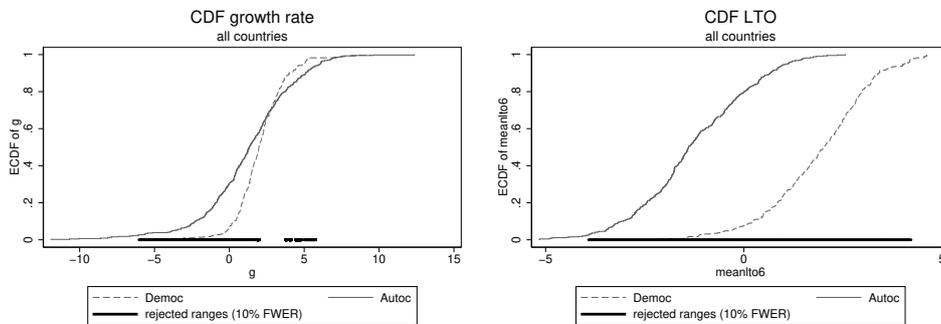


Figure 17: Cumulative distribution functions of growth rates and LTO across political regimes

3.1 Investment shares

We next briefly consider investment shares, using again PWT data. Figure 18 shows Tukey box-plots and kernel density estimates compared across autocracies and democracies. If there is an autocratic gamble for growth, there also seems to be one for investment

⁸We implement this approach using the STATA `dom` command developed by David Stifel.

shares; see Figure 19 where the cumulative distribution functions intersect. This deepens the puzzle: both investment shares and growth rates vary widely across autocracies, but under the maintained assumptions of this paper, there is little scope to explain this pattern using variation in long-term orientation.

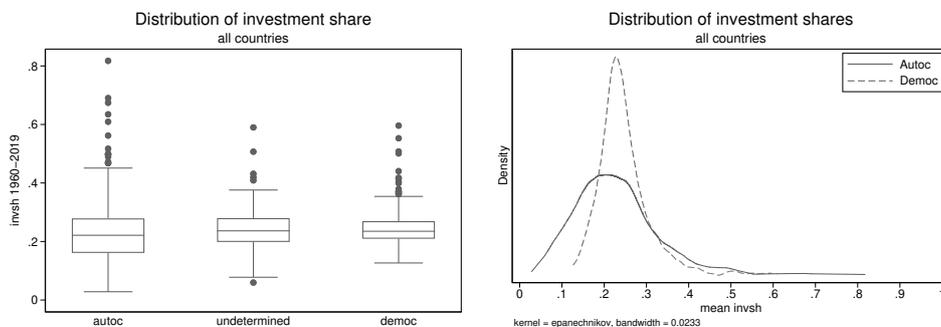


Figure 18: Tukey box-plots and kernel density estimates of distribution of investment shares across political regimes

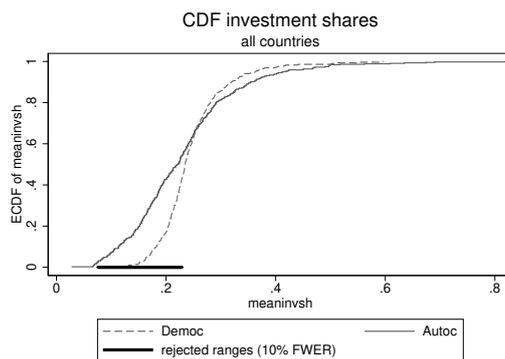


Figure 19: Cumulative distribution functions of investment shares and LTO across political regimes

4 Conclusions

It is sometimes claimed that autocrats are well placed to take long-term decisions that favour growth and development. This argument has usually been supported by particular historical cases, but more formal statistical evidence has been lacking and the concept of the benevolent autocrat has some fierce critics, notably Easterly (2013).

In this paper, we cast some doubt on the argument. We construct a simple statistical proxy for long-term orientation, and then show that its distribution under democracy

first-order stochastically dominates the distribution under autocracy. This suggests that variation in long-term orientation is unlikely to explain the tendency for growth rates to vary more across autocracies than across democracies. The true sources of the autocratic gamble remain an interesting conundrum.

5 Appendix

Table 7: Highest and lowest LTO in country-decades

<i>Country</i>	<i>Years</i>	<i>LTO</i>	<i>Growth rate (%)</i>	<i>Democracy score</i>
Highest LTO				
Norway	2010-19	4.61	0.48	1
Norway	2000-09	4.60	0.79	1
Norway	1990-99	4.60	2.78	1
Norway	1970-79	4.54	3.67	1
Norway	1980-89	4.54	2.01	1
Sweden	1980-89	4.35	1.86	1
Sweden	1990-99	4.22	1.28	1
Sweden	1970-79	4.20	1.47	1
Denmark	2000-09	4.19	0.24	1
Denmark	2010-19	4.18	1.35	1
Denmark	1980-89	4.18	1.91	1
Denmark	1990-99	4.18	1.92	1
Denmark	1970-79	4.15	1.81	1
Norway	1960-69	4.11	3.18	1
Luxembourg	2010-19	4.05	0.65	1
Luxembourg	1990-99	4.00	2.81	1
Luxembourg	2000-09	4.00	0.89	1
Luxembourg	1980-89	4.00	3.95	1
Sweden	2000-09	3.82	1.13	1
Germany	2000-09	3.74	0.51	1
Lowest LTO				
Cape Verde	1960-69	-3.65	2.07	0
Namibia	1970-79	-3.69	0.45	0
Democratic Republic of the Congo	1980-89	-3.75	-0.83	0
Djibouti	1970-79	-3.75	-6.03	0
Haiti	1970-79	-3.83	2.27	0
El Salvador	1960-69	-3.85	1.90	0
Syria	2010-19	-3.89	-5.46	0
Guinea-Bissau	1960-69	-3.90	0.98	0
Haiti	1960-69	-3.91	-1.12	0
El Salvador	1970-79	-3.97	2.03	0
Honduras	1970-79	-4.01	2.47	0
Cambodia	1980-89	-4.07	2.56	0
Namibia	1960-69	-4.17	3.26	0
Uganda	1970-79	-4.41	-3.97	0
Cambodia	1970-79	-4.47	-6.48	0
Paraguay	1980-89	-4.83	0.16	0
Nicaragua	1960-69	-4.86	3.96	0
Paraguay	1970-79	-4.91	5.09	0

Note: 0 denotes country-decades classified as stable autocracies, 1 denotes stable democracies, 99 denotes undetermined country-decades.

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