

The Impact of Economic Growth on Democracy, 1960-2014

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Abstract

Whether economic growth leads to increased democratic governance is a highly contested question. Several influential studies show a consistent, positive relationship between the two factors over the past 500 years but mixed and inconsistent effects over the past 40 years. Given that the impact of growth is uncertain for the shorter period, we perform a battery of empirical analyses for the years 1960-2014 and provide evidence for a negative, not positive, relationship between growth and democracy. This finding is new in the literature and robust regardless of different estimation methods, model specifications, and sample selections.

Keywords: Economy, Democracy, Growth, Development, Fixed Effect,
Cross-National Time-Series

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I. Introduction

How does economic growth affect democracy? We revisit this extensively studied but unresolved research question. A long-held scholarly view is that economic growth has a benevolent effect on cultivating democratic political systems. However, the evidence from recent studies on the impact of growth on democracy is inconsistent and mixed, especially for the post war period. Beside, previous research has never considered the possibility that economic boom negatively affects political liberalization.

In this paper, we theoretically explore how economic affluence earned from economic growth may provide incumbent leaders with incentives and resources to monopolize political power and strengthen repressive institutions. For this theoretical argument, we offer a battery of cross-national time series analyses for the 1960-2014 period including 155 countries. Our test results show that economic growth has a significant negative, rather than positive, impact on democracy.

This study proceeds with our review on previous research and our theoretical discussion on how economic growth exerts a detrimental effect on democracy. We then perform empirical tests for possible mutual causality between the two factors. Because our tests indicate only one-way causal direction going from growth to democracy, we choose a single-equation modeling strategy. We discuss details of model specification, operationalization, and data sources, and present statistical results based on OLS regression models and GMMs with year and country fixed effects. We conclude with implications and suggestions for policy and future research.

II. Literature Review

Lipset (1959, 80) is one of the pioneering scholars who contend that a broad process of modernization, driven by economic growth, brings about social and economic changes that pave the path toward democracy and an increase in “industrialization, urbanization, wealth, and education.” But his theory is not unchallenged, as skeptics have questioned the validity of the growth and democracy nexus (North and Weingast 1989). In responding to skepticism, a group of scholars have attempted to refine our understanding of the effect of economic growth. For instance, scholars have suggested

that growth fosters favorable social, political, and economic conditions when pluralizing socio-political interests (Dahl 1971), building social ties (Tilly 2000), reducing inequality and distributional conflict (Boix 2003), and increasing the popular desire for individual autonomy and self-expression (Inglehart and Welzel 2005). Without a doubt, these theoretical refinements aim to underscore the benefits of economic growth/increased income that are ultimately expected to shift the preferences of both citizens and elites toward democratic governance over dictatorship.

The theory of economic modernization explains that high-income countries are associated with higher levels of democratic governance than low-income countries. The 2016 Freedom House Report produces evidence for the modernization theory as it classifies 33 of the 35 member countries of the Organization for Economic Co-operation and Growth to be *free* (94 percent), and the remaining two, Mexico and Turkey, to be *partly free*.¹ The World Bank shows similar statistics after defining a high-income country as one with gross national income per capita above US \$12,475. It identifies 79 economies as high-income, of which 45 countries are democratic, scoring an average of 6.91 on a scale of -10 (most autocratic) to 10 (most democratic) according to the Polity project.² It further finds that 120 low or middle-income countries are non-democratic, with an average Polity score of 3.2

Nonetheless, several scholars are still critical of these theoretical refinements and empirical findings. Two of these scholarly criticisms are worth noting here, given the waves they make in the ongoing debate in the literature. The first criticism comes from Przeworski and Limongi (1997) who argue for differentiating between endogenous and exogenous effects. They explain that the former arises when growth causes the emergence of democracies out of dictatorships, while the latter occurs when growth helps democracies last longer. They contend that the cross-national relationship between growth and democracy is exogenous, but not necessarily endogenous. But Boix and Stokes (2003) disagree with Przeworski and Limongi about the endogenous and exogenous effects as well as the empirical findings for a relatively short time (1950-1990). They collect a dataset for an expanded period of 1850-1950 and demonstrate that the endogenous, not exogenous, effect was strong up until 1950 but became negligible afterward. Epstein et al. (2006) take a closer look at the controversial

¹ Freedom House. 2016. "Freedom in the World 2016." https://freedomhouse.org/sites/default/files/FH_FITW_Report_2016.pdf (accessed on November 21, 2021).

² The Polity Project. "About Polity." <http://www.systemicpeace.org/polityproject.html> (accessed on November 21, 2021).

post-Cold War period and find that high-incomes increase the likelihood of transition *to* democracy and decrease the likelihood of transition *out of* democracy. Yet their findings indicate that the year-to-year GDP growth of countries is negatively associated with democracy, meaning that fast economic growth makes countries more autocratic rather than democratic.

The second criticism comes from Acemoglu et al. (2008). They show that economic growth is not a significant promoter of democratic governance in terms of “within-country variation” (as the national economy grows, a country becomes more democratic) but not “cross-national variation” (wealthy countries tend to be more democratic than poor countries). To demonstrate a lack of evidence for within-country variation, they introduce two-way fixed-effects of countries and years, accounting for common systemic shocks to all countries in particular years and vice versa. Their fixed-effects modeling eliminates the significant and positive effect of economic growth on democracy for the years 1960-2000. In their analysis, growth appears to be significant only when the temporal domain is extended to a much longer historical period, 1500-2000. However, they do not view the long-run historical effect to be causal. They instead attribute it to some divergent confounding factors, such as colonization experiences, ideological shocks, the maturity of industrialization, the mode of independence, and state formation, which interlinked political and growth paths at certain historical junctures.

Acemoglu et al.’s (2008) findings have sparked another round in this scholarly debate. For example, Boix (2011) contends that though growth triggers democratization processes, the impact is different across historical times, depending on how much growth has already been made and how the international system has been structured in favor of democratization. His fixed-effects analysis discovers a significant beneficial effect of per capita income on the process of democratization for a relatively long period, 1820-2000. The positive relationship, however, does not emerge for the last 40 years of his study period. Treisman (2015) offers another nuanced finding: the effect of growth on democracy is strongest in the medium runs (10 to 20 years). He explains that fast economic growth helps dictators prolong their political power, suggesting that wealth can only induce democratic breakthroughs “after an incumbent leaves office” (927). When extending the period back to 1820, he notices the strongest impact of growth in the panels of 10-20 year intervals. However, this empirical pattern does not persist during the alternative period of inquiry, 1875-2004. When the shorter period

1960–2000 is examined, the growth-democracy relationship does not hold.³

It seems that although the effect of economic growth is positive for a considerably long historical period, it remains unclear and inconsistent for a shorter period, especially since 1960. This empirical inconsistency for the years since 1960 creates an interesting and important puzzle for scholars and policymakers. Given the contested findings, we choose to deal with the past 55 years, from 1960 to 2014, as the study of inquiry. Above all, the 55 years reflect the dynamics of growth and democracy that are the most pertinent to the contemporary world.

We attribute the inconsistent findings about the growth-democracy nexus during the postwar period to two deficiencies that are present in the previous research programs. First, the literature overlooks the possibility that economic growth may be detrimental to the growth of democratic political institutions. It may be the case that a fast-growing economy incentivizes incumbent leaders to monopolize political power and oppress oppositions in the pretext of continued economic growth. This is because incumbent leaders primarily seek to stay in power. This power-seeking behavior of leaders likely offsets or outplays the presumed beneficial effects of growth on democracy. Accordingly, we argue that economically successful leaders are not motivated to cultivate democratic institutions at the expense of their political power so that growth is unlikely to bring about democratic governance.

Our argument is partially in line with Przeworski and Limongi's (1997, 159) observation: "[democratic] transitions are increasingly likely as per capita income of dictatorships rises but only until it reaches a level of about \$6,000. Above that, dictatorships become more stable as countries become more affluent." But our argument is different from Przeworski and Limongi's threshold argument in the sense that we conceive a linear, negative relationship between growth and democracy.⁴ We argue that economic success intensifies leaders' desire for maximizing their power so that they aggressively pursue political monopolization and resort to harsh repressive measures against possible political challenges, whether from government insiders or outsiders. Our rationale is based on three points. The first point is that the upward movement of the national economy emboldens political leaders to have extra self-confidence in their policy competence and statecraft. The second point is that economic growth helps

³ These studies' null finding for the past 40 years appears to be consistent with Przeworski and Limongi's (1997, 177) observation that "[t]he emergence of democracy is not a by-product of economic development... [I]t can be initiated at any level of development."

⁴ We discuss empirical implications of the Przeworski and Limongi insight.

increase popular support for the incumbent leaders. Popular leaders then tend to project themselves as benevolent guides for the nation and think that they deserve many more years to run the government. The third point is that increased economic fortune provides leaders with material and strategic resources to act up to their enhanced political ambitions. Benefitting from affluent resources, self-assertive leaders are likely to centralize national power and resort to repressive measures against political oppositions and pro-democracy forces. In doing so, they likely believe that their undemocratic rule would be justified as long as economic prosperity and political stability continue under their strong leadership.

The second shortcoming of the current literature is the dearth of the systematic examination of the negative effect of growth. The literature neglects to empirically evaluate how strong the negative effect of growth is on the evolution of democratic institutions. For instance, Acemoglu et al.'s (2008) statistical models are designed to test the null, not negative, effect of growth based on multi-year collapsed panel data for a short period of 40 years or so, in which observations are grouped in 5, 10, or 25-year intervals. To conduct systematic tests on the negative impact of growth, we depart from the multi-year collapsed panel data and instead introduce a cross-sectional, time-series data of 155 countries for the period from 1960 to 2014. We employ country and year fixed-effects models to assess the growth and democracy connection in terms of within-country variation while controlling for common systemic shocks to countries and years. As an effort to circumvent a problem with the multi-year collapsed panel data, we use annual-level data for the baseline model but, as robustness checks, we also implement multi-year intervals of 5 and 9 years. Our use of multi-year forfeits some important information across years: a 5-year interval for our 1960-2014 sample data means no more than 10 observations for each country, a 10-year interval 5 observations, and a 25-year interval 2 observations, arbitrarily limiting the within-country variation (see Boix 2011).

In contrast, the use of annual-level data allows us to explore the varying effects of economic growth on democracy and to address the possible long-run effects by including multiple lags (i.e., $t-1$, $t-2$, $t-3$, $t-4$, $t-5$... $t-j$) (see Treisman 2015). Simply put, we employ distributed lag models under the assumption that the effect of economic growth on democracy occurs over time rather than all at once. The annual data might lead us to draw erroneous inferences if we did not consider the presence of serial correlation in the sample data. This issue necessitates two robustness tests: multi-year intervals of 5

and 9 years and Arellano-Bond's (1991) generalized method of moments (GMM). GMM is, in particular, known for being a consistent and efficient estimator that effectively addresses serial correlation. Our overall analyses produce evidence for a significant and negative effect of economic growth on democracy for the years 1960-2014. This evidence is novel in the literature and robust irrespective of different estimation methods, model specifications, and sample selections.

Additionally, we look into the possibility of non-linearity in the growth-democracy connection raised by Przeworski and Limongi (1997) and other recent critics of Acemoglu et al. (2008). Moral-Benito and Bartolucci (2012), for example, find a positive but nonlinear effect of growth on democracy. They show that there is no positive effect among rich countries (because they cannot democratize any more), but a substantial benefit among poor countries. Similarly, Benhabib, Corvalan, and Spiegel (2013) uncover a positive association after considering that democracy indices are right-censored and many countries are located at the boundaries.

This study proceeds with our theoretical discussion on how economic growth exerts a detrimental effect on democracy. We then perform empirical tests for possible mutual causality between the two factors. Because our tests indicate only one-way causal direction going from growth to democracy, we choose a single-equation modeling strategy. We discuss details of model specification, operationalization, and data sources, and present statistical results based on OLS regression models and GMMs with year and country fixed effects. We conclude with implications and suggestions for policy and future research.

III. Why Economic Growth Suppresses Democracy

Existing studies maintain either that economic growth helps foster democratic political institutions (Boix and Stokes 2003) or that it has no bearing on democratization (Acemoglu et al. 2008). However, they overlook the possibility of growth as a negative inducer, encroaching on democratic political systems. Although a few studies allude a negative relationship between growth and democracy (Przeworski and Limongi 1997; Bueno de Mesquita and Downs 2005; Treisman 2015), we are the first to elaborate on that: economic growth is likely to bring about more undemocratic

practices. We reason that economically successful leaders such as presidents and prime ministers have enormous incentives to expand their political power rather than to give it up for the promotion of democratic governance. Successful economic growth creates conditions and wherewithal for political leaders to centralize the government and implement repressive measures. We offer three reasons for the negative relationship between the two factors: a prosperous national economy likely increases (1) the popularity of political leaders, (2) their self-confidence and sense of entitlement, and (3) resources for political monopolization and repression. Simply put, successful economic achievements embolden leaders to reinvent themselves as only saviors in nation-building and view pro-democracy movements as obstacles for further economic growth.

First, economic success is likely to boost public support for political leaders and their desire for prolonging and expanding power. A most widely accepted fact about leaders is that their ultimate goal is to maximize their time in power. Leaders understand that one of their best strategies for prolonging power is to elevate the capacity of the national economy as it can please the populace with the improved economic condition-, which in turn contributes to increased and continued public support for the top leadership. As indicated in the popular phrase, “It’s the economy, stupid,” national leaders know how to appreciate the benefits of economic growth that create better conditions for employment opportunities and living conditions, and ultimately lead to the growth of more materially satisfied people under their leadership. Many leaders initiate economic growth with a relatively simple plan to save poverty-stricken people. As the national economy emerges out of poverty, it becomes convenient for leaders to claim most of the credit and to ask for popular support for their governance. Indeed, economic prosperity helps top leaders raise their popularity and push through their political agenda under the pretext of guaranteeing continued economic progress.

Various empirical studies lend credence to our argument that leaders’ popularity relates to their economic performance, whether in democracies or autocracies. The economic voting literature points out that people are likely to vote for incumbent leaders with successful economic achievements. The evidence is found not just in advanced democracies, but also in many other countries in Latin America (Remmer 1991), East Central Europe (Pacek 1994), and developing regions (Lewis-Beck and Stegmaier 2008). Several survey-based studies also produce empirical evidence that is consistent with those case studies. Bielasiak and Blunck (2002) find that in Poland, economic evaluation influences electoral choices of voters. Hesli and Bashkirova (2001)

indicate that Russian citizens are more likely to vote for the presidential candidate whose economic performance is satisfactory. Even a legacy of economic success leads to a strong popular endorsement. For instance, examining 70 founding election outcomes, Jhee (2008) shows that successful economic records under authoritarianism lead to an increase in vote share for those candidates who succeeded the legacy of former leaders. Recent examples of legacy candidates include Park Geun Hye, former President of South Korea, who was democratically elected by popular vote, thanks to her late father, Park Chung Hee, whose military dictatorship was perceived as making the economic miracle possible; and Lee Hsien Loong, Prime Minister of Singapore since 2004, who is the eldest son of Lee Kuan Yew, whose authoritarian rule spanned 31 years owing to continued economic booms.

Second, the boosted popular support is likely to inflate leaders' self-confidence in their policy capacity and competency and their sense of entitlement to political power and public obedience. Over and above political popularity, successful economic performance *per se* can produce a sense of overconfidence and entitlement, which is well documented in the behavioral economics literature. For instance, a formal model by Gervis and Odean (2001) makes the case that traders in financial markets become overconfident and aggressive in future business transactions as they continue to gain more profits successfully. An empirical study by Deaves, Luders, and Schroder (2010) corroborates the formal modeling. Examining the ZEW Finanzmarkttest, a monthly survey of about 350 financial market practitioners in Germany, they uncover that successful market experiences exacerbate overconfidence as stock market respondents make forecasts for stock markets with narrower confidence intervals.

Overconfidence born of success is associated with attribution bias: people tend to attribute successes to their dispositions but failures to external forces (Stucke 2003). Even normal people can become overconfident and narcissistic, which is necessary for self-preservation and progress and thus not necessarily a negative motivator (Maccoby 2000). An interesting fact is that overconfidence and entitlement are more apparent for those who lead than those who follow (Anderson et al. 2012). Especially when the national economy grows strong and steady, which is considered to be a major policy success, leaders are prone to more overconfidence and entitlement. At the height of economic success, leaders may tend to develop a feeling of entitlement. Taking excessive credits for past economic success and making optimistic predictions about their future performances, these leaders are likely to claim that they are most suited to

rule the country.

A successful national economy not only increases the political popularity of national leaders and their legitimacy to rule but also induces leaders' overconfidence and sense of entitlement. These two effects act together to incentivize leaders to perpetuate and expand their political power. Now that economically successful leaders are backed by soaring popularity and emboldened with overconfidence, they are more likely to undermine the separation of powers and smother opposition voices as a way to monopolize and expand their political power.

Third, resource affluence resulted from economic booms further facilitates the democracy-degrading process of economic growth. Economic growth generates additional resources for leaders that can be used to build highly centralized state apparatuses and "strengthen oppressive regimes" (Bueno de Mesquita and Downs 2005:77). Establishing state centralization and power monopolization is costly and expensive endeavors for leaders. Yet, abundant resources make it easier for leaders to finance intelligence services and internal security forces to monitor and thwart possible political threats from regime insiders, oppositional factions, and the general public (Ross 2001).

Although leaders wish to hold on to power for as long as they can, they live under constant challenges from inside and outside the regime. Thus, leaders need to develop political statecraft through which they can identify loyalists and dissidents, to reward loyalists, and to punish dissidents. The most common and formidable challenge comes from regime insiders, especially coup plotters (Svolik 2012). Hence, many leaders endeavor to secure their regime by appointing close friends to key military positions as a way to buy off their support and consolidate their loyalty. The military may then be paid off materially and kept busy and satisfied professionally. Leaders encourage military officers to sharpen their expertise on weapons and tactics over military valor during their service and provide them with ample opportunities for monetary rewards upon retirement. Many old and current political regimes in South Korea, Taiwan, the Philippines, Singapore, Egypt, Saudi Arabia, Iraq, and Syria have created free military education systems such as the cadet academy, staff colleges, and overseas study and training (Quinlivan 1999). Military and political loyalists have also enjoyed economic privileges in the form of patronage and public work projects (Miquel 2007). State-owned companies or government-affiliated companies have often been run by retired generals and other regime insiders (Barry 2011). Indeed, this buy-out form of statecraft that purports to prevent potential military coups would be too costly and

expensive without resource affluence cumulated from growing economic activity.

Other alternative measures, such as parallel military forces and multiple internal security agencies, are also expensive to create and maintain effectively. Leaders may develop other types of state apparatuses such as security forces, public intelligence, and jurisdictional and prison systems to monitor the entire nation and/or thwart political challenges. Without a doubt, those coup-proofing and power-centralizing measures help leaders subvert constitutional limits and prolong their political authority. In addition, since economic growth increases state revenues, it is very likely to strengthen a regime's capacity to effectively subdue dissents and control the population (Miller 2012; Kennedy 2010; Bueno de Mesquita and Downs 2005;).

We have thus far argued that economic growth brings about the democracy-downgrading forces, such as increased political popularity, overconfidence, and material abundance that encourage the power expansion of incumbent leaders. However, we also acknowledge that leaders' economic success may serve as a double-edged sword since it can also lead to the creation of an entrepreneurial and sophisticated middle class that may become active political participants (Lipset 1959; Inglehart and Welzel 2005). When economic prosperity expands, many low-income people advance to the middle class, some of whom are then likely to have high expectations about their political rights and start to demand an establishment of democratic political institutions. By actively participating in the political process such as street protests and general strikes and by loudly vocalizing their political rights, the newly-emerged middle class may serve as a new driving force in democratization movements. In responding to growing demands from the middle class, leaders may have to liberalize the political sector, allowing citizens to have more access to political freedom and rights. In this scenario, economic prosperity may appear to encourage the growth of democratic political institutions (Przeworski and Limongi 1997).

However, we disagree on the role of the middle class. We contend that when leaders are filled with a sense of entitlement, giving away their power to a newly-formed middle class would be at odds with their sense of entitlement, leading them to take aggressive and violent measures against democratization movements. The rationale for this reasoning is multi-layered. First, as discussed above, economically successful leaders are those who possess a highly inflated sense of self-image and entitlement resulting from their successful track records of economic growth. Their desire for more power is too strong to give in to democratization movements. As the

psychological literature points out, success breeds not just overconfidence, hubris, entitlement, and preoccupation of power, but also other psychological traits associated with narcissistic pathologies, such as self-absorption, aggressiveness, hostility, and violence (Collins 2009). When their position and power are about to be compromised and threatened, economically successful leaders tend to be hypersensitive and react with extreme anger and horrific atrocities (Kerberg 1989). Therefore, their response to the voices of democracy tends to be brutal and violent to deflect new political challenges and continue to enjoy their political privileges.

Second, economic success and high job approval ratings enable leaders to enlarge the size of their support. Leaders understand that they can collect wide popular support from their side and drive a wedge between average people and democracy activists. They use grandiose language and imagery to emphasize their policy competence and achievement while portraying democracy activists and supporters as ungrounded, destabilizing, incompetent, even evil and dangerous to debase their political foothold (Tan 2011). Incumbent leaders put effort into propaganda continuing security, affluence, comfort, and efficiency. This kind of rhetoric may resonate to a good size of the populace, making them willing to relinquish much of its autonomy and political freedom for continued economic prosperity. This argument also makes sense in terms of loss aversion: losses have a greater influence on choices than corresponding gains. Loss aversion looms even larger for those who have experienced a certain level of income and wealth (Gachter, Johnson, and Herrmann 2007). Note that economic growth produces a large portion of the population that invests in the old rules and institutions (Kennedy 2010). These people tend to prioritize material benefits over political freedom, and many colluding groups are reluctant to back away from the incumbent leadership in fear of falling behind.⁵ As long as a large portion of society subscribe to a belief that they will be better off with their economically successful leader, they are likely to accept repressive politics (Frank 2016). Therefore, the government's use of repressive measures against democratic movements becomes tolerable to a majority of people, as well as to regime insiders, for the sake of continuing political stability and economic growth.

A good example can be found in South Korea, where people enjoyed economic booms under military dictatorship in the 1970s and thus became willing to hold off on

⁵ Ingehart and Welzel (2005), however, maintain that economic growth triggers cultural changes that make individual autonomy and democracy increasingly likely.

or sacrifice political freedom for the prospective prosperity in the remote future. With a promise of resuscitating the national economy, Lee Myung-Bak was democratically elected as president in December 2007. Before his presidential inauguration, most South Koreans believed in democratic consolidation because it was already the second time they witnessed the democratic and peaceful transfer of power between progressive and conservative regimes. However, as soon as Lee was sworn in as president, he wasted no time in implementing semi-authoritarian rule under the conviction that just like the developmental dictatorship of Park Chung-Hee, his semi-authoritarian rule would be legitimized through his promised rapid economic growth. Lee's economy first policy was propagandized as a 747 Plan that aimed to obtain 7% annual GDP growth and \$40,000 USD per capita income and transform South Korea into the world's seventh-largest economy. Charged with his success as the CEO of Hyundai Engineering and Construction and the mayor of Seoul, he portrayed himself as a reification of Park Chung-Hee who forcefully defended his military dictatorship as a necessary prerequisite to the Korean economic miracle.

Third, the incumbent government can capitalize on the structural and material advantages against possible political challengers. Incumbent leaders would have already invested a great deal of time in securing their political monopolization and in developing political tools to repress the opposition. They can further redirect increased state revenues toward these areas to clamp down on democracy activists and protesters. Although economic prosperity generates more economically empowered people, their political power is still too shaky to challenge a popular and resourceful leader who is ready to use repressive security measures and even the military at all costs. Indeed, economic growth tends to favor states' repressive capacity over citizens' resistance ability (Miller 2012; Kennedy 2010). Bueno de Mesquita and Downs (2005, 80) make a similar observation: "[leaders] set the rules of the game and rig them to suit their interests."

It is not rational for economically successful leaders of developing countries to voluntarily relinquish their invested power. Increased popularity and state revenues boost leaders' confidence in manipulating political games to protect their interests. As a way to eschew political challenges, they are likely to use even very harsh repressive measures, such as torture and imprisonment, against pro-democracy protesters. They are likely to think that they can justify the necessity of such harsh repression measures in the name of prolonging political stability and economic prosperity. A series of human

rights violations follows and thus any progress of democratic institutions becomes reversed. The use of repression then deteriorates the quality of political systems (Svolik 2012). Accordingly, it is not difficult to visualize a political setback that results from economically-induced political manipulations under strong leaders.

To summarize, economic growth helps leaders enlarge their support base, create a strong power coalition and political monopolization, and increase repressive capacity. Emboldened by these advantages, leaders are likely to suppress pro-democracy forces by invoking the convenient excuse that democratic political institutions will be detrimental to economic growth. The result of repression is the decline of democratic governance. Therefore, we formulate our hypothesis on the relationship between growth and democracy as follows:

H₁: As the national economy develops, the level of democracy decreases.

We acknowledge the possibility that the degrading effect of economic growth on democratic governance may not be the case with democracies. When a democratic leader enjoys political popularity thanks to an economic boom, s/he would not risk installing undemocratic institutional changes.⁶ This possible nonlinearity is considered in our empirical tests as a robustness check.

IV. Mutual Causality:

Panel Vector Autoregression-Granger Causality Wald Tests

Our theoretical argument assumes that the causality is unidirectional, going from economic growth to democracy; however, there is a possibility that the relationship runs on a two-way street. While a growing economy opens up democratic governance, the latter may also trigger the former. We need to investigate this possibility before finalizing our model specification. If our model does not account for such a two-way causal relationship, our inferences and conclusions might turn out to be unreliable and misleading. Using a recently developed statistical technique-Panel Vector Autoregression-Granger Causality Wald tests (Abrigo and Love 2016), we empirically test the

⁶ We owe this point to an anonymous reviewer.

possibility of a reciprocal relationship between growth and democracy.

Abrego and Love develop Granger Causality Wald tests for cross-national, time-series data because previous Granger causality tests are designed to analyze time-series data only. Table 1 displays the test results. The null hypothesis is that the excluded variable does not Granger-cause the equation variable. It turns out that economic growth Granger-causes democracy at the 0.001 level, but the other way around is not the case. The empirical evidence that the causal direction goes from growth to democracy leads us to believe that we can confidently build a single statistical model without worrying about simultaneity bias in the relationship.

Table 1 Panel Vector Autoregression-Granger Causality Wald Test

Ho: Excluded variable does not Granger-cause Equation variable
Ha: Excluded variable Granger-causes Equation variable

Equation \ Excluded	χ^2	Degree of Freedom	Probability > χ^2
Democracy Equation:			
Econ Growth _{<i>it-1</i>}	21.506	1	0.000
ALL	21.506	1	0.000
Econ Growth Equation:			
Democracy _{<i>it-1</i>}	1.354	1	0.245
ALL	1.354	1	0.245

V. Building a Statistical Model of Democracy

To examine the one-way relationship going from economic growth to democracy, we build a statistical model as follows:

$$\begin{aligned}
 Democracy_{it} = & \alpha_1 + \alpha_2 Democracy_{it-1} + \alpha_3 Economic\ Growth_{it-1} + \\
 & \alpha_4 \text{ to } \alpha_{10} Year\ Dummies_{it} + \alpha_{11} \text{ to } \alpha_{20} Country\ Dummies_{it} + \varepsilon_{it}
 \end{aligned}$$

The model assumes that democracy at time t is a function of democracy at time $t-1$, economic growth at time $t-1$, year dummies, and country dummies. As in Acemoglu et al. (2008) whose fixed effects model has become standard in the areas of growth and democracy, we also control for year and country fixed-effects. Because the dependent variable is continuous, we employ OLS regression as our main estimation method.

To check how many lagged terms of the growth variable affect the level of democracy, we add its lagged measures until the sum of their coefficients turns into zero, indicating no more significant effect of growth.⁷ This estimation strategy is called distributed lag models and considers that the effects of growth do not occur instantaneously but are distributed over a long period of time (Hamilton 1994). For illustration purposes, our study shows estimated results with five and 28 lagged terms for growth. Note that the sum of the coefficients on lagged growth variables becomes zero when 29 lagged terms are included in the model.

As robustness checks, we convert the annual data to five- and nine-year interval data⁸ and then employ two statistical techniques: OLS regression and a generalized method of moments (GMM) estimator developed by Arellano and Bond (1991). These robustness tests follow the estimation strategy of Acemoglu et al. (2008) who introduce multi-year intervals and GMM to alleviate concern about serial correlation. Acemoglu et al. (2008) underscore that GMM is a consistent and efficient estimator that effectively addresses autocorrelation in panel data.

Our temporal domain focuses on the past 55 years, 1960-2014. We choose this recent period for two reasons. First, the previous findings for these years are the most controversial and inconsistent in the literature. But no existing studies take a closer look at the mixed findings using distributed lag models. If we recognize that a change in the level of an explanatory variable may have behavioral implications beyond the time period in which it occurred, we need to model the consequences of economic decisions that result in changes in economic variables can last a long time. Accordingly, we consider that the effects of economic growth do not occur instantaneously but are spread, or *distributed*, over future time periods. As shown in the result tables, economic actions taken at one point in time, t , affect the economy at time t , but also at times

⁷ The two most commonly used criteria in model selection, the Akaike information criterion and the Bayesian information criterion, lead us to the same conclusion about how many lags are most appropriate.

⁸ Nine-year data is one-sixth of the entire 54 year sample period.

$t+1$, $t+2$, and so on. Changes in economic growth are likely to take at least a few years to have a noticeable effect; then it is likely to take a much longer period for the growth effects to work through the economy and the nation (Hamilton 1994). This is why it is important to incorporate this lag effect by saying that a change in democracy is affected by the values of economic growth at time t , $t-1$, $t-2$, and so on.

Second, the years are more relevant to understanding the growth and democracy nexus in the contemporary world than the ancient time of democratization, say 500 years ago. The years cover the Second Wave of democracy that happened between 1962 and the early-1970s as well as the Third Wave that began in 1974 (Carnation Revolution, Portugal). In contrast, an empirical study of 500 years ago (e.g., 1500–2000) is less relevant to an inquiry on the growth and democracy connection because the First Wave of democracy started only in the early 19th century (1828–1926) (Huntington 1993). We put forth an elaborated theoretical perspective on the effect of economic growth on democracy, collect recent indicators for empirical testing, and report new empirical regularities on the growth and democracy connection. We demonstrate that even after controlling for year and country fixed-effects (as well as multiple third factors), economic growth exerts a significant and negative effect on democratic governance. This finding suggests that when the unique characteristics of each year and each country are taken into account, increased economic fortune fails to translate into improved democratic governance and instead endangers democratic political systems.

Economic growth is measured in GDP per capita in constant 2005 U.S. dollars. Because the distribution of GDP per capita has a positive skew, we take a natural logarithm of the variable, helping it fit into our model's assumptions. GDP per capita is collected from the World Bank's *Economic Development Indicators 2015*, covering the data from 1960 to 2014.⁹ Acemoglu et al.'s (2019) study uses the same World Bank source whose data starts from 1960 and ends in 2010. The period from 1960 to 2014 is suitable for our empirical analysis that purports to examine the current, rather than old, controversial dynamics between growth and democracy.

Democracy is taken from the Polity IV Annual Time-Series, 1800–2014.¹⁰ Polity provides an eleven-point additive score for both democracies and autocracies to capture the overall quality of democratic political institutions. Each additive score goes from 0

⁹ The World Bank. "World Development Indicators." <http://data.worldbank.org/data-catalog/world-development-indicators> (accessed on November 21, 2021).

¹⁰ The Polity Project. "About Polity." <http://www.systemicpeace.org/inscrdata.html> (accessed on November 21, 2021).

to 10. Subtracting the autocracy score from the democracy score produces a composite index that can range from full autocracy (-10) to full democracy (+10). Because economic growth and democracy data share the same 54 years between 1960 and 2014, we choose to analyze their causal connection during that period. The study period yields 155 countries as the sample.

While oil revenue generates high GDP per capita for oil-producing countries, oil-resource abundance may be a curse to democratic governance (Ross 2001). To account for the possible confounding effect of oil-exporting countries, we create a dummy variable for OPEC member countries. Although OPEC currently consists of 14 countries, we did not code Equatorial Guinea (joined 2017) and Congo (joined 2018) as the member countries given the fact that they acquired their membership after 2014, the last year of our data analysis.

In his pioneering work, Lipset (1959, 92-98) discusses three major factors that may have influenced the link between economic growth and democracy in Western societies: religion, workers' rights, and the distribution of the national income. What was the role of various religions within the nation? How were the workers' rights to bargain collectively in the economic sphere addressed as the nation progressed? Was there an ongoing struggle over the distribution of the national income? Lipset emphasizes that, depending on how these critical questions were resolved throughout history, the nation may have taken different paths of political and economic institutionalization-these three issues were indeed projected as a source of tensions in the process of the nation's economic and political advancements. Since these three factors may serve as potentially important confounding variables in our model but since no existing studies systematically incorporate them into statistical modeling, we choose to control for their effects in the estimation.

It is worth noting that by introducing religion as another potential determinant of democracy, Acemoglu et al.'s (2008) study appears to address some of Lipset's insights. Their study uncovers that Islam is detrimental to democracy at the 0.10 significance level. In our analysis, religion is operationalized as the percentage of each of the five largest religious groups-Christian, Muslim, Hindu, Buddhist, and Chinese folk religionist.¹¹ The data varies across countries and years, gathered from Brown and James's Religious Characteristics of State Dataset for the years, 1790-2010.¹²

¹¹ Chinese folk religionist is different from Confucianist, as the former refers to religious believers but the latter is believers on the teachings of Confucius.

To the best of our knowledge, the effect of workers' rights is not seriously investigated in previous studies of growth and democracy, so our analysis is a first-cut research on the subject. Our workers' rights variable measures the degree to which workers enjoy the freedom of association at their workplaces and the right to bargain collectively with their employers. A score of '0' indicates that workers' rights were severely restricted; a score of 1 indicates that workers' rights were somewhat restricted, and a score of 2 indicates that workers' rights were fully protected during the year in question. We collect the data from the Cingranelli-Richards human rights dataset, which is available for the years, 1981-2011.

Boix (2003, 37) appears to concur with Lipset to the extent that with reduced income inequality and increased capital mobility, "economic tensions decline, and the rich are increasingly inclined to accept a democratic regime." We measure income distribution based on the World Bank's (2015) estimated GINI index. We fill missing observations with values inferred from the World Bank's estimates. When Solt's (2014) new collection on Standardized World Income Inequality is used in place of the World Bank data, the main findings of this study do not substantively change, and thus, the results are not reported to economize space.

Although Lipset (1959) does not consider education as one of the major issues in the historical junctures of growth and democracy, he acknowledges that "an entire philosophy of democratic government has seen in increased education the spread of the basic requirement of democracy" (p. 79). This suggests that the better educated the citizens, the better the chances for democracy. Barro (1999) indeed shows that education is an important predictor of democracy. But Acemoglu et al. (2008) find their education variable insignificant when controlling for country fixed-effects. We operationalize education using Barro and Lee's (2013) Educational Attainment Data. It is the total years of schooling in the population aged 25 and over. Because the Barro and Lee data are measured every five years, we fill in the missing values with the value from the previous wave.

¹² Brown, Davis, and Patrick James. 2015. "Religious Characteristics of State Dataset, Phase 1: Demographics." <http://www.thearda.com/Archive/Files/Descriptions/BROWN.asp> (accessed on November 21, 2021).

VI. Empirical Results¹³

Table 2 presents the estimated results. Based on the annual panel data, the first column displays results from an OLS regression model with year and country-fixed effects. As hypothesized, the economic growth variable is significantly different from zero and its sign is negative. This result indicates that increased economic prosperity exerts a significant and dampening effect on political development, worsening the quality of democratic governance. Regarding the temporal effect of democracy, the lagged term has a significant and positive effect on the current democracy level.

The second column includes five lagged terms for both democracy and growth. The first, third, and fifth lagged terms of growth achieve statistical significance with negative, positive, and negative signs, respectively. The negative signs imply that top leaders use undemocratic measures to silence opposition voices for democratization, but according to the third term, which shows a positive sign, leaders also try to appease pro-democracy movements at one point during their governance. What is the overall net effect of growth over the five-year period? To answer the question, we test the null hypothesis that the sum of the coefficients on the first through fifth lagged variables is zero. Our test result suggests that we can reject the null hypothesis at the 0.01 significance level and that the coefficient has a negative sign (see the third column).¹⁴ This means that a high degree of growth is associated with a low level of democratic governance.

We examine more lagged effects by adding a lagged term for growth one by one. We notice that the sum of the estimated coefficients for additional lagged terms remains significant with a negative sign until the 29th lagged term is added in the model. To save space, we present results that are obtained with 28 lagged terms for growth in Column 4. As indicated in the fifth column, the sum of the coefficients for the 28 lagged growth variables is significant and negative. The overall results in Table 2 are in line with our theoretical expectation, but contradictory to the previous research on the growth and democracy nexus.

¹³ Using variance inflation factors, R^2 , eigenvalues, and condition index, we check multicollinearity among the predictors. No serious multicollinearity is found.

¹⁴ When we conduct a joint hypothesis test on the five lagged growth variables, we find that they together explain much of the variation in the democracy variable (F -statistic is 3.18 with the p -value of 0.009).

Table 2 Effect of Economic Growth on Democracy, 1960–2014

Variables	Annual Data				
	OLS 1 Lag 1	OLS 5 Lags 2	Test: Sum to Zero 3	OLS 28 Lags 4	Test: Sum to Zero 5
Democracy _{it-1}	0.880*** (0.010)	0.957*** (0.022)	0.868*** (0.011)	0.846*** (0.033)	0.709*** (0.040)
Democracy _{it-2}		-0.089*** (0.025)		-0.090* (0.036)	
Democracy _{it-3}		-0.015 (0.025)		0.028 (0.036)	
Democracy _{it-4}		0.029 (0.025)		-0.047 (0.027)	
Democracy _{it-5}		-0.013 (0.015)		-0.002 (0.037)	
No estimates shown for 6th to 27th lags				...	
Democracy _{it-28}				-0.020 (0.016)	
Econ Growth _{it-1}	-0.292** (0.097)	-0.908* (0.377)	-0.357** (0.114)	-0.562 (0.855)	-0.879* (0.377)
Econ Growth _{it-2}		0.084 (0.429)		-0.396 (1.398)	
Econ Growth _{it-3}		0.906* (0.443)		1.534 (1.009)	
Econ Growth _{it-4}		0.668 (0.494)		-0.807 (0.772)	
Econ Growth _{it-5}		-1.107** (0.424)		0.501 (0.955)	
No estimates shown for 6th to 27th lags				...	
Econ Growth _{it-28}				-0.243 (0.441)	
Intercept	2.353* (0.905)	2.858** (0.903)		11.466** (4.208)	
Year Fixed-Effect	Yes	Yes		Yes	
Country Fixed-Effect	Yes	Yes		Yes	
R ²	0.95	0.95		0.95	
Countries	155	153		116	
N	6,409	5,785		2,520	

Notes: Robust standard errors are in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, two-tailed tests.

Table 3 Effect of Economic Growth: Autocratic Countries Only

Variables	Annual Data				
	OLS 1 Lag	OLS 5 Lags	Test: Sum to Zero	OLS 28 Lags	Test: Sum to Zero
	1	2	3	4	5
Democracy _{it-1}	0.787*** (0.021)	0.845*** (0.028)	0.772*** (0.024)	0.742*** (0.047)	0.531*** (0.074)
Democracy _{it-2}		-0.067* (0.029)		-0.085* (0.042)	
Democracy _{it-3}		-0.033 (0.029)		-0.006 (0.045)	
Democracy _{it-4}		0.033 (0.029)		-0.042 (0.038)	
Democracy _{it-5}		-0.006 (0.019)		-0.014 (0.049)	
No estimates shown for 6th to 27th lags				...	
Democracy _{it-28}				-0.010 (0.035)	
Econ Growth _{it-1}	-0.328** (0.122)	-0.798* (0.366)	-0.454*** (0.146)	-0.528 (0.918)	-1.689*** (0.461)
Econ Growth _{it-2}		0.009 (0.398)		-1.211 (1.597)	
Econ Growth _{it-3}		0.596 (0.429)		1.525 (1.166)	
Econ Growth _{it-4}		0.729 (0.523)		-0.691 (0.899)	
Econ Growth _{it-5}		-0.991* (0.454)		0.826 (1.012)	
No estimates shown for 6th to 27th lags				...	
Econ Growth _{it-28}				-0.722 (0.522)	
Intercept	2.994** (1.090)	5.529*** (1.453)		16.088*** (3.580)	
Year Fixed-Effect	Yes	Yes		Yes	
Country Fixed-Effect	Yes	Yes		Yes	
R ²	0.89	0.89		0.90	
Countries	120	117		75	
N	3,890	3,454		1,215	

Notes: Robust standard errors are in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, two-tailed tests.

The democracy-promoting effect of economic growth for which previous studies have argued may be at work for autocracies alone. The reason is that economic growth can no longer enhance the quality of a mature democracy due to a ceiling effect. A country, once developed into a full-fledged democracy, cannot become more democratic—democracy measures cannot be coded over the highest value (Moral-Benito and Bartolucci 2012; Benhabib, Corvalan, and Spiegel 2013). But when economic growth continues, it can serve as a stabilizer for autocracies to reinforce their authoritarian rules and repressive practices. To test this argument, we limit our sample countries to autocracies only. Autocracies are identified when their composite Polity score is recorded as 7 or below on a 10 to -10 scale. Table 3 shows the estimated results that are produced after a re-run of Table 2. As far as the growth variable is concerned, we find its significant and negative effect on the outcome variable, confirming our theoretical expectation that economic growth expedites and reinforces autocratic rules.

As additional checks for robustness, we convert the annual data (used for Table 2) into five and nine-year interval data. As mentioned earlier, this approach is introduced by Acemoglu et al. (2008) as an effort to reduce the potential presence of autocorrelation in the panel data. In addition to structuring the data in a less autocorrelation-prone format, Acemoglu et al. also use GMM as an additional estimator in the hope to better deal with a potential bias from serial correlation. Following

Table 4 Economic Growth and Democracy, 1960–2014

Variable	Five-Year Data		Nine-Year Data			
	Fixed-Effects Arellano-Bond		Fixed-Effects		Fixed-Effects Arellano-Bond	
	OLS	GMM	OLS	OLS	GMM	OLS
	1	2	3	4	5	6
Democracy _{it-1}	0.455*** (0.045)	0.530*** (0.091)		0.182*** (0.054)	0.204 (0.114)	
Econ Growth _{it-1}	-1.025* (0.452)	-6.152** (2.175)	-1.583** (0.590)	-2.016** (0.632)	-12.689** (3.986)	-2.109*** (0.612)
Intercept	-2.010 (1.998)		17.278*** (4.956)	7.360 (6.488)		5.673 (6.400)
R ²	0.84		0.78	0.81		0.80
Countries	153	149	154	152	146	154
N	1,133	980	1,170	666	514	696

Notes: Robust standard errors are in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, two-tailed tests.

Acemoglu et al.'s step, we also take advantage of GMM on top of OLS. The results are displayed in Table 4. As long as the significance of the coefficient and its sign pertaining to the growth variable are concerned, we notice that the results do not deviate from those reported in Table 2. Regardless of different estimation methods and model specifications, economic growth appears to be a driver for undermining democratic political institutions.

Table 5 Economic Growth and Democracy, 1960-2014:
Controlling for Five Additional Factors

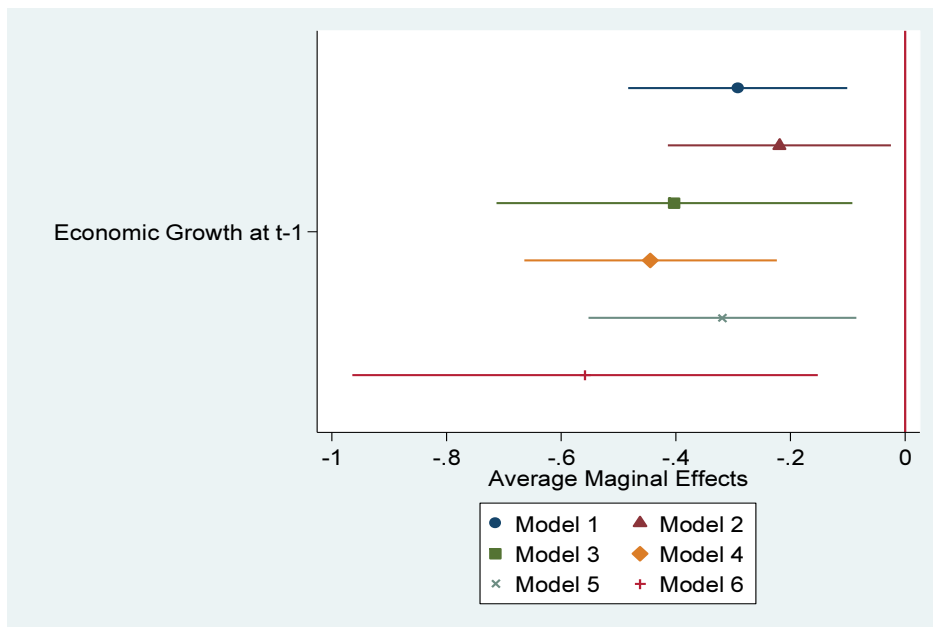
Variable	Annual Data: OLS 1 Lag					
	1	2	3	4	5	6
Democracy _{<i>it-1</i>}	0.880*** (0.010)	0.874*** (0.011)	0.840*** (0.013)	0.872*** (0.011)	0.882*** (0.011)	0.817*** (0.017)
Econ Growth _{<i>it-1</i>}	-0.292** (0.097)	-0.219* (0.098)	-0.403* (0.157)	-0.444*** (0.111)	-0.319** (0.118)	-0.558** (0.205)
OPEC _{<i>it</i>}	-0.956*** (0.130)					1.786 (6.696)
Christians _{<i>it-1</i>}		0.019*** (0.005)				0.043*** (0.010)
Muslims _{<i>it-1</i>}		0.016 (0.010)				0.042* (0.019)
Hindus _{<i>it-1</i>}		0.040 (0.033)				0.079 (0.077)
Buddhists _{<i>it-1</i>}		0.016 (0.014)				0.034*** (0.007)
Chinese Religionists _{<i>it-1</i>}		0.021 (0.030)				-0.005 (0.043)
Workers' Rights _{<i>it-1</i>}			0.096 (0.064)			0.034 (0.079)
Income Distribution _{<i>it-1</i>}				-0.004 (0.008)		-0.012 (0.011)
Education _{<i>it-1</i>}					-0.053 (0.047)	0.001 (0.065)
Intercept	2.353* (0.905)	0.880 (1.045)	1.189 (0.747)	3.876*** (0.937)	3.027** (1.139)	-3.603 (6.819)
Year Fixed-Effect	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed-Effect	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.95	0.95	0.96	0.95	0.95	0.95
Countries	154	151	153	135	130	113
N	6,409	5,850	4,106	5,724	5,668	3,079

Notes: Robust standard errors are in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, two-tailed tests.

Some additional factors may attenuate the significant and negative relationship between growth and democracy. This issue is addressed in Table 5. After incorporating oil, religion, workers' rights, income distribution, and/or education as controls into the baseline model shown in Table 2, we re-estimate OLS regression models with fixed-effects. Table 5 reports the coefficients and robust standard errors. Even after controlling for oil, the three major issues discussed in Lipset's (1959) seminal work, and education, we notice that our main results still hold up: the effect of economic growth on democracy is significant and negative. This finding, while in opposition to what previous studies have reported, corroborates our hypothesis.

Statistical significance does not necessarily indicate that our findings are substantively meaningful. To demonstrate that the results of the conventional significance tests are consistent with substantive effects, we plot average marginal effects of the economic growth variable in Figure 1 based on the estimated results of Models 1 through 6 in Table 5. Generally speaking, average marginal effects give us the average change in probability when each of the predictors increases by one unit. The analysis of substantive effects verifies the conventional significance tests that growth consistently exerts a dampening effect on democracy.

Figure 1 Substantive Effects



As noted earlier, Przeworski and Limongi's (1997) and other recent skeptics (Moral-Benito and Bartolucco 2012; Benhabib et al. 2013) criticize the linear conceptualization between growth and democracy. By adding a squared term for economic growth in each of the six models in Table 5, we investigate a possible nonlinear relationship. When the entire sample countries are used for the testing, only two out of the six models produce supporting evidence for the non-linear effect of growth (see Appendix 1). When the sample is limited to autocratic countries only, all the models fail to exhibit any non-linear relationship (see Appendix 2). These findings suggest that dictators in developed countries do not necessarily yield to democratic movements as their economy becomes strong and stable. More generally, our robustness tests do not support the speculation put forward by many theorists of regime dynamics (e.g., Dahl 1971)-dictatorship gives way to democracy when the costs of repressing the opposition become greater than tolerating it. Instead, our robustness tests give further credence to our theoretical conceptualization on the negative, linear effect of growth.

VII. Conclusion

Why did economic growth harm democracy movements during the past 54 years? We believe that many leaders in developing economies have become fans of developmental dictatorship in which the people's participation in politics is justified for the reason that political security is a prerequisite to economic growth. As those leaders perceive democratic movements to be major obstacles to advancing the national economy, they have little to no reason to cultivate democratic political institutions. Perhaps they live in the conviction that, though a Western-style democracy may be ideal someday, it is not good for nation-building at the time of their governance when considering the changing nature of the world economy and the uniqueness of their socio-economic conditions. Their historical knowledge tells them that the world economy was re-written when the remarkable economic successes occurred in many undemocratic economies including Singapore, Hong Kong, Taiwan, South Korea, Japan, and China. They also know that those countries made their economic prosperity possible without cultivating political rights and civil liberties. Simply put, since leaders have witnessed successful developing economies in the absence of democratic governance,

they are convinced that they can hold on to their power longer by working hard on economic miracles but putting restrictions on political liberties.

A series of new economic successes have encouraged many top leaders of developing countries to emulate the essential features of developmental dictatorship because it could bring economic fortune to their nation, at the same time consolidating their political power for a long period. For the rulers of developing countries, developmental dictatorship can be best of both worlds: economic success and political monopolization. Accordingly, it would not be surprising to see the world populated with strong leaders who have great incentives to pursue developmental dictatorship in the next century, thereby jeopardizing the emergence of democratic political systems. Perhaps, Xi Jinping and Vladimir Putin are two harbingers for a new emerging politico-economic system in which democracy becomes stifled for the sake of the leaders' economic success and political convenience. Even Donald Trump may be graded as jumping on the bandwagon since he often ignored concerned voices from the public and media in the name of making America great again with economic prowess.

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Appendix 1 Testing a Non-Linear Effect of Economic Growth:
All Sample Countries Included

Variable	Annual Data: OLS 1 Lag					
	1	2	3	4	5	6
Democracy _{<i>it-1</i>}	0.879*** (0.010)	0.874*** (0.011)	0.836*** (0.013)	0.868*** (0.011)	0.881*** (0.011)	0.814*** (0.017)
Econ Growth _{<i>it-1</i>}	0.703 (0.395)	0.406 (0.430)	1.072* (0.524)	1.079** (0.406)	0.585 (0.385)	0.795 (0.707)
Econ Growth _{<i>it-12</i>}	-0.066* (0.027)	-0.042 (0.030)	-0.100** (0.035)	-0.107*** (0.028)	-0.061* (0.027)	-0.096 (0.049)
OPEC _{<i>it</i>}	-0.900*** (0.130)					2.447 (6.604)
Christians _{<i>it-1</i>}		0.016** (0.006)				0.037*** (0.010)
Muslims _{<i>it-1</i>}		0.016 (0.011)				0.042* (0.019)
Hindus _{<i>it-1</i>}		0.045 (0.033)				0.089 (0.076)
Buddhists _{<i>it-1</i>}		0.015 (0.014)				0.033*** (0.007)
Chinese Religionists _{<i>it-1</i>}		0.017 (0.023)				-0.034 (0.047)
Workers' Rights _{<i>it-1</i>}			0.100 (0.064)			0.041 (0.078)
Income Distribution _{<i>it-1</i>}				-0.001 (0.008)		-0.010 (0.011)
Education _{<i>it-1</i>}				-0.040 (0.048)	0.013 (0.065)	
Intercept	-1.437 (1.599)	-1.292 (1.629)	-2.441 (2.170)	-1.641 (1.643)	-0.458 (1.641)	-9.112 (7.869)
Year Fixed-Effect	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed-Effect	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.95	0.95	0.96	0.95	0.95	0.95
Countries	154	151	153	135	130	113
<i>N</i>	6,409	5,850	4,106	5,724	5,668	3,079

Notes: Robust standard errors are in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, two-tailed tests.

Appendix 2 Testing a Non-Linear Effect of Economic Growth:
Only Autocratic Countries Included

Variable	Annual Data: OLS 1 Lag					
	1	2	3	4	5	6
Democracy _{it-1}	0.787*** (0.021)	0.784*** (0.021)	0.770*** (0.024)	0.766*** (0.022)	0.789*** (0.022)	0.814*** (0.017)
Econ Growth _{it-1}	-0.773 (0.753)	-0.970 (0.647)	-0.519 (1.108)	-0.307 (1.025)	-1.044 (0.819)	0.795 (0.707)
Econ Growth _{it-12}	0.031 (0.055)	0.050 (0.046)	0.001 (0.083)	-0.018 (0.082)	0.052 (0.064)	-0.096 (0.049)
OPEC _{it}	-3.529*** (0.832)					2.447 (6.604)
Christians _{it-1}		0.007 (0.011)				0.037*** (0.010)
Muslims _{it-1}		0.025 (0.015)				0.042* (0.019)
Hindus _{it-1}		-0.008 (0.039)				0.089 (0.076)
Buddhists _{it-1}		-0.004 (0.055)				0.033*** (0.007)
Chinese Religionists _{it-1}		0.031 (0.052)				-0.034 (0.047)
Workers' Rights _{it-1}			0.085 (0.084)			0.041 (0.078)
Income Distribution _{it-1}				0.017 (0.012)		-0.010 (0.011)
Education _{it-1}					-0.134 (0.084)	0.013 (0.065)
Intercept	4.528 (2.567)	4.244 (2.340)	3.722 (3.753)	2.863 (3.318)	5.477* (2.683)	-9.112 (7.869)
Year Fixed-Effect	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed-Effect	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.89	0.88	0.91	0.88	0.88	0.95
Countries	120	119	114	104	97	113
N	3,890	3,623	2,317	3,412	3,231	3,079

Notes: Robust standard errors are in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, two-tailed tests.