

Personalism in Democracies: A New Index

Luminate Report

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May 2021

Abstract

Observers have expressed concerns that democratic politics is growing more personalist. The absence of cross-national, time-series data capturing personalism in democracies, however, has made it difficult to assess the validity of these observations. This study fills this gap. It offers a time-varying index of personalism in the world's democracies from 1991 to 2020. The index combines original data measuring indicators of personalism with existing data sources. We find that observers' intuitions are correct: levels of personalism have increased in democracies in recent years. Importantly, we show that greater personalism is associated with a variety of negative outcomes, such as higher levels of populism, a higher chance of democratic erosion, and greater political polarization. We explore the potential causes of the personalist wave, as well, and find evidence that new technologies and digital tools are facilitating it. Our new index of personalism enables researchers to better explore these and other relationships. Given that a key signal of impending personalization is the leader's creation of their own political party, we encourage observers to take note of the election of such leaders as a red flag for democracy.

1 Introduction

Personalism is on the rise in today’s dictatorships (Kendall-Taylor, Frantz and Wright, 2016). Not only has a new crop of strongmen consolidated control in recent years, including Daniel Ortega in Nicaragua, Recep Tayyip Erdogan in Turkey, and Aleksander Vucic in Serbia, but formerly collegial authoritarian regimes have gravitated toward greater personalism, such as China under Xi Jinping. This wave of personalist rule spells trouble for global peace and prosperity. As a large body of literature has documented, personalist dictatorship is associated with greater aggression, more corruption, and poorer prospects for democratization, among other negative outcomes.¹

Observers have expressed concerns that a similar trend is emerging in democracies, with many democratic systems seeing concentration of power in the leader and traditional political parties and institutions decline in influence (Kendall-Taylor, Frantz and Wright, 2017). Examples include the United States under Donald Trump and Poland under Jaroslaw Kaczynski. Better understanding whether these observations match the empirical reality, however, has been stalled by the absence of comprehensive data capturing personalism in democratic contexts.

This study seeks to fill this gap. In it, we offer a cross-national, time-series index of personalism in democracies from 1991 to 2020. Our index combines original data that measures indicators of personalism with existing data sources. Using the index, we show that personalism has indeed risen in recent years in the world’s democracies. We find that greater personalism is also associated with a number of negative outcomes, including higher levels of populism, greater political polarization, and a higher chance of democratic erosion. We explore the potential causes of the personalist wave, as well, and find evidence that new technologies and digital tools are facilitating it. Importantly, we show that the leader’s creation of their own political party is a key signal of impending personalization, suggesting that the election of such leaders is an easily observable red flag for democracy.

In what follows, we first discuss how we conceptualize personalism. Next, we present our index measuring personalism and assess its reliability and validity. Lastly, we offer an analysis of how our index of personalism relates to other outcomes of interest.

2 Measuring Personalism

2.1 Concept

We begin by explaining what we mean by personalism. Personalism, at its core, has to do with the extent to which leaders exert greater influence than other actors in key institutions; it is the dominance of the political realm by a single individual. Personalist politics means that leaders themselves are disproportionately influential on policies and outcomes, often at the expense of rules and institutions. In authoritarian contexts, personalism is exemplified by the tenures of leaders such as Muammar Qaddafi of Libya, Idi Amin of Uganda, and Rafael Trujillo of the Dominican Republic. In these regimes, the leader governed without the constraints of other actors and institutions, such that policy choices reflected the leader’s whims.

2.2 Manifestations

In authoritarian regimes, scholars have measured personalism by examining the leader’s bargaining power vis-a-vis elites in the security apparatus and support party (Geddes, Wright and Frantz, 2018). Observable indicators of these dynamics include whether the leader has control over major

¹See Frantz (2018) for a review of this literature.

appointments and promotions in these institutions, whether the leader personally commands them, and whether the leader created them in the first place.

While in theory it should be quite simple to capture similar features of democratic systems, the reality is more complex. For one, because democracies have effective checks and balances, personalism manifests itself in subtler ways than in authoritarian systems. In particular, democracies typically feature less variation in the relationship between the leader and security apparatus. While occasionally democratic leaders exert so much control over their security forces that it undermines traditional security hierarchies, more frequently the civilian and security domains operate fairly independently. In addition, it is unusual for leaders in democracies to create their own personal security forces, as they so often do in autocracies. And while some civilian leaders in democracies bargain over policy and personnel choices with military officers, most do not. Instead, leaders in democracies bargain primarily with political parties, which are the main vehicles for asserting organized political power in these settings.

Manifestations of personalism in democracies are thus more easily observable when looking at the relationship between the leader and their support party. Where there is greater personalism, democratic leaders hold substantial power relative to other elites in their political party, and politics more strongly reflects the leader’s preferences rather than a bargaining process among these actors. The bulk of the indicators of personalism we use in our measure capture these leader-party dynamics. We supplement them with an indicator of the extent to which leaders and their personalities overshadow other institutions and actors, a broad but straightforward reflection of personalism.

Note that this conceptualization does not incorporate information about the time the leader has been in power or the age of the democracy. Further, there is nothing in the definition or item information that measures electoral rules, party systems (i.e. number or distribution of votes or seats for parties), presidentialism, or institutional incentives to cultivate a personal vote at the expense of votes for a party brand. Therefore, the information we collect for the items (and the resulting latent estimates of personalism) do not reflect these additional concepts.

Our measure also does not contain information on government coercive capacity, state-led repression, the treatment of non-state actors, or the leader’s behavior towards other institutional actors such as opposition parties, the media, the legislature, or the judiciary. This does not mean that the index will not correlate with these and other concepts, only that the information we use to construct a latent variable does not measure them. For example, our estimate of personalism does not reflect information that measures corruption of political leaders even if the measure might show that more personalist leaders behave in a more corrupt manner than less personalist leaders.

With this discussion in mind, we now provide greater details on our personalism measurement model.

2.3 Measurement

We capture personalism in this study by constructing a measurement model that produces an annual latent estimate of the level of personalism for all democracies in the world for the period 1990 to 2020. Similar to an item-response theory model (IRT), we collect data on manifest indicators of the underlying concept. To circumscribe the universe of post-1990 democracies throughout the world, we use updated data from the Geddes, Wright and Frantz (2014) global data base of democracies and dictatorships.

Manifest items To measure *personalism* we construct a measurement model from the following ten manifest items:

1. **Create party:** Did the leader create the political party that backed them in the election for chief executive?
2. **National appointed:** Did the leader hold a national appointed position in government with the electing party (e.g. cabinet member or agency head) prior to being selected chief executive?
3. **National elected:** Did the leader hold a national elected position with the electing party prior to being selected chief executive?
4. **National party position:** Did the leader hold an appointed position with the political party (e.g. party leader or treasurer) prior to being selected chief executive?
5. **Local appointed:** Did the leader hold an appointed local position with the electing party prior to being selected chief executive?
6. **Local elected:** Did the leader hold an elected local position (e.g. city council, mayor, state/department legislator or governor) with the electing party prior to being selected chief executive?
7. **Party experience:** How long has the leader been in an established electing political party prior to assuming office?
8. **Prior independent:** Did the leader ever hold a political office as a political independent – without backing from an established political party – prior to being selected chief executive?
9. **Party personalism** (Varieties of Party Identity and Organization Version 1): To what extent is this party a vehicle for the personal will and priorities of one individual leader?
10. Person of the **leader legitimization** (Varieties of Democracy Version 10): To what extent is the Chief Executive portrayed as being endowed with extraordinary personal characteristics and/or leadership skills?

The first eight items (1)-(8) – which we coded – are indicators of the relationship between the leader of the country (i.e. president or prime minister) and the party that supports their candidacy in their initial election to the chief executive position (if there is a party). These items therefore measure objective information on the *pre-history* of the leader-party relations; and, because they record information that chronologically precedes the leader’s stint in power as the executive, these indicators do not contain information about how the leader behaves once in office as the chief executive.

For example, information about whether the elected leader created their own political party prior to being elected chief executive, or information about whether the leader had been selected to an appointed (e.g. cabinet) or elected (e.g. legislator) position with the supporting political party prior to being elected chief executive, chronologically precede observing behavior of the leader once in office, and therefore cannot be endogenously produced by the leader’s behavior in office.

In contrast, a measure of political polarization or populism based on the leader’s rhetoric or citizens’ opinions of the party or leader may capture information about what the leader does after they are elected to office and therefore may be consequences of behavioral attempts to undermine democracy once in office. That is, polarization among citizens may result from the leader’s actions while in office that erode democracy. In this scenario, political polarization of the electorate is a symptom of democratic backsliding, not a cause of it. Observing a leader deploy derogatory rhetoric to criticize the media, for example, might constitute information used to document populism, might produce a more polarized citizenry, and might also be recorded by researchers as an attempt to undermine democracy. Information on rhetoric to criticize the media might be observed as both an explanatory factor (polarization or populism) and a decline in an outcome a researcher would like to explain (democratic erosion or decay). If we want to test which theories – such as those based on personalism, populism, or polarization – best explain democratic erosion, we want to measure the explanatory concepts (i.e. personalism, populism, or polarization) using information that is

chronologically and conceptually independent from the outcome under study, namely democratic erosion and backsliding.

Constructing an index of personalism using information about the leader’s relationship with their supporting political party *prior* to their election as chief executive has both advantages and disadvantages. On the positive side, collecting pre-history information is exogenous to the leader’s behavior while in office, a strength of this approach for understanding causal effects and predicting patterns of behavior once in office. The pre-history information can therefore be interpreted as a leading indicator of future attempts to undermine democracy. Thus, if we want to explain why some democratically-elected leaders undermine democracy once in office or predict which leaders are most likely to behave in authoritarian ways, we cannot use the concepts that indicate attempts to undermine democracy as indicators of the phenomena (i.e. personalism) that we propose causes or presages democratic decay and collapse.

The disadvantage of the first eight items that measure the pre-electoral history of the leaders’ relationship to their party is that they do not capture how leaders become more personalist once in office. Thus, a measure of personalism constructed from just these eight items does not change over time during the leaders’ tenure in power as the chief executive and thus does not capture how personalism rises or falls in a dynamic way after a leader has been elected.

We therefore add information contained in a variable from the Varieties of Party Identity and Organization and the Varieties of Democracy project (Lührmann, Düpont, Higashijima, Kavasogly, Marquardt, Bernhard, Döring, Hicken, Laebens, Lindberg, Medzihorsky, Neundorf, Reuter, Ruth-Lovell, Weghorst, Wiesehomeier, Wright, Alizada, Bederke, Gastaldi, Grahn, Hindle, Ilchenko, von Römer, Wilson, Pemstein and Seim, 2020): personalization of the party (which we refer to as **party personalism**). This variable (9) asks coders to assess whether the party is primarily a vehicle for advancing the party leader’s political career. This variable is measured for each party in each election and can therefore vary from election to election for a leader whose party participates in elections after the leader has won the highest office.² This information does not capture the leader’s behavior directed towards political actors outside the ruling party, including other institutional actors such as opposition parties, the media, the legislature, or the judiciary. Nor does it measure concepts such as state-led repression, including digital repression, civil liberties protections, and government coercive capacity. We can therefore treat the information in this party variable as independent of these outcomes for the purposes of examining the predictors and causes of leader’s attempts to undermine democracy once in power.

The last variable in the measurement model, also from the Varieties of Democracy project, is leader legitimization (10). This is an annual measure of a sitting government’s legitimization strategy. The response we use in the index of personalism focuses on the extent to which “the Chief Executive [is] portrayed as being endowed with extraordinary personal characteristics and/or leadership skills” (Coppedge et al., 2019a, 209). This is an annual measure that incorporates information about government legitimization strategies that can change over time throughout a leader’s tenure in office. While we believe this variable contributes information to a latent index of personalism, we also note that the coders of this data may pick up information that is not entirely independent of outcomes that may be of interest, in particular outcomes relating to the use of propaganda, leaders’ rhetoric, or the deployment of state-led digital repression. Applied users of the latent index will need to treat this item with some care and may choose to exclude it in empirical applications where the outcome may not be entirely conceptually distinct from the information in leader legitimization strategies.

²For example, this variable records information on the Republican Party in the United States (U.S.) for both 2016 – the year of the election of Donald Trump as President – and 2018, when legislative elections took place but the executive office was not on the ballot.

Table 1: Personalism model estimates

| Manifest items | δ_j | β_j |
|-------------------------|------------|-----------|
| party experience | -0.70 | 2.52 |
| create party | 0.69 | 2.46 |
| local appointed | -2.48 | 1.63 |
| national appointed | -0.22 | 1.29 |
| national elected | 0.64 | 1.05 |
| party personalism | -0.02 | 0.75 |
| local elected | -2.12 | 0.74 |
| leader legitimation | 1.47 | 0.63 |
| national party position | 1.94 | 0.56 |
| prior independent | 3.92 | 0.54 |

Model Our measure of personalism is constructed using these nine items and a generalized structural equation model (SEM). This approach allows us to mix the underlying distributions of data for each item, some of which are binary variables (i.e. the first eight items) and some of which are continuous variables (i.e. the latter two items). Consider the following equation, where j indexes the ten items listed above and i and t index the leader and year, respectively:

$$E(Y|\theta_{i,t}) = g(\delta_j + \beta_j\theta_{i,t}) \quad (1)$$

In this equation, δ_j is the difficulty parameter; β_j is the discrimination parameter for item j ; and the link function, $g(\cdot)$, is either a logistic transformation of the data for binary items or a linear (identity link with a Gaussian distribution) function of the data for continuous items. The purpose of the equation is to estimate $\theta_{i,t}$, which is the estimated degree of personalism for each leader-year. The difficulty parameter, δ_j , reflects the extent to which leaders, on average, are observed to have met (or scored higher on) one of the items. The discrimination parameter, β_j , is estimated as a slope coefficient, reflecting the extent to which one item predicts the latent trait relative to other items. Thus the discrimination parameter tells us which items are best at splitting cases into different values along the latent trait and the difficulty parameter places the item at different ‘locations’ along the latent dimension (i.e. at levels of more or less personalism). The predicted scores from this model, known as empirical Bayes (EB) predictors of the latent variables, are the means of the empirical posterior distribution where the parameters, θ , are replaced with their estimates, $\hat{\theta}$. This prediction, or θ , is the latent measure of personalism we use in applied analysis: *personalism* _{i,t} .

Table 1 shows the estimated difficulty and discrimination parameters.³ The second column shows the difficulty parameter estimates, δ_j . Leaders who had previously held local appointed (**local appointed**, -2.22) or elected (**local elected**, -2.22) positions as members of the ruling party are less likely to have a high personalism score. In contrast, leaders who previously were elected as an independent (**prior independent**, 4.54) and/or who held a national (internal) party position (**national party position**, 1.91) have a higher likelihood of having a high personalism score, as do leaders who create their own supporting political party (**create party**, 0.72).

The items with the most ‘information’ – or the ones that best predict the latent trait precisely

³Cluster-robust errors, which are clustered on leader, indicate that all slope coefficients are statistically significant at the 0.05 level. The constant estimates for each item j – save that for **party pers** – are also significant at the 0.05 level. The insignificant constant estimate for **party personalism** simply means that it is statistically close to 0, which is the mean value of the personalism scale; thus this item places leader-year observations closer to the middle of the predicted distribution of the latent trait.

– are the indicators measuring **party experience** and whether the leader creates their own political party (**create party**), followed by **local appointed** and **national appointed**. The items that contribute the least information to the latent variable are **prior independent**, followed by **national party position**. Thus creating the political party that launches the leader to electoral victory both contributes substantial information ($\beta_{createparty} = 2.46$) to the underlying personalism score and places such leaders relatively high ($\delta_{createparty} = 0.69$) on the scale of personalism. Leaders with long history with the party also contribute substantial information ($\beta_{experience} = 2.52$) but are placed on the lower end of the scale ($\delta_{experience} = -0.70$).

Overall, the manifest items in Table 1 place leader-spell observations all along the latent dimension, with varying locations reflected in the wide variation of the difficulty parameter (i.e. high and low values of δ_j). And while some items contribute more information to the underlying measure (i.e. have higher β_j estimates) than other items, we find that creating a party is the most informative, which suggests that even without the measurement model, simply identifying whether the leader creates their own party may be a leading indicator of personalism in democracies.

2.4 Reliability and validity

Reliability To assess the internal reliability of our measure, we conduct two exercises. In the first we split the sample into two bins along important theoretical dimensions, re-estimate the measurement model for each group separately, and then compare these estimated split-sample scores to the full sample estimate. This ensures that the model is estimating the relationships between the items in the model in a similar way across different kinds of leaders, from different types of democracies. This test thus tells us whether the concept travels across space (i.e. different regions of the world and different kinds of executives) and across time (i.e. different periods).

We assess the split-sample estimates by splitting the sample along the following dimensions: presidential vs. parliamentary democracies; pre-2006 and post-2005; high and low income countries; large and small population countries; new and old democracies; democracies with low and high levels of party institutionalization; within and outside Europe; and, finally, within and outside Africa. The split-sample estimates are all correlated with the full sample at 0.95 or higher for all splits. These high correlations between the split-sample estimates and the full sample estimate indicate that the measurement model consistently estimates the parameters (and hence θ) across diverse and varied groups of countries.

The second reliability test re-estimates the measurement model but drops one item at a time from the model. Thus we re-estimate the model ten times, each time dropping one of the items. This exercise ensures that the personalism score is not dependent on any one item to produce a consistent measure; that is, that the model is not overly reliant on a single item. We then compare each leave-one-out estimate with the estimate using all items with a correlation coefficient. All the correlations are greater than 0.95, which indicates that the measurement model yields similar personalism scores even after dropping each item, one at a time. Thus the model is not overly reliant on only one item among the nine.

External validity To offer insight into the external validity of our measure, we look at the case of Venezuela. In our data set, Venezuela is considered democratic each sample year until 2005, when Hugo Chavez’s presidency became authoritarian. There are four leaders in the sample: Carlos Andres Perez (in power from 1989 to 1993), Ramon Jose Velasquez (in power from 1993 to 1994), Rafael Caldera (in power from 1994 to 1999), and Chavez (in power democratically from 1999 until 2005, after which the country transitioned to dictatorship under his rule).

Table 2: Personalism in Venezuela

| Leader | θ | <i>Create party</i> | <i>V-Party</i> | <i>V-Dem</i> |
|----------------------|----------|---------------------|--------------------------|----------------------------|
| | | | <i>Party personalism</i> | <i>Leader legitimation</i> |
| Hugo Chavez | 2.55 | 1 | 3.3 | 3.1 |
| Rafael Caldera | 1.30 | 1 | 2.1 | -1.7 |
| Ramon Jose Velasquez | -1.02 | 0 | -1.3 | -1.6 |
| Carlos Andres Perez | -1.34 | 0 | -1.2 | -2.1 |

Table 2 shows each leader’s average personalism score, whether they created their support party, their level of **party personalism**, and their level of **leader legitimation**. It reveals that personalism was lower under Perez and Velasquez, higher under Caldera, and highest under Chavez. This corresponds to what we know about Venezuelan politics during these leaders’ tenures.

Perez and Velasquez were both associated with well-established political parties in Venezuela. Perez governed with the support of the Democratic Action (AD) party, which was one of Venezuela’s longstanding traditional parties at the time of his presidency. Perez was forced out of office in 1993 due to a corruption scandal and briefly succeeded by Octavio Lepage, before Congress appointed Velasquez to the presidency. (We do not include Lepage in our sample because he did not hold office at the start of a calendar year.) Like Perez, Velasquez had a long history with AD, having served in a number of positions with the backing of the party prior to his presidency. Velasquez did not run for re-election when his term ended and Caldera succeeded him, having won the 1993 presidential race.

Caldera and Chavez, by contrast, governed with the support of political vehicles that they themselves created; both were also commanding personalities in Venezuelan politics. Caldera had a long political career prior to assuming office (including a presidential term from 1969 to 1974). For the bulk of this time, Caldera was affiliated with the Social Christian Party (COPEI), another longstanding traditional party in Venezuela and one that he had co-founded. Caldera had a falling out with COPEI prior to the 1993 elections, however, and ran with National Convergence instead, a party that he founded for the sole purpose of supporting his candidacy. Observers note that Caldera’s re-election signaled that Venezuelan voters were disillusioned with AD and COPEI, but saw Caldera as a “godfather” of Venezuelan democracy with “an authority his AD and COPEI opponents lacked” (Dietz and Myers, 2007, 67). Caldera did not run in the 1998 presidential contest, which Chavez won.

Chavez was supported by the Fifth Republic Movement (MVR), an offshoot of the Revolutionary Bolivarian Movement that he had created in 1982 (which officially became a political party in 1997 after Chavez declared his candidacy). While in power, Chavez slowly consolidated control, exerting increasing personal influence on Venezuelan politics vis-a-vis other institutions. By the time Venezuela’s democracy fell apart in 2005, Chavez and his supporters dominated all branches of power, ushering a period of personalist dictatorship that continues today under his successor Nicolas Maduro (Geddes, Wright and Frantz, 2014).

As this brief review reveals, our measure of personalism and the variables associated with it correspond with Venezuelan political experience during the sample period. This gives us greater confidence that our approach to capturing personalism is consistent with political realities.

3 Analysis

In what follows, we explore how our approach to measuring personalism relates to other items of interest. We begin with a discussion of how personalism changes over time during leaders' tenures. We then delve into its relationship with populism, political polarization, and democratic decay. Lastly, we examine a potential trigger of personalization: access to new technologies and digital tools of repression.

3.1 How personalism evolves

This section examines how personalism changes over time after leaders gain power. Because much of the information in the latent measure of personalism comes from the history of the leader's relations to the party prior to the leader assuming power – and thus does not change once a leader is in power – our tests in this section necessarily rely on information from two items: *party personalism* and *leader legitimation*.

We examine the evidence in three ways. First, we plot the pattern of personalism over the course leaders' tenure in office for leaders who create their own party and those who are chosen by their party to lead. Of course, leaders who create their own party start out with a higher level of personalism than leaders who do not create their parties because the party creation indicator is part of the personalism measure. We therefore adjust for the initial level of personalism in the first year each leader is in office. This makes the initial level of personalism equal for leaders who create their own party and those who do not, allowing us to visualize how personalism evolves during the leaders' tenures after that initial year.

We focus on party creation because research in authoritarian settings suggests that it is a key signal of impending personalization (Geddes, Wright and Frantz, 2018). It is reasonable to expect similar dynamics in democratic environments. Parties that leaders themselves create tend to be more weakly organized than established parties are; they usually exist simply as a vehicle to advance the leader's political career. Such parties typically have little identity or branding independent of the leader. As a result, when leaders seek to consolidate control, elites within these parties are less capable of pushing back (should they even choose to). The bargaining relationship is therefore heavily tilted in the leader's direction, enabling the leader to amass greater power in the years that follow. In this way, when leaders are elected to power in democracies who created their own parties, we are likely to see greater personalization of power subsequently.

Figure 1 shows results from this exercise. The horizontal axis depicts leaders' years in office and the vertical axis shows the adjusted level of personalism. By construction, the level of personalism in the first year is the same for each type of leader. The lines then show how personalism increases (on average) for each of the two types of leaders. While both types of leaders see a subsequent increase in personalism over time, the rate of increase is much faster, on average, for leaders who created their own parties.

Next, we test a statistical model that isolates variation over time in the level of personalism during leaders' tenures.⁴ This approach accounts for all differences between leaders, including the initial level of personalism. For each group of leaders, those who create their party and those who do not, we test whether time in power predicts personalism. For leaders who create their own party, we find that time in power increases personalism by about 1.2 percent for each additional year in

⁴We estimate a linear model with leader fixed effects and time period effects while adjusting for election years; we estimate standard errors clustered on leader because observations are not independent within leaders. The estimate for time in power for leaders who create their party is 0.012* (0.005); for those who do not create their party the estimate is -0.0002 (0.003).

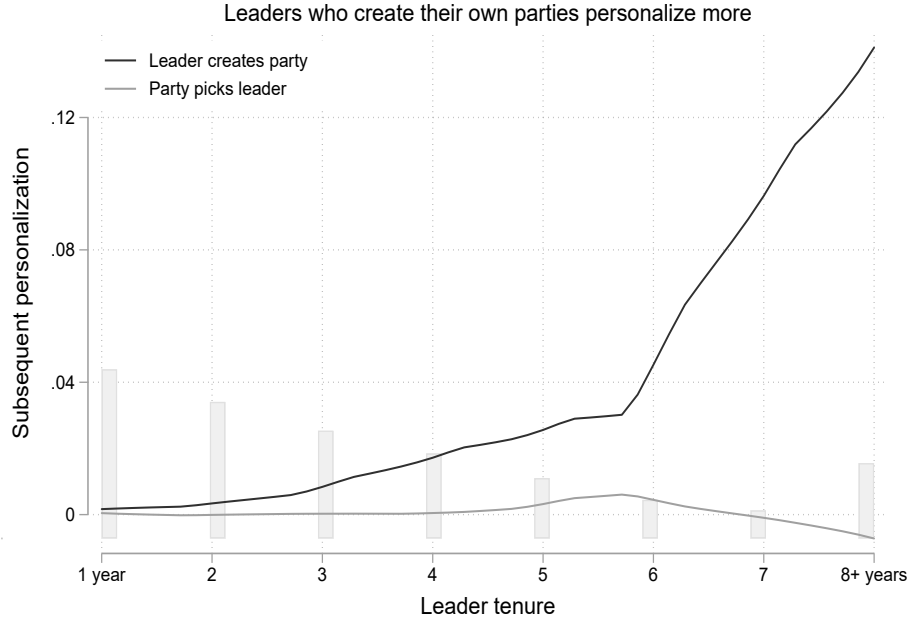


Figure 1: Party creation and subsequent personalization

power (on average). However, for leaders who are selected to lead by their party, time in power does not boost personalism.

Finally, Appendix Table C-1 report tests from a series of regression models that adjust for the initial level of personalism for each leader as well as additional potential confounders.⁵ We find that leaders who create a party have larger increases in personalism after their first year in power, relative to leaders who do not create their supporting party.

⁵In addition to initial personalism, adjustments include: democracy age, party age, and initial levels of democracy and party system institutionalization.

3.2 Personalism and populism

This section examines the relationship between personalism and populism. We leverage two approaches. First we look at whether personalism, measured in the first year of each leader’s time in office as chief executive, is correlated with populism, measured for each leader’s party in the year they were first elected as chief executive. This exercise tells us whether personalist leaders are more or less likely to be considered ‘populist’ when they are first elected (or selected by the ruling party in parliamentary systems). For this test, we only look at the elections that propel leaders to power. Thus, for Donald Trump in the United States, we assess whether personalism is related to the populism of the Republican Party in 2016; and for Viktor Orban in Hungary, we assess whether personalism is related to Fidesz populism in 2010, the year he was elected for his second stint as Prime Minister of Hungary.

Second, we assess whether each leader’s initial level of personalism (again measured in the first year of the leader’s time in office as chief executive) is correlated with the party’s populism in *subsequent* elections when the leader’s party is the incumbent ruling party. This second exercise tells us whether personalist leaders subsequently shape their party to become *more* populist as they rule. Continuing with the U.S. and Hungarian examples, this second test looks at whether Trump’s personalism score in 2017 relates to Republican Party populism in the 2018 election and whether Orban’s personalism in 2011 (his first full year as Prime Minister during his second spell in that position) relates to Fidesz populism in the 2014 and 2018 elections during which he was the ruling incumbent. Importantly, this second test accounts for the initial level of party populism for each leader (i.e. populism for the Republican Party in 2016 and Fidesz in 2010) so that the outcome is the *change in the level of populism* between the first election for each leader and subsequent elections during which that leader’s party is the incumbent ruling party.

We construct a measure of populism from a linear combination of two variables in the Varieties of Party Identity and Organization data set (Lührmann, Düpont, Higashijima, Kavasogly, Marquardt, Bernhard, Döring, Hicken, Laebens, Lindberg, Medzihorsky, Neundorf, Reuter, Ruth-Lovell, Weghorst, Wiesehomeier, Wright, Alizada, Bederke, Gastaldi, Grahn, Hindle, Ilchenko, von Römer, Wilson, Pemstein and Seim, 2020): anti-elitism and people-centrism.⁶ These concepts correspond to the definition of populism suggested by Mudde and Kaltwasser (2012), and the question wording for these variables specifically identifies the rhetorical behavior of the “party leadership.”⁷

Appendix Table B-1 reports a series of regression models for each of these two types of tests.⁸ While we find that personalism is correlated with the party’s populism in the initial elections for each leader, we find no evidence that personalism is related to subsequent changes in the party’s populism. Thus, greater personalism is associated with greater populism in the ruler’s party; these two phenomena, at least as we have measured them, run in parallel. However, more personalist leaders in democracies are not more likely than less personalist ones to increase their party’s populism once in power.⁹ This does not necessarily mean that parties do not become more populist over time, only that most do so when their leadership changes (which can occur when

⁶These two variables are also used by Lührmann, Medzihorsky, Hindle and Lindberg (2020) to measure populism. The first variable, *v2paanteli*, measures *How important is anti-elite rhetoric for this party?*; and the second, *v2papeople*, measures *Do leaders of this party glorify the ordinary people and identify themselves as part of them?*.

⁷These two variables capture the key aspects of a seminal definition of *populism*: an “ideology that divides society into two antagonistic camps, the ‘pure people’ versus the ‘corrupt elite’, and that privileges the general will of the people above all else” (Rooduijn and Pauwels, 2011; Mudde and Kaltwasser, 2012, 2017, 2018).

⁸The empirical analysis accounts for common time trends in the data; some specifications isolate variation over time within countries with country fixed effects.

⁹In fact, when adjusting for the initial level of populism for each leader in the selection year but excluding country fixed effects, we find that higher levels of initial personalism are associated with less party populism in subsequent election years when that the remains in power.

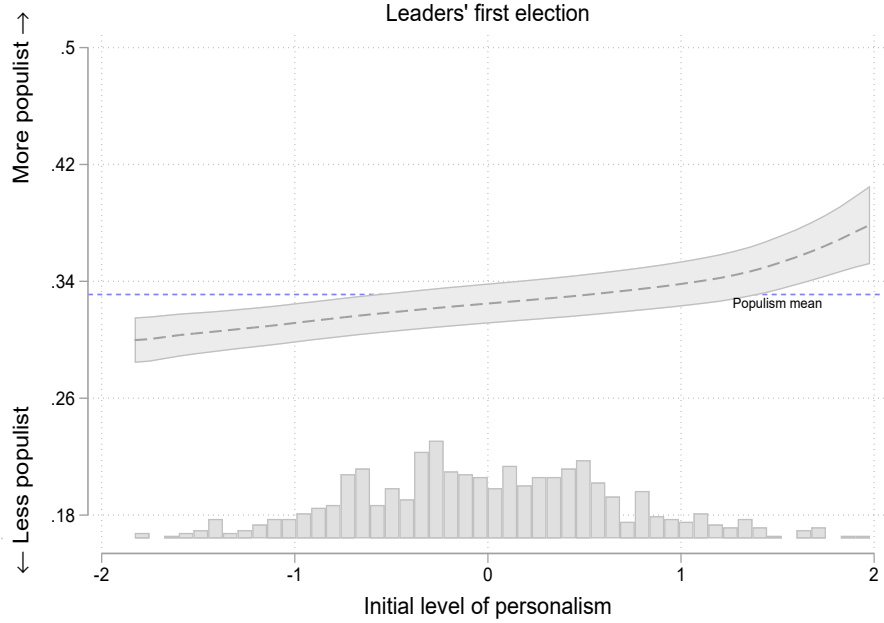


Figure 2: Personalism and populism

the party is the ruling party as well as when it is not). The Republican Party in the U.S. saw a substantial rise in populism, for example, from the 2008 election to the 2010 midterm contest, when leadership of the party changed from the 2008 presidential candidate, John McCain, to the new Republican Congressional leader, John Boehner. A further substantial rise in Republican Party populism occurred between the 2014 midterm elections and the 2016 election of Trump as president.

To illustrate how the relationship between personalism and populism plays out, Figure 2 shows how the initial level of personalism for each leader is related to the populism of the supporting political party. The data for this plot are generated from a regression analysis that adjusts for a time trend as well as the age of democracy. The horizontal axis displays the level of initial personalism along with the distribution of the residualized (adjusted) values of personalism. The vertical axis displays the (adjusted) level of party populism for the first election for each leader. The blue, dashed horizontal line marks the average level of party populism in the sample. The scale of the vertical axis ranges from one standard deviation above the average populism level to one standard deviation below the average. At lower levels of personalism, parties tend to have below-average levels of populism, but once personalism reaches the highest levels, party populism is well above average. As we show in Appendix Table B-1, this finding holds stable when we adjust for differences between countries, as well as when we account for electoral systems, initial levels of democracy, and overall party system institutionalization.

3.3 Personalism and subsequent polarization

This section examines how personalism shapes political polarization, a phenomenon that some theorize contributes to democratic erosion and collapse (e.g. Mallén and Guadilla, 2017; McCoy, Rahman and Somer, 2018; McCoy and Somer, 2019; Svulik, 2019, 2020). Political polarization is a plausible outcome of personalism, particularly when we measure personalism using pre-electoral information about the leader and the party that propelled them to power. For example, highly personalist leaders may be more likely than less personalist ones to use policy and personnel choices, as well as inflammatory rhetoric, to further increase political polarization once they are in power, in a bid to cement their electoral or institutional power.

To test the idea that personalism endogenously contributes to rising political polarization, we utilize data on this concept from the V-Dem project. Political polarization is an annual, expert-coded measure of whether *society is polarized into antagonistic political camps* (v2cacamps from V-Dem (v.11)). This measure therefore captures an attribute of society not a feature, such as polarizing rhetoric, of political parties or elected leaders.

For this analysis, we adjust for the initial level of polarization ($Y_{t=0}$), and we only examine the changes in the outcome starting in the year after the leader was selected into executive office. This means we examine how personalism – a feature of the leader and their party – shapes societal political polarization after leaders have been selected into office, conditional on the level polarization when leaders were selected into office. This approach therefore rules out the possibility that our estimates pick up the potential effect of personalism – which might capture party and leader campaign rhetoric – polarizes society *before* they enter office.¹⁰

First, we look at the broad data patterns using a crude indicator of personalism: whether the leader creates the political party that backed them in the election campaign. We examine how polarization changes over time for leaders who create their party and for leaders who do not. To do this, we adjust the polarization measure for a (global) time trend, the age of democracy and the party as well as the initial levels of polarization ($Y_{t=0}$) and democracy in the first year of each leader’s time in power. We then plot how polarization changes over leaders’ tenure, from the adjusted level. The left plot of Figure 3 shows the resulting pattern of polarization. The horizontal axis displays leaders’ tenures (in years) and the vertical axis shows the level of polarization (on average) for the two types of leaders. By construction, each type of leader starts their tenure at the initial level of personalism, shown as zero on the vertical axis. The trends in polarization for the two types of leaders diverge, with leaders who create their own party increasing polarization while those who do not decreasing it. In short, political polarization increases much faster in democracies led by executives who create their own party than in democracies where parties choose leaders.

Next we assess the relationship between personalism and subsequent polarization with the goal of providing more plausible causal estimates. We test a series of linear models that adjust for the age of democracy, initial levels of polarization, initial levels of democracy, and party system institutionalization; in one specification we also adjust for electoral rules. These results, shown in Appendix Table D-1, all yield similar results: personalism is strongly associated with increases in political polarization. We illustrate this finding in the right plot of Figure 3. The plot shows the adjusted, non-linear relationship between personalism and polarization, with zero on the vertical axis displaying the (adjusted) average level of polarization in democracies.¹¹ We verify this

¹⁰For example, we might think that candidate Trump polarized society during the 2016 election campaign; and if our measure of personalism captures this polarizing strategy, then we want to adjust for societal polarization in that campaign year. So, our model conditions on polarization ($Y_{t=0}$), measured in 2016, to examine how personalism of President Trump, also measured in 2016, shapes subsequent societal polarization from 2017-2020.

¹¹The residualized relationship shown with a local polynomial fit that adjusted for: democracy age, initial levels

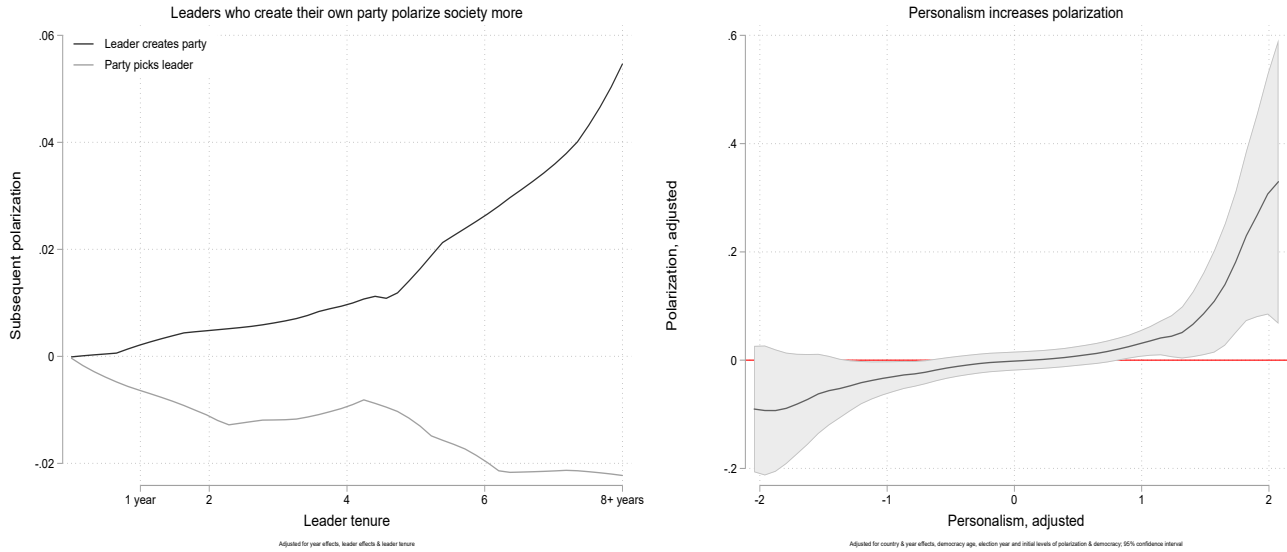


Figure 3: Party creation and subsequent polarization

finding in a dynamic panel setting that adjusts for more immediate lags of polarization (shown in Appendix Table D-2). While the substantive effects are smaller than those reported in the right plot of Figure 3, they are nonetheless statistically significant estimates indicating that personalism increases subsequent political polarization.

This finding is important because work by Svobik (2019) and others shows that increasing polarization raises the risk of democratic breakdown. Svobik argues that as societies grow more polarized, people become willing to tolerate abuses of power and sacrifice democratic principles if doing so advances their side's interests and keeps the other side out of power. Polarization, according to this theory, increases the risk of democratic decline. The analysis in this section shows that personalism increases political polarization, suggesting that polarization may be a symptom of personalism and one of the endogenous mechanisms through which personalist leaders undermine democracy. This interpretation therefore suggests that higher personalism provides a warning of growing risks to democracy.

of polarization, initial levels of democracy, election year, and country- and year-fixed effects.

3.4 Personalism and democratic backsliding

This section examines the direct link between personalism and democratic backsliding. Incumbent power grabs are more likely to be successful when more personalist leaders govern, for three reasons. For one, greater party personalism means greater bargaining power of the leader vis-à-vis the rest of the party elite, such that elites are less likely to resist the leader’s efforts to consolidate power. Elites in personalist political parties face higher collective action costs in organizing incumbent moves to concentrate control than do elites in more established parties. In the latter, elites and senior office holders have a history of repeated interactions with one another that facilitates the cooperation necessary to act as a collective. These experiences are absent in parties that are highly personalist.

Second, leaders in personalist parties are more likely to eschew appointments from the political establishment. Instead, they fill positions of high government office with individuals from their personal networks, such as family members and other loyalists, who generally lack government experience. These individuals, in turn, are less likely to push back against incumbent power grabs because their future positions are closely tied with the fortunes of the incumbent leader. In contrast to elites in established parties, those affiliated with personalist parties are less likely to win power without the leader, giving them a stronger incentive to maintain the leader’s rule, even if it comes at the cost of subverting democracy.

Finally, there is reason to expect that leaders backed by personalist political parties are less likely to be as committed to democratic institutions as are their counterparts from established parties. Leaders affiliated with established parties often rise to power by working through the party’s lower ranks, working in local government, and/or serving party elites in appointed positions. They typically have more exposure to how democratic politics works and, as a result, learn valuable skills in negotiating with the opposition, compromising on policy, and building broad coalitions. This is likely to also shape their normative preferences. Levitsky and Cameron (2003, 4) put forth, for example, that parties play a key role in socializing and recruiting democratic elites; those leaders who do not come from such party institutions are going to be less likely to have the same commitment to democratic institutions. Together, democratic experience and a normative preference for democracy should make leaders less likely to attempt to consolidate individual power in the first place.

In sum, we argue that party personalism increases the chance of democratic erosion by improving the chances of successful incumbent power grabs.

To evaluate this argument, we employ the original data measuring personalism, described above, and analyze the data from 1991 to 2020. First, we assess the extent to which party personalism influences the likelihood of democratic erosion. While acknowledging that there exist many conceptual dimensions to democracy and thus democratic backsliding, we operationalize the concept in three related ways. First, we simply examine how personalist parties shape the level of democracy, while accounting for country-specific determinants of both, as well as potential confounders from unobserved time trends. We call this phenomenon democracy *decay* because it captures slow changes over time in the level of democracy.

Second, we examine whether personalism influences the risk of large declines in democracy levels. We define this outcome as a ten percent (or more) decline in the level of democracy from the initial level of democracy inherited from each leader’s predecessor. This outcome captures steep declines in democracy during each leader’s tenure even if these declines do not constitute a full democratic collapse, where the political regime crossed the line from democracy to autocracy. Because this phenomena picks up steep democratic declines, we call it democratic *erosion*. Democratic erosion entails a number of varying phenomena that indicate a large decline in democracy

Table 3: Party creation and democratic backsliding

| | <i>Leader creates their own party</i> | <i>Party picks the leader</i> | Difference |
|-------------------------|---|-----------------------------------|------------|
| Average democracy level | 0.63 | 0.74 | -0.11* |
| Pr(Erosion) | 7.6 | 2.4 | 5.2* |
| Pr(Collapse) | 3.1 | 0.9 | 2.1* |

during a leader’s time in power, including factors that fall under the larger label of ‘illiberalism’, such as declining protections for independent media, opposition organizations, and anti-government protest, as well instances where the leader undermines democratic constraints on executive power, either horizontal checks such as legislative, judicial, and constitutional constraints or dismantling vertical accountability by fiddling with elections to ensure weak electoral competition.

And last, we look at a smaller number of democratic *collapse* events.¹² Most democratic collapse events in the post-1990 world are incumbent power grabs – often the result of more gradual autocratization patterns – but some are still military coups. For example, the military helped conservative opposition politicians oust Evo Morales after he won the first round of a fair and free presidential election in 2019. The coup was, in part, a response to what many viewed as an anti-democratic move by Morales to run in the election in the first place – after he had failed to secure voters’ approval to suspend constitutional term limits only to pressure the courts to grant him the right to run for a third consecutive term.

In the analysis, we adjust for the initial level of democracy and the initial level of party system institutionalization in a country that each leader inherits from their predecessor. This approach accounts for the possibility that countries with lower levels of democracy or under-institutionalized party systems are more likely to select personalist leaders and also more likely to erode democracy. Further, we account for country-specific factors – such as inequality, electoral rules, autocratic legacies (e.g. prior military rule), and a long-history of democracy – that might influence both selection into personalist leaders and democratic stability. This also means we are comparing parties with more or less personalism within the same country.

A first look at the raw data, shown in Table 3, demonstrates that leaders who create their own parties – a crude indicator of personalism – govern states with lower average democracy scores (i.e. more decay), are more likely rule during an episode of democratic decline (i.e. more likely to erode), and are more likely to rule when democracy collapses.¹³ Democratic leaders who create their party preside over governments that score 11 percent lower on the the democracy scale (0,1) than leaders who come from within their party. Similarly, leaders who create their party are over three times as likely as those who do not to oversee a steep decline in democracy (*erosion*) during their time in office; and these democracies are nearly three times as likely to collapse (2.9 percent vs. 1.0 percent).¹⁴

While these figures illustrate a pattern consistent with the contention that personalism is bad for democracy, these comparisons do not account for obvious potential confounders, such as the age of democracy, or the fact that leaders who create their own parties and are more personalist are more likely to be selected in newer democracies or weaker democracies with under-institutionalized

¹²There are 91 instances of democratic erosion (27 leaders) and 34 of democratic collapse from 1991-2020.

¹³All difference of means, reported in the last column of Table 3, are statistically significant at the 0.001 level.

¹⁴If we simply look at maximum values for each leader, without accounting for the fact that some leaders survive longer in power than others, we find that 2.9 percent of leaders who do *not* create their party erode democracy and 3.9 percent of them are incumbents when democracy collapses. In contrast, these figures for leaders who create their party are 8.9 percent and 12.5 percent, respectively.

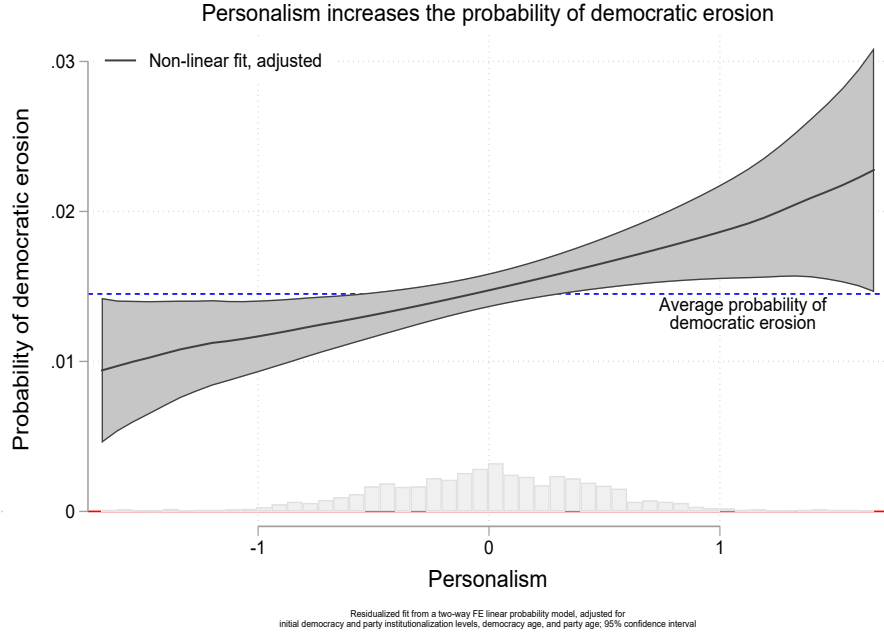


Figure 4: Party creation and democratic erosion

party systems. Next, we therefore test statistical models that account for these factors.

Table E-1 in the Appendix reports results for three sets of tests, for three distinct but related outcomes associated with democratic backsliding: democratic *decay*, *erosion*, and *collapse*. First, we test democratic *decay*, which is simply the level of democracy as measured by V-Dem, with an estimator that accounts for all common time trends and differences between countries and adjusts for democratic age as a confounder.¹⁵ The estimate is -0.029 and statistically significant, which means that on average a one-standard deviation increase in personalism is associated with a year-on-year decrease in the level of democracy by over nearly 3 percent; if this average effect would transpire for four years, personalism would be associated with more than a 10 percent decline in the level of democracy, similar to the effect shown in the first row of Table 3 (-0.11). Next, we adjust for the initial levels of democracy and party system institutionalization; and the estimate, while still significant, drops to -0.0152. Finally, in a specification with two lags of the outcome variable, we find a small but significant effect (-0.0071).¹⁶

Next we test models of democratic *erosion*, or a steep (10 percent or more) decline in the level of democracy during the leader's tenure in office. First, we test a specification that accounts for a common time trend and all time-invariant differences between countries and that also adjusts for democracy age. This test indicates that a one standard deviation increase in personalism increases the baseline probability of democratic erosion by 1.4 percent a year.¹⁷ Next we adjust for the

¹⁵The outcome is `v2x.polyarchy`. The estimator is a two-way (country, year) fixed effects model with standard errors clustered on repeated observations for the same leader.

¹⁶This last estimate may still be biased because the fixed effects demeaning process creates a correlation between the mean of the lagged dependent variable and the error, known as Nickell bias. However, $\bar{T} = 21$. Unreported difference-in-difference tests yields similar (-0.054), significant results as do unreported dynamic-panel models (Arellano and Bond, 1991) that instrument for differences with lags (-0.028).

¹⁷All estimators are linear probability models with standard errors clustered on leader and two-way (country and year) fixed effects. We right-censor the data, dropping years *after* the democracy score declines by 10 percent of more from the start of the leader's time in office. Without right censoring, the estimates are more than three times as

initial levels of democracy and party system institutionalization; the estimate is slightly larger at 1.5 percent. Finally, we substitute the three lagged values of the level of democracy for the initial level of democracy. This test therefore looks only at year-on-year changes in the probability of democratic erosion; the estimate is again 1.4 percent.

Figure 4 plots the substantive relationship between personalism and the probability of democratic erosion.¹⁸ The horizontal axis displays the level of personalism while the vertical axis depicts the predicted probability of democratic erosion. The horizontal line in blue marks the average probability of democratic erosion in a given year. The plot shows that the probability of erosion increases more than doubles, from just over one percent at low levels of personalism (roughly -1 on the personalism scale) to about 2.2 percent at higher levels of personalism (roughly 1 on the horizontal axis). Further, this substantive finding remains after adjusting for a host of potential confounding factors, as shown in Figure E-1. In short, there is a meaningful and robust relationship between personalism and democratic erosion in the past three decades.

The last set of tests that examine democratic collapse also provide evidence consistent with the contention that personalism contributes to democratic backsliding. These tests, reported in the last three columns of Appendix Table E-1, suggest that a one standard deviation increase in personalism boosts the chances of democratic collapse by roughly one percent – even after accounting for a measure of populism, which, as the prior section shows, is highly correlated with personalism.

To sum, the analysis in this section shows that personalism strongly predicts democratic backsliding – irrespective of whether we conceptualize backsliding as a slow decay, a sharp decline, or the collapse of democracy.

large. All estimates of *personalism* are statistically significant at the 0.05 level.

¹⁸Non-linear relationship of the transformed residuals derived from the model in column (5) of Appendix Table E-1.

3.5 Digital repression and personalization

This section examines whether and how personalism is related to digital repression. To measure the latter concept, we construct a variable that incorporates information on multiple aspects of a government’s ability to monitor, censor, and shut down social media; filter and shut down the Internet; and create social media alternatives that are wholly controlled by either the government or its agents. To evaluate whether governments differ in their reliance on digital repression simply on account of differences in their capacity to implement digital repression, we also measure digital capacity. We do so using additional variables that tap into concepts related to the state’s capacity to intervene in the digital sphere: *government cyber security capacity*, *Internet shut down capacity*, *Internet filtering capacity*, and *capacity to regulate online content*. Importantly, these measures are conceptually distinct from a state’s willingness to pursue digital repression in practice. The Appendix provides more details on the information used to construct the digital repression and capacity variables as well as the measurement model that produces these variables.

Assessing how personalism and digital repression relate to one another is difficult because both phenomena are increasing over time, as shown in the left plot in Figure 5. In this plot, the horizontal axis shows calendar time in years, from 2000 onwards. The vertical axis displays the (adjusted) level for each of the following: *personalism* (green line); state *digital repression* (red); and state *digital capacity* (black). The lines depict the yearly (adjusted) average across all democracies.¹⁹ All three measures are increasing over time so we will have to carefully model the relationships that trend together.

While it is straightforward to account for this *common* time trend in the data series, we also must be careful when assessing whether personalist leaders are more likely to deploy digital repression than less personalist ones or, in contrast, whether digital repression gives rise to more personalization. It could be, for example, that greater concentration of power enables leaders to better leverage digital tools to ratchet up repression. Given that personalization of power is associated with increases in repression in authoritarian regimes (Frantz et al., 2020), the same dynamic could hold in democracies in the digital sphere. At the same time, it is also possible that the reverse is true: access to new technologies could give leaders new opportunities to censor and manipulate their media environments—shutting down critical voices and more effectively controlling the narratives that surround their leadership. For these reasons, we do not know *a priori* the direction of potential causation.

Our first approach is to test a series of dynamic panel models that take the following forms:

$$Repression_{i,t} = Repression_{i,t-1} + Personalism_{i,t-1} + X_{i,t} + \eta_t + \varepsilon_{i,t} \quad (2)$$

and, conversely,

$$Personalism_{i,t} = Personalism_{i,t-1} + Repression_{i,t-1} + X_{i,t} + \eta_t + \varepsilon_{i,t} \quad (3)$$

In these equations, $X_{i,t}$ are potential confounders (we adjust for democracy age, initial level of democracy, and state digital capacity); η_t are year effects to account for the common time trend in the most flexible way possible; and $\varepsilon_{i,t}$ is the error term. The explanatory variables for each equation are the same, but in equation 2 the outcome is *digital repression* and $Repression_{i,t-1}$ is the lagged outcome while $Personalism_{i,t-1}$ is the treatment variable. In equation 3, *personalism* is

¹⁹All trends are shown relative to a global sample mean; the trends for personalism and digital repression are adjusted for democracy age and level of state digital capacity as well.

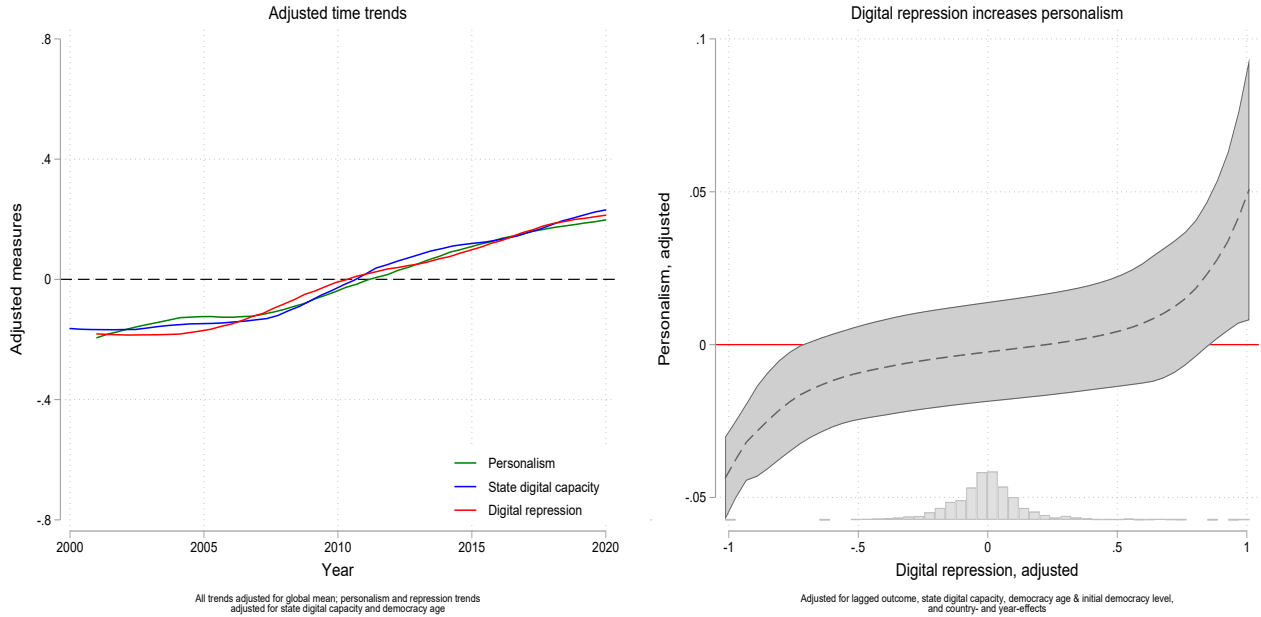


Figure 5: Digital repression and personalization

the outcome and $Personalism_{i,t-1}$ is the lagged outcome variable. Thus equation 2 tests whether personalism boosts repression, while accounting for past observations of repression that might influence both (lagged) personalism and (current) repression. In contrast, in equation 3 *personalism* is the outcome and $Repression_{i,t-1}$ is the treatment variable, with $Personalism_{i,t-1}$ serving as the lagged outcome. The first equation thus tests whether personalism causes repression while the second tests whether repression presages personalism. Appendix Table F-1 reports the results of these tests as well as similar tests that adjust for country effects in the dynamic framework.

The results indicate that state digital repression increases personalism but we find no evidence of the opposite relationship, that personalism boosts digital repression. We show this relationship in the right plot in Figure 5. The horizontal axis in this plot displays the (adjusted) values of digital repression (lagged one year) and the vertical axis shows values for the (adjusted) level of personalism. As digital repression increases, we see an increase in personalism the following year. Democracies at the low end of digital repression – such as Japan under Shinzo Abe, Mali during Macky Sall’s presidency, and Turkey under the leadership of Bulent Ecevit in the early 2000s – tend to see no increases in personalism under these leaders, while democracies at the high end of the digital repression scale – such as in Nigeria during Muhammadu Buhari’s presidency, Hungary during Viktor Orban’s second stint in power, and Aleksandar Vucic’s presidency in Serbia – preside over much larger increases in personalism during their tenure.

To probe the result indicating that digital repression increases personalism, we examine four sets of tests. First we estimate a two-way fixed effect effects model that adjust country- and year-effects, ruling out the possibility that a common time trend or differences between countries account for the relationship (see Table F-4). This approach does not rule the possibility that a country-specific time trend accounts for the relationship between digital repression and personalism so we test interactive fixed effect models (see Table F-5) that allow for this possibility (Bai, 2009). Next, we test dynamic panel models in Table F-3 that adjust the lag structure of the outcome to

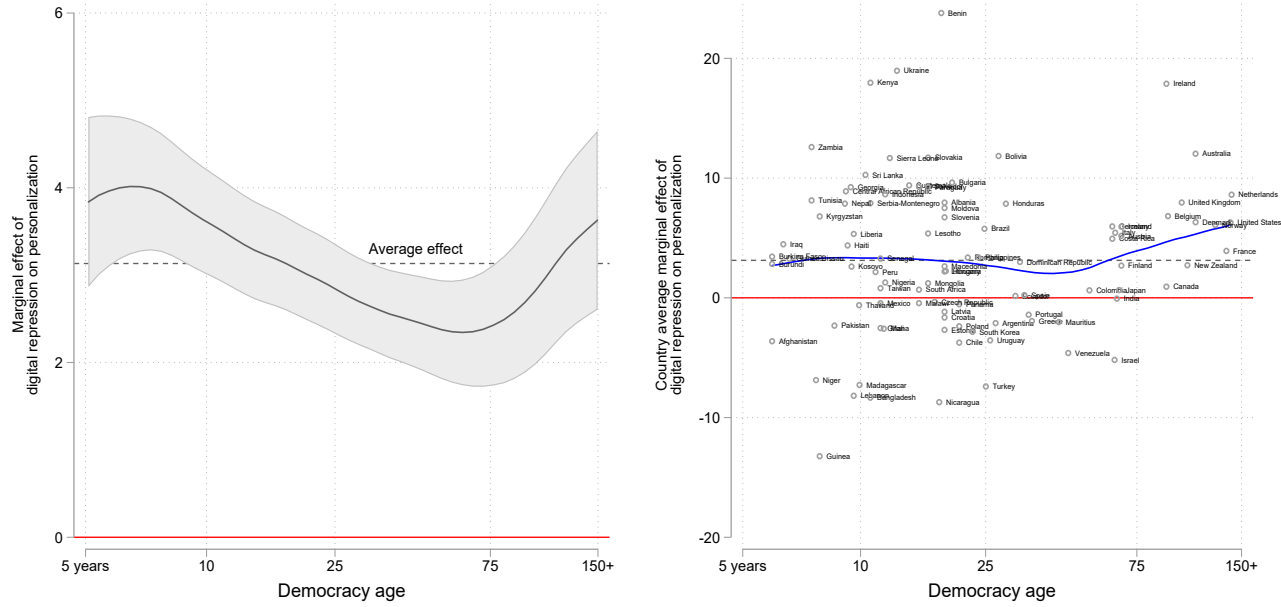


Figure 6: Digital repression and personalization

rule out longer lags (up to four lags) accounting for both treatment (digital repression) and the outcome (personalism) (Hamilton, 2018). Last, we examine a dynamic panel estimator that uses lagged variables to instrument for year-to-year changes on the explanatory variables (Arellano and Bond, 1991). Using this framework we also show that the relationship remains when we adjust for any of over a dozen potential confounders (see Figure F-1). Overall, we find robust results throughout, indicating that digital repression, at least as we have measured it, is linked to the rise of personalism in democracies.

A final test, explores where this relationship is the strongest. To do this, we test a kernel regression model that not only produces estimates of average marginal effects but does so for each leader-year observation.²⁰ With this approach we can therefore show how the estimated marginal effect of digital repression on personalism varies across different types of countries.

First, in the left plot of Figure 6, we show how the marginal effect of digital repression, shown on the vertical axis, varies across the age of the democracy, shown in the horizontal axis. The dashed horizontal line indicates the average marginal effect of digital repression on personalization across the entire sample of democracies. The digital repression effect is largest than the average effect for younger democracies that have lived less than 10 years and for some of the oldest democracies in the sample. As importantly, the digital repression effect appears to be positive across democracies of all ages.

The right plot in Figure 6 looks at the pattern in more detail. In this plot, we take the average marginal effects (vertical axis) and average democracy age (horizontal axis) for each country and plot them against each other, with a non-linear fit line. The fit line shows the same decreasing,

²⁰The outcome is personalism and the treatment variable is digital repression. The specification includes a time trend, democracy age, initial democracy level, and digital state capacity, as well as four lags of the dependent variable to account for any remaining serial correlation (Hamilton, 2018). Kernel regression also protects against bias from mis-specifying the functional form of covariates that might arise in linear model.

then increasing relationship between the marginal effect of digital repression and the age of democracies but more clearly shows those countries where the relationship between digital repression and personalization is strongest (i.e. those above the blue horizontal line that represents the average country) as well as how long their democracy has survived. Here we can see that countries at various democracy ages and as diverse as France, Honduras, Indonesia, Nepal, the United States, and Zambia all have positive average marginal effects, indicating that digital repression is associated with increasing personalization in these democracies. And some of the strongest associations between digital repression and personalism stem from countries as different as Benin, Georgia, and Guatemala. (We should note that digital repression does not appear to explain the rise of personalism in some notable backsliding democracies, such as Turkey and Venezuela, perhaps because this personalization occurred prior to the sample period and the rise of digital repression (i.e. prior to 2001) (as was the case with Erdogan’s and Chavez’s parties).

4 Conclusion

Personalism is on the rise in the world’s dictatorships, such that the strongman model is now the most common form of authoritarian governance (Frantz, 2018). This is a troubling development, in light of the wide variety of negative consequences of personalist rule (Kendall-Taylor, Frantz and Wright, 2016). Observers have noted that personalism could be growing more prevalent in democracies too (Kendall-Taylor, Frantz and Wright, 2017). To better understand this, in this study we provide a cross-national, time-series index of personalism in the world’s democracies from 1991 to 2020, using both original and existing data that capture the concept of personalism. Our analysis reveals that personalism has indeed increased in recent years in democratic systems. This suggests that democracies are gravitating toward a more top-heavy form, with the individuals that hold the executive growing more dominant than the parties or institutions that back them.

We find that personalism in democracies is associated with a number of negative outcomes, just as it is in authoritarian contexts. Specifically, greater levels of personalism are correlated with greater populism, lead to greater societal polarization, and increase the chances of democratic erosion. We also explore whether new technologies and digital tools elevate the likelihood of personalization. We find evidence that the rise of digital repression that has occurred with the advancement of technology has facilitated greater personalism in democratic settings. With access to our personalism index, researchers can better explore these and other relationships.

In the meantime, our research reveals that where leaders are supported by political parties that they themselves created, we are likely to see personalization of power in the years that follow. This means that party creation is an easily observable early warning sign of impending personalism in democracies. Given the detrimental consequences of personalization, we encourage observers to take note when leaders in democracies are elected to power backed by parties that they established.

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1 Appendix

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1.1 Data

1.1.1 Personalism data

1. **Create electing party:** Did the leader create the political party that backed them in the election for chief executive? (binary, Frantz, Kendall-Taylor, Li, and Wright 2020)
2. **Prior national appointed** with electing party: Did the leader hold a national appointed position with the electing party prior to being selected chief executive? (binary, Frantz, Kendall-Taylor, Li, and Wright 2020)
3. **Prior national elected** with electing party: Did the leader hold a national elected position with the electing party prior to being selected chief executive? (binary, Frantz, Kendall-Taylor, Li, and Wright 2020)
4. **Prior national party position:** Did the leader hold an appointed position with the political party (e.g. party leader or treasurer) prior to being selected chief executive? (binary, Frantz, Kendall-Taylor, Li, and Wright 2020)
5. **Prior local appointed** with electing party: Did the leader hold an appointed local position with the electing party prior to being selected chief executive? (binary, Frantz, Kendall-Taylor, Li, and Wright 2020)
6. **Prior local elected** with electing party: Did the leader hold an elected local position (e.g. city council, mayor, state/department legislator or governor) with the electing party prior to being selected chief executive? (binary, Frantz, Kendall-Taylor, Li, and Wright 2020)
7. **Prior independent:** Did the leader hold a political office as a political independent – without backing from an established political party – prior to being selected chief executive?
 - 0: Did not hold prior political position as independent
 - 1: Held prior political position as independent
 - 2: Selected chief executive as a true independent without any party backing(binary, Frantz, Kendall-Taylor, Li, and Wright 2020)
8. **Party experience:** Has the leader served a long time in an established party? (binary, Frantz, Kendall-Taylor, Li, and Wright 2020)

The indicator takes the value of 1 if the leader has served for more than 10 years in a party (top two-thirds of the distribution for leaders who do not create their own party) that has been in existence for at least 44 years (top half of the distribution for leaders who do not create their own party) prior to the leader being selected chief executive. This indicator captures 29 percent of the sample years and 40 percent of the sample years for leaders who do not create their own party.
9. **Personalization of the party** (five ordinal values, Varieties of Party Identity and Organization Version 1): To what extent is this party a vehicle for the personal will and priorities of one individual leader?
 - 0: The party is not focused on the personal will and priorities of one individual leader.
 - 1: The party is occasionally focused on...
 - 2: The party is somewhat focused on...

- 3: The party is mainly focused on...
 - 4: The party is solely focused on...
10. Person of the **leader legitimization** strategy (five ordinal values, Varieties of Democracy Version 10): To what extent is the Chief Executive portrayed as being endowed with extraordinary personal characteristics and/or leadership skills (e.g. as father or mother of the nation, exceptionally heroic, moral, pious, or wise, or any other extraordinary attribute valued by the society)?

1.1.2 Digital repression and capacity data

We use of data from the Digital Society Project (Mechkova et al., 2019), a component of the Varieties of Democracy project (Coppedge et al., 2019a; Coppedge et al., 2019b; Pemstein et al., 2020), that capture various facets of digital repression from 2000 to 2020. Our measure of digital repression relies on six variables from this data set. Each of these variables measures a concept related to the state’s behavior in the digital sphere in practice: *social media censoring*, *social media monitoring*, *social media shut down*, *Internet shut own*, *Internet filtering*, and *social media alternatives*.²¹ In essence, these variables capture a government’s ability to monitor, censor, and shut down social media; filter and shut down the Internet; and create social media alternatives that are wholly controlled by either the government or its agents.

| Items | Item-test correlation | α |
|--|--------------------------|----------|
| (a) Digital <i>repression</i> | | |
| Government social media censorship in practice | 0.875 | 0.907 |
| Government social media monitoring | 0.783 | 0.923 |
| Government social media shut down in practice | 0.884 | 0.905 |
| Government Internet shut down in practice | 0.838 | 0.913 |
| Government Internet filtering in practice | 0.895 | 0.902 |
| Government social media alternatives | 0.837 | 0.914 |
| (b) Digital <i>capacity</i> | | |
| Government cyber security capacity | 0.756 | 0.713 |
| Government Internet shut down capacity | 0.632 | 0.805 |
| Government Internet filtering capacity | 0.835 | 0.641 |
| Government capacity to regulate online content | 0.833 | 0.642 |

Table A-1: *Item-test correlations for each item in the digital repression and capacity indices*

Using these six variables, we construct an index of digital repression. To do so, we treat each of these variables as one measure of a latent concept of state-led digital repression and combine them into a single scale using Cronbach’s α (which is a test of scale reliability that produces a

²¹See Frantz, Kendall-Taylor and Wright (2020, Appendix) for more information on this index, including exact question wording for the items.

standardized linear combination of the items similar to a principal component). This scaled index, which combines information from all six variables, we refer to as the *digital repression* index. Its overall scale reliability is 0.925, indicating that on average the items are highly inter-correlated.

The second column of the top panel (a) in Table A-1 shows the extent to which each item is correlated with the scaled index, which is akin to measuring how much information the item contributes to the test scale. It shows that *social media monitoring* is the least correlated with the *digital repression* index; the other four items are all correlated at roughly 0.83 or more. Overall, each item is relatively highly correlated with the index, indicating that all six items are appropriately included.²²

To evaluate whether governments differ in their reliance on digital repression simply on account of differences in their capacity to implement digital repression, we also measure digital capacity. We do so using additional variables from the Digital Society Project data set (Mechkova et al., 2019), which tap into concepts related to the state’s capacity to intervene in the digital sphere: *government cyber security capacity*, *Internet shut down capacity*, *Internet filtering capacity*, and *capacity to regulate online content*. Importantly, these measures are conceptually distinct from a state’s willingness to pursue digital repression in practice. Expert assessment of these variables comes from questions that explicitly ask for information about state digital capacity “independent of whether [the government] actually does so in practice” (Coppedge et al., 2019a, 286). As with the *digital repression* index, we treat each of these variables as one manifestation of a latent concept of state digital capacity, and thus combine them into a single scale using Cronbach’s α . We refer to this scaled index (which combines information from all four variables) as the *digital capacity* index.

The second column of the bottom panel (b) in Table A-1 shows the extent to which each variable is correlated with the scaled index. *Internet filtering capacity* is the most correlated (0.835) with the index, while *Internet shutdown capacity* is the least correlated (0.632). Overall, each variable has a relatively high correlation, however, indicating that it is appropriate to include all four of them.²³ The scale reliability of the *digital capacity* index is 0.762, which suggests that (on average) the variables are inter-correlated, though not to the degree as with the *digital repression* index.²⁴

1.1.3 Summary statistics

Table 2: Summary statistics for Democratic *Decay* analysis

| Variable | Mean | Std. Dev. | Min. | Max. | N |
|---|--------|-----------|--------|-------|------|
| Electoral democracy index | 0.713 | 0.168 | 0.161 | 0.919 | 2275 |
| Personalism | -0.024 | 0.994 | -2.452 | 2.974 | 2275 |
| Democracy age (log) | 3.092 | 1.055 | 0.693 | 5.017 | 2275 |
| Initial democracy level | 0.701 | 0.182 | 0.23 | 0.916 | 2275 |
| Initial party system institutionalization | 0.711 | 0.226 | 0.157 | 1 | 2275 |
| Electoral democracy index | 0.714 | 0.166 | 0.184 | 0.924 | 2232 |

²²Explanatory factor analysis of these six items yields an eigen value of greater than four for the first factor and an eigen value of less than 0.3 for the second factor, indicating very strong uni-dimensionality.

²³Exploratory factor analysis of these four variables yields an eigen value of 1.93 for the first factor and 0.54 for the second factor, indicating very strong uni-dimensionality.

²⁴A factor analysis of all ten variables – those in the *digital repression* index and those in the *digital capacity* index – suggests there are two dimensions in these items: a first factor, which is strongly correlated with items in the *digital repression* index, has an eigen value of 4.36, while a second factor, which is strongest for items in the *digital capacity* index, has an eigen value of 1.99.

Table 3: Summary statistics for Democratic *Erosion* analysis

| Variable | Mean | Std. Dev. | Min. | Max. | N |
|---|--------|-----------|--------|-------|------|
| Erosion | 0.012 | 0.11 | 0 | 1 | 1645 |
| Personalism | -0.073 | 0.98 | -2.452 | 2.268 | 1645 |
| Democracy age (log) | 3.157 | 1.016 | 0.693 | 5.017 | 1645 |
| Initial democracy level | 0.705 | 0.184 | 0.232 | 0.916 | 1645 |
| Initial party system institutionalization | 0.714 | 0.229 | 0.157 | 1 | 1645 |

Table 4: Summary statistics for Democratic *Collapse* analysis

| Variable | Mean | Std. Dev. | Min. | Max. | N |
|---|--------|-----------|--------|-------|------|
| Collapse | 0.014 | 0.118 | 0 | 1 | 2275 |
| Personalism | -0.024 | 0.994 | -2.452 | 2.974 | 2275 |
| Democracy age (log) | 3.092 | 1.055 | 0.693 | 5.017 | 2275 |
| Initial democracy level | 0.701 | 0.182 | 0.23 | 0.916 | 2275 |
| Initial party system institutionalization | 0.711 | 0.226 | 0.157 | 1 | 2275 |

Table 5: Summary statistics for Digital Repression analysis

| Variable | Mean | Std. Dev. | Min. | Max. | N |
|---|--------|-----------|--------|-------|------|
| Personalism | -0.023 | 0.995 | -2.465 | 3.017 | 1604 |
| Digital repression _{t-1} | 4.994 | 0.981 | 2.519 | 8.013 | 1604 |
| Personalism _{t-1} | -0.034 | 0.991 | -2.465 | 3.017 | 1604 |
| Digital capacity _{t-1} | -0.005 | 0.76 | -1.999 | 1.74 | 1604 |
| Democracy age (log) | 3.257 | 0.912 | 0.693 | 5.017 | 1604 |
| Initial democracy level | 0.711 | 0.173 | 0.245 | 0.916 | 1604 |
| Initial party system institutionalization | 0.713 | 0.223 | 0.172 | 1 | 1604 |
| Initial personalism level | -0.039 | 0.99 | -2.465 | 3.017 | 1604 |

1.2 Personalism and populism

Table B-1: Personalism and populism

| | First year of each leader-spell | | | | | Election years after first year | | | | |
|-----------------------------|---------------------------------|----------|----------|----------|----------|------------------------------------|----------|----------|----------|----------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Personalism | 0.0834* | 0.0647* | 0.0885* | 0.0872* | 0.0840* | | | | | |
| | (0.0122) | (0.0170) | (0.0154) | (0.0162) | (0.0164) | | | | | |
| Initial personalism | | | | | | -0.0093* | -0.0090 | -0.0007 | 0.0000 | 0.0004 |
| | | | | | | (0.0042) | (0.0050) | (0.0053) | (0.0054) | (0.0052) |
| Initial populism | | | | | | 0.9530* | 0.9532* | 0.9106* | 0.9083* | 0.9070* |
| | | | | | | (0.0233) | (0.0233) | (0.0284) | (0.0279) | (0.0279) |
| Democracy age (log) | | -0.0248 | 0.0078 | 0.0131 | 0.0140 | | 0.0005 | -0.0060 | -0.0056 | -0.0038 |
| | | (0.0138) | (0.0099) | (0.0125) | (0.0121) | | (0.0034) | (0.0102) | (0.0113) | (0.0110) |
| Initial democracy level | | | | -0.1942 | -0.2325* | | | | 0.0218 | 0.0355 |
| | | | | (0.1038) | (0.1090) | | | | (0.0488) | (0.0509) |
| Initial party inst. | | | | 0.1885 | 0.1546 | | | | -0.0871 | -0.0956 |
| | | | | (0.1206) | (0.1056) | | | | (0.0873) | (0.0904) |
| Presidential system (parl.) | | | | | 0.1002* | | | | | 0.0193 |
| | | | | | (0.0230) | | | | | (0.0146) |
| Proportional (majoritarian) | | | | | 0.0506 | | | | | -0.0611 |
| | | | | | (0.0518) | | | | | (0.0323) |
| Mixed (majoritarian) | | | | | 0.0783 | | | | | -0.0268 |
| | | | | | (0.0420) | | | | | (0.0235) |
| (Intercept) | 0.3359* | 0.4065* | 0.3128* | 0.2980* | 0.2577* | 0.0075 | 0.0059 | 0.0410 | 0.0893 | 0.1128 |
| | (0.0138) | (0.0437) | (0.0292) | (0.0868) | (0.0795) | (0.0061) | (0.0121) | (0.0345) | (0.0675) | (0.0695) |
| Elections | 531 | 531 | 522 | 511 | 511 | 557 | 557 | 552 | 535 | 535 |
| Countries | 100 | 100 | 91 | 91 | 91 | 95 | 95 | 90 | 87 | 87 |
| Year effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country effects | | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ |

Dependent variable is incumbent party level of *Populism*, measured in election years. Standard errors clustered on country, * $p < 0.05$. Linear regression.

1.3 Party creation and subsequent personalization

Table C-1: Party creation and subsequent personalization

| | Changes in personalization after first year | | | |
|---|---|----------|----------|----------|
| | (1) | (2) | (3) | (4) |
| Create party | 0.0163* | 0.0178* | 0.0221* | 0.0230* |
| | (0.0054) | (0.0055) | (0.0050) | (0.0050) |
| Initial personalism | -0.0077* | -0.0098* | -0.0156* | -0.0180* |
| | (0.0023) | (0.0030) | (0.0044) | (0.0045) |
| Democracy age | | 0.0032 | | 0.0065 |
| | | (0.0023) | | (0.0053) |
| Initial democracy level | | -0.0290 | | -0.0339 |
| | | (0.0156) | | (0.0320) |
| Initial party system institutionalization | | -0.0008 | | -0.0703 |
| | | (0.0127) | | (0.0493) |
| (Intercept) | -0.0035 | 0.0070 | -0.0052* | 0.0477 |
| N \times T | 1772 | 1713 | 1769 | 1710 |
| Leaders | 467 | 457 | 464 | 454 |
| Time effects | ✓ | ✓ | ✓ | ✓ |
| Country effects | | | ✓ | ✓ |

Standard errors clustered on leader, * $p < 0.05$. Linear regression. Dependent variable is change in personalism.

1.4 Personalism and subsequent polarization

Table D-1: Personalism and political polarization

| | Polarization | | | | |
|---|--------------|----------|----------|----------|----------|
| | (1) | (2) | (3) | (4) | (5) |
| Personalism _{<i>t</i>-1} | 0.0580* | 0.0925* | 0.0868* | 0.0862* | 0.0647 |
| | (0.0283) | (0.0342) | (0.0380) | (0.0367) | (0.0334) |
| Initial polarization | 0.9257* | 0.9363* | 0.9529* | 0.9485* | 0.6501* |
| | (0.0201) | (0.0197) | (0.0203) | (0.0212) | (0.0599) |
| Democracy age | | 0.0770* | 0.0686* | 0.0735* | -0.0264 |
| | | (0.0272) | (0.0321) | (0.0354) | (0.0628) |
| Initial democracy level | | | 0.0006 | -0.0433 | 0.3587 |
| | | | (0.2037) | (0.2116) | (0.3172) |
| Initial party system institutionalization | | | 0.0431 | 0.1644 | -0.2448 |
| | | | (0.1728) | (0.1893) | (0.4083) |
| Election year | | | 0.0552* | 0.0557* | 0.0472* |
| | | | (0.0194) | (0.0187) | (0.0156) |
| Presidential system (parl.) | | | | 0.1045* | |
| | | | | (0.0518) | |
| Proportional (majoritarian) | | | | -0.0206 | |
| | | | | (0.0562) | |
| Mixed (majoritarian) | | | | -0.0120 | |
| | | | | (0.0677) | |
| (Intercept) | 0.0110 | -0.2231* | -0.2388* | -0.3531* | -0.1446 |
| | (0.0274) | (0.0829) | (0.1105) | (0.1404) | (0.3115) |
| N × T | 1740 | 1740 | 1624 | 1624 | 1622 |
| Leaders | 459 | 459 | 432 | 432 | 430 |
| Year effects | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country effects | | | | | ✓ |

Standard errors clustered on leader, * $p < 0.05$. Linear regression. Initial levels of polarization, democracy, and party system institutionalization measured in the first year in office for each leader-spell.

Table D-2: Personalism and political polarization, dynamic models

| | Polarization | | | | |
|---|--------------|----------|----------|----------|----------|
| | (1) | (2) | (3) | (4) | (5) |
| Personalism _{<i>t</i>-1} | 0.0197* | 0.0284* | 0.0275* | 0.0210* | 0.0346* |
| | (0.0069) | (0.0082) | (0.0092) | (0.0085) | (0.0133) |
| Democracy age | | 0.0185* | 0.0163 | 0.0191* | 0.0304 |
| | | (0.0065) | (0.0085) | (0.0082) | (0.0214) |
| Initial democracy level | | | 0.0353 | 0.0263 | 0.0432 |
| | | | (0.0555) | (0.0582) | (0.1007) |
| Initial party system institutionalization | | | -0.0209 | -0.0186 | -0.1094 |
| | | | (0.0380) | (0.0418) | (0.1529) |
| Election year | | | | 0.0477* | 0.0474* |
| | | | | (0.0120) | (0.0128) |
| Presidential system (parl.) | | | | 0.0176 | |
| | | | | (0.0150) | |
| Proportional (majoritarian) | | | | -0.0155 | |
| | | | | (0.0153) | |
| Mixed (majoritarian) | | | | 0.0105 | |
| | | | | (0.0200) | |
| Polarization _{<i>t</i>-1} | 0.9824* | 0.9843* | 0.9867* | 0.9922* | 0.8968* |
| | (0.0058) | (0.0057) | (0.0060) | (0.0057) | (0.0219) |
| (Intercept) | 0.0184* | -0.0378 | -0.0385 | -0.0610 | -0.0889 |
| | (0.0072) | (0.0207) | (0.0294) | (0.0323) | (0.1197) |
| N × T | 1778 | 1778 | 1689 | 1624 | 1622 |
| Leaders | 470 | 470 | 451 | 432 | 430 |
| Year effects | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country effects | | | | | ✓ |

Standard errors clustered on leader, * $p < 0.05$. Linear regression. Initial levels of polarization, democracy, and party system institutionalization measured in the first year in office for each leader-spell.

1.5 Personalism and democratic backsliding

Table E-1: Personalism and democratic backsliding

| | Democratic decay | | | Democratic erosion | | | Democratic collapse | | |
|--------------------------------|----------------------|----------------------|----------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Personalism _{t-1} | -0.0209* (0.0060) | -0.0152* (0.0038) | -0.0071* (0.0017) | 0.0144* (0.0058) | 0.0155* (0.0061) | 0.0138* (0.0059) | 0.0119* (0.0042) | 0.0133* (0.0046) | 0.0137* (0.0042) |
| Democracy age (log) | 0.0124 (0.0080) | -0.0174 (0.0090) | -0.0184* (0.0051) | 0.0167 (0.0092) | 0.0114 (0.0114) | 0.0136 (0.0131) | 0.0343* (0.0094) | 0.0548* (0.0128) | 0.0526* (0.0116) |
| Initial democracy level | | 0.3089* (0.0596) | | | 0.0708 (0.0663) | | | -0.1547* (0.0714) | -0.1617* (0.0603) |
| Initial party inst. | | -0.0528 (0.0710) | -0.0360 (0.0378) | | -0.0402 (0.1061) | -0.0105 (0.0967) | | 0.0265 (0.0913) | 0.0584 (0.0863) |
| Democracy level _{t-1} | | | 0.8760* (0.0822) | | | -0.4746* (0.1446) | | | |
| Democracy level _{t-2} | | | -0.1526* (0.0500) | | | 0.2630* (0.1097) | | | |
| Initial populism | | | | | | | | | 0.0021 (0.0034) |
| (Intercept) | 0.6672* (0.0247) | 0.5867* (0.0537) | 0.2795* (0.0477) | -0.0384 (0.0277) | -0.0433 (0.0776) | 0.1321 (0.0901) | -0.0893* (0.0278) | -0.0653 (0.0594) | -0.0785 (0.0535) |
| N × T | 2389 | 2275 | 2275 | 2274 | 2210 | 2210 | 2389 | 2275 | 2193 |
| Leaders | 586 | 562 | 562 | 573 | 562 | 562 | 586 | 562 | 536 |
| Year effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Country effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Dependent variables are democratic *decay*, democratic *erosion*, and democratic *collapse*; standard errors clustered on leader; * $p < 0.05$. Linear regression.

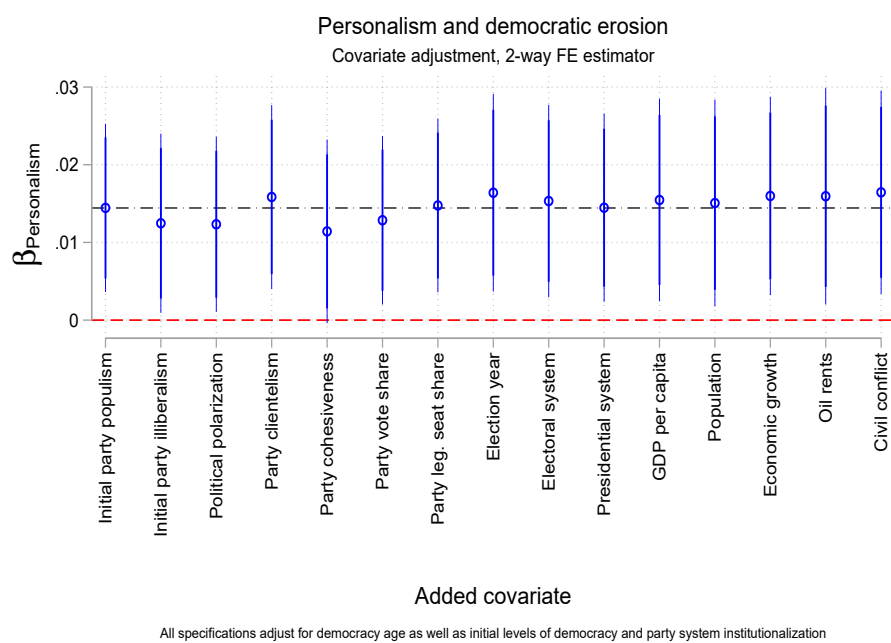


Figure E-1: Personalism and democratic erosion, covariate adjustments

1.6 Digital repression and personalization

Table F-1: Digital repression and personalism, placebo tests

| | Fixed effects | | Fixed effects | |
|--|----------------------|-----------------------|----------------------|-----------------------|
| | Personalism | Digital Repression | Personalism | Digital Repression |
| | (1) | (2) | (3) | (4) |
| Repress _{<i>t</i>-1} | 0.0365* (0.0166) | 0.7996* (0.0316) | 0.1887* (0.0677) | 0.6701* (0.0434) |
| Personalism _{<i>t</i>-1} | 0.8865* (0.0171) | -0.0004 (0.0138) | 0.7108* (0.0300) | -0.0037 (0.0060) |
| Digital capacity _{<i>t</i>-1} | -0.0166 (0.0201) | 0.0275 (0.0212) | -0.0827 (0.0744) | 0.1463* (0.0417) |
| Initial democracy level | 0.0010 (0.1119) | -0.0212 (0.1546) | 0.3059 (0.2477) | -0.1202 (0.1122) |
| Democracy age | -0.0426* (0.0196) | -0.0279 (0.0178) | -0.0256 (0.0510) | -0.0811* (0.0285) |
| (Intercept) | -0.0390 (0.1366) | -3.9333* (0.2327) | -1.0772* (0.4133) | -3.0403* (0.2751) |
| N × T | 1647 | 1647 | 1645 | 1645 |
| Leaders | 411 | 411 | 409 | 409 |
| Year effects | ✓ | ✓ | ✓ | ✓ |
| Country effects | | | ✓ | ✓ |

Standard errors clustered on leader, * $p < 0.05$. Linear regression.

Table F-2: Digital repression and personalism, panel models

| | (1) | (2) | (3) | (4) |
|--|----------------------|----------------------|----------------------|---------------------|
| Repress _{<i>t</i>-1} | 0.3859* (0.0516) | 0.3943* (0.0484) | 0.2569* (0.0568) | 0.3209* (0.1337) |
| Digital capacity _{<i>t</i>-1} | | -0.3914* (0.0579) | -0.2221* (0.0672) | -0.1208 (0.1581) |
| Democracy age | | | -0.3648* (0.0657) | -0.0562 (0.0956) |
| (Intercept) | -1.9445* (0.2610) | -1.9914* (0.2437) | -0.1305 (0.4269) | -1.4404 (0.7850) |
| N × T | 1666 | 1666 | 1666 | 1664 |
| Leaders | 416 | 416 | 416 | 414 |
| Year effects | ✓ | ✓ | ✓ | ✓ |
| Country effects | | | | ✓ |

Standard errors clustered on leader, * $p < 0.05$. Linear regression.

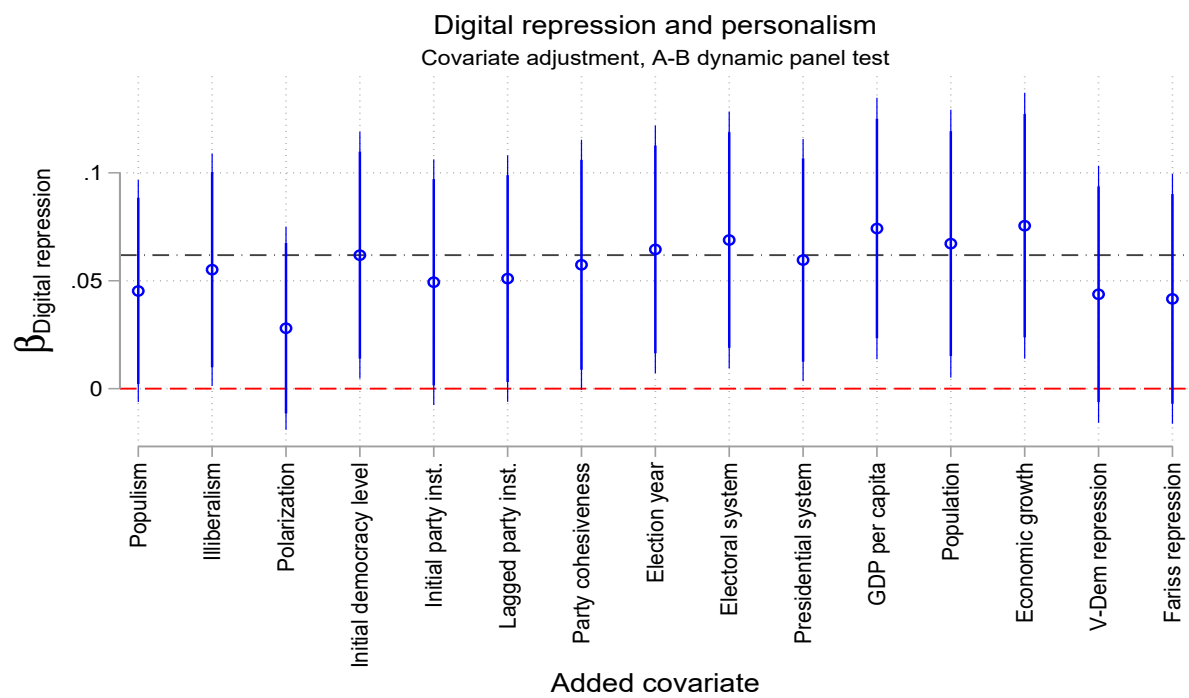


Figure F-1: Digital repression and personalization, Arellano and Bond (1991) dynamic panel estimator with covariate adjustments. Note that *polarization* may be post-treatment; if this is correct, including it in a specification will yield a biased estimate of the treatment variable, *digital repression*.

Table F-3: Digital repression and personalism, dynamic panel estimators

| | (1) | (2) | (3) | (4) |
|---------------------------------|----------|----------|----------|----------|
| Repress _{t-1} | 0.0383* | 0.0794* | 0.1682* | 0.1887* |
| | (0.0147) | (0.0363) | (0.0746) | (0.0677) |
| Digital capacity _{t-1} | -0.0129 | 0.0295 | -0.0382 | -0.0827 |
| | (0.0083) | (0.0440) | (0.0788) | (0.0744) |
| Democracy age | 0.0110 | 0.0008 | -0.0246 | -0.0256 |
| | (0.0059) | (0.0180) | (0.0765) | (0.0510) |
| Initial democracy | 0.1084 | 0.1036 | 0.3708 | 0.3059 |
| | (0.0658) | (0.0983) | (0.3022) | (0.2477) |
| Initial personalism | 0.9993* | 0.9903* | | |
| | (0.0068) | (0.0053) | | |
| Initial party system instit. | 0.0133 | -0.1959 | | |
| | (0.0487) | (0.1058) | | |
| Personalism _{t-1} | | | 0.7380* | 0.7108* |
| | | | (0.0381) | (0.0300) |
| Personalism _{t-2} | | | -0.0602 | |
| | | | (0.0367) | |
| Personalism _{t-3} | | | 0.0489 | |
| | | | (0.0370) | |
| Personalism _{t-4} | | | -0.1221* | |
| | | | (0.0294) | |
| (Intercept) | -0.2974* | -0.3170 | -1.0339* | -1.0772* |
| | (0.1202) | (0.2140) | (0.4961) | (0.4133) |
| N × T | 1606 | 1604 | 1527 | 1645 |
| Leaders | 404 | 402 | 386 | 409 |
| Year effects | ✓ | ✓ | ✓ | ✓ |
| Country effects | | ✓ | ✓ | ✓ |

Standard errors clustered on leader, * $p < 0.05$. Linear regression.Table F-4: Digital repression and personalism
Arellano-Bond dynamic panel

| | (1) | (2) |
|---------------------------------|----------|----------|
| Repress _{t-1} | 0.0916* | 0.0619* |
| | (0.0285) | (0.0292) |
| Digital capacity _{t-1} | | -0.0356 |
| | | (0.0323) |
| Democracy age | | -0.0819* |
| | | (0.0327) |
| Initial democracy | | -0.1073 |
| | | (0.1854) |
| Personalism _{t-1} | 0.7138* | 0.7016* |
| | (0.1216) | (0.1159) |
| Personalism _{t-2} | -0.0538 | -0.0704 |
| | (0.1534) | (0.1340) |
| Personalism _{t-3} | 0.1192 | 0.1329 |
| | (0.1338) | (0.1283) |
| (Intercept) | -0.4516* | 0.0383 |
| | (0.1446) | (0.2417) |
| Hansen's over-id test p-value | 0.702 | 0.705 |
| Instruments | 156 | 159 |
| A-B test for AR(1) | 0.003 | 0.001 |
| A-B test for AR(2) | 0.756 | 0.650 |
| N × T | 1511 | 1499 |
| Countries | 97 | 96 |

Standard errors clustered on leader, * $p < 0.05$. Arellano and Bond (1991) two-step estimator. Exogenous standard instruments for levels. GMM instruments use lags 3-5 to reduce overall number of instruments. Three lags of the outcome included to rule of AR(2) serial correlation.

Table F-5: Digital repression and personalism, interactive fixed effects

| Factors | 0 | 1 | 2 | 3 |
|-------------------------------|-------------------|-------------------|-------------------|-------------------|
| | (1) | (2) | (3) | (4) |
| Repress _{<i>t</i>-1} | 0.321* (0.134) | 0.299* (0.113) | 0.433* (0.111) | 0.436* (0.110) |
| Year effects | ✓ | ✓ | ✓ | ✓ |
| Country effects | ✓ | ✓ | ✓ | ✓ |

Standard errors clustered on leader, * $p < 0.05$. Linear regression; specification adjusts for state digital capacity, democracy age, and party age; and absorbs two-way fixed effects.