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# The Personalist Penalty: Varieties of Autocracy and Economic Growth

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# The Personalist Penalty: Varieties of Autocracy and Economic Growth*

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**Abstract**

Studies of income and regime type typically contrast democracies and autocracies, ignoring heterogeneity in the character of authoritarian regimes. We focus on the consequences of personalist rule, where power is concentrated in an individual or small elite. Extending the dynamic panel strategy of Acemoglu, Naidu, Restrepo, and Robinson (2019), we estimate the differential growth performance of democracies, institutionalized autocracies, and personalist autocracies. Across eight GDP series, eight autocracy codings, and six measures of personalism, we observe a consistent pattern: Whenever an "autocratic penalty" emerges, it is concentrated in personalist regimes. The growth performance of institutionalized dictatorships, in contrast, is statistically indistinguishable from that of democracies. We document evidence that the "personalist penalty" is driven by some combination of low private investment, poor public-goods provision, and conflict. These findings emphasize the analytic payoff of unpacking autocracy and highlight the different incentives facing leaders with narrow and broad bases of power.

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# 1 Introduction

How do political institutions shape policy choices and economic performance? For decades, the literature has focused on comparing income growth in democracies and autocracies.[1] The challenge with such comparisons is that nondemocratic institutions are far more diverse than democratic ones. There are vast differences, for example, in the nature of authoritarian rule in such institutionalized autocracies as Mexico under the Institutional Revolutionary Party (PRI) or Singapore under the People's Action Party (PAP), versus the personalist dictatorships of Mobutu Sese Seko (Zaire) or Saddam Hussein (Iraq). With a few early exceptions, discussed below, studies of economic growth have ignored this heterogeneity.

This paper focuses on the growth consequences of personalist rule, where power is concentrated in an individual ruler or small elite. The question is of more than academic interest. Depending on the measure, a few dozen autocratic regimes are currently personalist dictatorships. In recent years, two of the world's most powerful autocrats—Vladimir Putin of Russia and Xi Jinping of China—have systematically removed institutional checks and balances to rule by personal influence and decree.[2] The economic effects of such power consolidation are of critical concern for global stability and development.

There are many reasons to expect personalist autocracies to underperform institutionalized regimes. Public goods provision may be worse and incentives for private investment weaker when power is concentrated in a narrow elite or single individual. Conflict may also be more likely under personalist rule. Personalist dictators may make decisions with limited information and be surrounded by incompetent subordinates. For all these reasons, institutional variation within nondemocratic regimes could matter as much or more than the

[1] Generally speaking, early contributions failed to find a robust difference in growth rates between the two, and sometimes found a weak adverse effect of democracy (Barro, 1996; Przeworski and Limongi, 1993; Gerring et al., 2005). However, more recent work using panel-data methods has concluded that democratic transitions are associated with accelerations in growth, whereas authoritarian reversals hinder development (Rodrik and Wacziarg, 2005; Persson and Tabellini, 2006; Papaioannou and Siourounis, 2008; Acemoglu et al., 2019). We return to this foundational question below, using various measures of democracy and autocracy.

[2] Postcommunist Russia's autocracy has never been as institutionalized as China's, but the direction of change is the same.

autocracy–democracy distinction for economic growth.

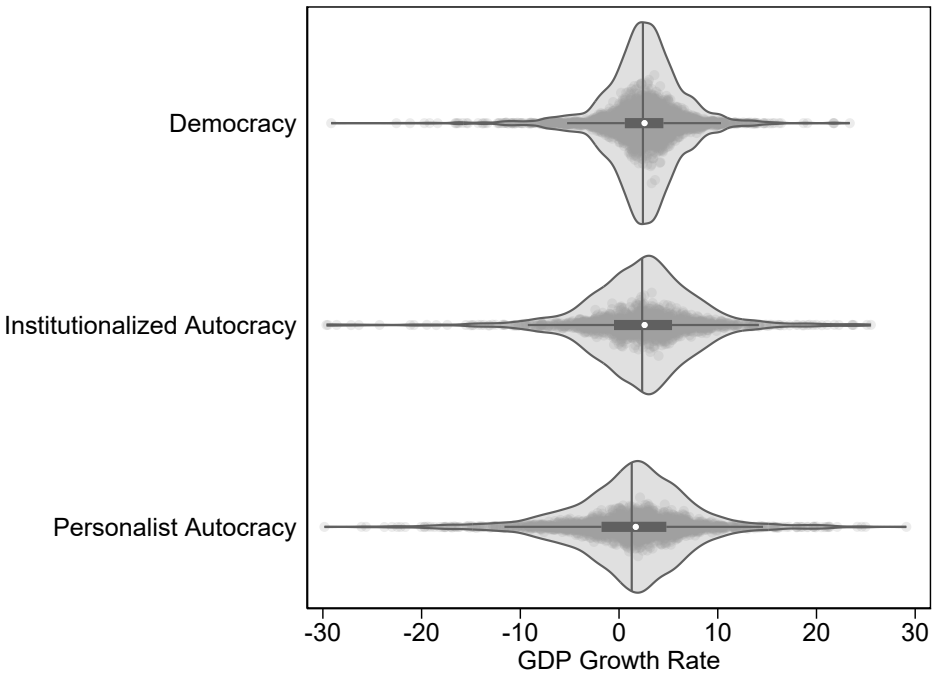
To illustrate, Figure 1 plots annual growth rates from 1961 to 2010 in 176 countries by regime type, using a democracy/autocracy indicator by Cheibub, Gandhi and Vreeland (2010) and a measure of power concentration within autocracies by Gandhi and Sumner (2020).[3] Both types of autocracy exhibit substantially higher variance than democracies, but personalist autocracies stand out for their lower average growth performance: 2.4 percent for democracies, 2.31 percent for institutionalized autocracies, and 1.37 percent for personalist autocracies. Although this difference may seem subtle against the huge spread of growth rates, it is substantial—compounded over fifty years, a one-percentage-point increase in the growth rate corresponds to 64 percent higher income.

The central question is whether this "personalist penalty" holds in a well-specified model and, if so, whether it reflects a causal relationship. When it comes to estimating the effect of institutional arrangements on country development, there is no perfect strategy, but recent work provides a path forward. For a panel of countries from 1960 to 2010, we regress log income per capita on indicators for autocracy and personalist autocracy, as well as country and year fixed effects. As in Acemoglu et al. (2019), we also include lags of the dependent variable sufficiently rich to account for the tendency of political transitions to accompany economic downturns. The coefficients in this dynamic two-way fixed effects (TWFE) model have a simple interpretation: the conditional mean difference in log income per capita between regime types, adjusting for pre-transition income dynamics. Under the additional assumption of sequential exogeneity—the standard assumption in dynamic panel models, the plausibility of which depends on getting the lag structure right—these estimates are interpretable as the causal effect of a transition from one regime type to another.

Using this empirical strategy, we examine numerous measures of regime type and various changes in specification and sample. The results broadly mirror the pattern in Figure 1. Across most measures, authoritarian regimes have lower average GDP growth than democra-

[3]Classifications of regime type differ along various dimensions, with advantages and disadvantages to each. In what follows, we explore numerous indicators of autocracy and personalism.

**Figure 1:** Distribution of growth rates by regime type




*Notes:* The vertical line represents the median and the white dot the mean. The horizontal bar spans the 25th to 75th percentiles, and the horizontal line the 5th to 95th percentiles. This figure uses annual GDP growth rates from the April 2012 vintage of the World Development Indicators (WDI). We classify regime types using the measures of autocracy and power consolidation by Cheibub, Gandhi and Vreeland (2010) and Gandhi and Sumner (2020), respectively.

cies; where such differences arise, they are isolated to personalist regimes. There is no robust difference in growth rates between democracies and institutionalized autocracies. Among numerous robustness checks, we demonstrate that the degree of personalism in an authoritarian regime is distinct from the "hardness" of autocracy, so that any personalist penalty is not simply picking up degrees of authoritarianism.

Put succinctly, we show that if one believes in the autocratic growth penalty, one should also believe that it is concentrated in regimes where power is held by a single individual or small elite.

To understand the sources of any personalist growth penalty, we explore a range of intermediate political and economic outcomes. Consistent with the conceptual framework that we present below, we find that personalist regimes are characterized by lower total factor

productivity and some combination of low private investment, poor public-goods provision, and conflict, broadly defined. In contrast, we observe no robust difference in the incidence of inflation crises, economic openness, or economic reform.

We are not the first to note that some autocracies are high-performing (Easterly, 2011; Luo and Przeworski, 2019). Indeed, some of history's most famous episodes of development happened under nondemocratic regimes—from Britain's industrial revolution to the "miracle" decades of growth in China, Singapore, and Thailand (Besley and Kudamatsu, 2007). What examples like these share is some institutionalization of power, whether through a regime party, a corporate military structure, or legislative checks on monarchical rule.

Our analysis also builds on long-running efforts to unpack regime characteristics in nondemocracies (e.g., Geddes, 1999; Hadenius and Teorell, 2007; Gandhi, 2008; Goemans, Gleditsch and Chiozza, 2009; Cheibub, Gandhi and Vreeland, 2010; Svolik, 2012; Geddes, Wright and Frantz, 2018). Much of the empirical work in this literature has focused on the effects of personalism on political repression, conflict, and collapse (e.g., Choi, 2010; Weeks, 2012; Chin, Song and Wright, 2023; Frantz et al., 2020). Gandhi (2008) and Wright (2008) do examine differential growth rates in autocracies with more and less institutionalization, while Wright (2008) and Gehlbach and Keefer (2012) do the same for domestic investment, but since that early work there has been surprisingly little research on how the concentration of power in autocracies shapes growth and development. That is the question we take up in this research note.

## 2 Conceptual framework

Many theories link political institutions to economic performance. To organize these, consider the classic augmented production function (Mankiw, Romer and Weil, 1992):

$$Y = K^{\alpha} H^{\beta} (AL)^{1-\alpha-\beta}.$$

Understood from this perspective, the concentration of political power and strength of formal institutions in autocratic regimes may affect growth through one or more of the four inputs into production: physical capital ($K$), human capital ($H$), technology ($A$), and labor ($L$).

A familiar argument is that dictators with a narrow base of power may prioritize targeted transfers over public goods (Bueno de Mesquita et al., 2003; Besley and Kudamatsu, 2007). To the extent this is the case, economic growth can suffer from underinvestment in human capital and technology, broadly defined.

Highly concentrated political power may also discourage private investment in physical capital. Gehlbach and Keefer (2011, 2012) argue that competitively elected legislatures and institutionalized ruling parties deter autocrats from expropriating politically connected elites. Such checks and balances can also encourage policy stability (Gandhi, 2008)—another prerequisite for private investment. These constraints are weak or absent in personalist regimes, where parties or legislatures are enfeebled, functioning primarily to reward and punish elites, or are absent entirely (Wright, 2008). Personalist regimes may also face shorter time horizons (e.g., Svolik, 2012; Geddes, Wright and Frantz, 2018), which can encourage expropriation of private capital (Olson, 1993).

Personalist rulers may also be more likely to provoke civil unrest and war. When it comes to waging war on other states, unconstrained autocrats arguably internalize fewer of the costs of conflict, and they potentially reap more of the benefits.[4] Internally, personalist regimes could also struggle to maintain stability. The absence or impotence of formal institutions in autocracies, for example, can complicate efforts to co-opt rivals before open conflict emerges (Gandhi and Przeworski, 2006; Svolik, 2012). Personalist dictators may also struggle to commit to rewarding those who protect them in times of crisis (Myerson, 2008).

To the extent that personalist regimes are more prone to conflict, this would further dis-

[4]See Bueno de Mesquita et al. (2003), Jackson and Morelli (2007), and Blattman (2022) for the theoretical case and Weeks (2012) for evidence. A parallel literature examines the personalism and stability of regimes that come to power through revolution and rebellion, arguing variously that revolutionary regimes are more personalized (Colgan and Weeks, 2015), more institutionalized and stable (Levitsky and Way, 2022; Meng and Paine, 2022; Clarke, 2023), or either, depending on the nature of the revolutionary coalition (Geddes, Wright and Frantz, 2018; Clarke, Meng and Paine, 2025).

courage growth. Wars destroy physical capital and reduce labor and human capital through disruptions of schooling, casualties, conscription, and emigration (Blattman and Miguel, 2010). Although these factors of production can reaccumulate over time, the impact on national income tends to be large and persist for at least a decade (Mueller, 2012). Such effects may be most pronounced when accompanied by a deterioration in institutional quality—say, a reduction in constraints on executive behavior (Cerra and Saxena, 2008).

Finally, personalist autocrats may simply make worse policy decisions than their institutionalized counterparts—pursuing ill-conceived investment projects, for example, or invading a neighbor based on poor understanding of likely resistance. Wintrobe (1998) suggests the presence of a "dictator's dilemma," in which self-censorship for fear of reprisal deprives the autocrat of information needed for his survival (see also Gehlbach et al., 2025). Although personalist dictatorships are not necessarily more repressive than institutionalized autocracies, any tendency to tell the ruler what he wants to hear can be aggravated when the ruler makes decisions alone or in a small group. A related idea is that personalist autocrats may be more likely to surround themselves with loyal rather than competent subordinates (Egorov and Sonin, 2009; Zakharov, 2016; Egorov and Sonin, 2023; Pan, 2025). "Monocratic" rulers may also be more susceptible to influence from special interests (Gehlbach and Malesky, 2010), and they may be less flexible in their decision making than actors in more "polycentric" systems (Vincent Ostrom, 1997; Elinor Ostrom, 2010).

## 3 Empirical strategy

### Estimation

To examine the heterogeneous effect of autocracy on economic growth, we estimate the following dynamic two-way fixed effects (TWFE) model on a cross-country panel of autocracies and democracies:

$$y_{ct} = \beta_A A_{ct} + \beta_P P_{ct} + \sum_{j=1}^{J} \gamma_j y_{ct-j} + \alpha_c + \delta_t + \epsilon_{ct}. \tag{1}$$

Following Acemoglu et al. (2019), our dependent variable, $y_{ct}$, is log GDP per capita in

constant 2000 U.S. dollars for country $c$ in year $t$ from the April 2012 vintage of the World Bank's World Development Indicators (WDI).[5] We introduce two measures of regime type: $A_{ct}$ is an indicator for autocracy, whereas $P_{ct}$ is an indicator for personalist autocracy. The latter variable is nested in the former, so the coefficient on $A_{ct}$ measures the average difference in log GDP between democracies and institutionalized autocracies, whereas the coefficient on $P_{ct}$ captures the growth penalty (or bonus) of personalism relative to institutionalized autocracy. The variables $\alpha_c$ and $\delta_t$ are country and year fixed effects, respectively, while $\epsilon_{ct}$ is an idiosyncratic error term. The $J$ lags of the dependent variable control for pre-transition income dynamics. Throughout, we report heteroskedasticity-robust standard errors that correct for arbitrary correlation at the country level (i.e., we cluster by country).

The TWFE approach is conventional in the literature on growth performance and regime type. Equation 1, which includes lags of the dependent variable, follows Acemoglu et al. (2019), who estimate the effect of democracy ($D_{ct}$) on growth. Our estimate of the "autocratic penalty," which we establish as a baseline, is identical to their specification, but with $A_{ct} = 1 - D_{ct}$:

$$y_{ct} = \beta A_{ct} + \sum_{j=1}^{J} \gamma_j y_{ct-j} + \alpha_c + \delta_t + \epsilon_{ct}. \tag{2}$$

**Dichotomization**

As in nearly all work on regime type and economic growth, we use a binary measure of autocracy (democracy). Extending this specification to include a dichotomous indicator for personalist autocracy, as in Equation 1, relaxes the assumption of a homogeneous effect of autocracy by partitioning authoritarian regimes into their institutionalized and personalist varieties.

A potential cost to this dichotomization is that it discards theoretically and empirically relevant information. The institutionalization or personalization of power can be a gradual process that is not captured by a knife-edge threshold. These thresholds, moreover, likely

[5] We explore robustness to other data series below.

vary from variable to variable, given that the underlying measures from which we construct most of our indicators for personalism have no natural scaling. Nonetheless, there are enough advantages to dichotomization to justify our main specification.

First, at a conceptual level, it is natural to assume that regimes come in types (Cheibub, Gandhi and Vreeland, 2010), with institutionalized autocracies (for which $A_{ct} = 1$ and $P_{ct} = 0$) and personalist autocracies ($A_{ct} = P_{ct} = 1$) constituting two distinct categories. Second, at a minimum, the coefficients $\beta_A$ and $\beta_P$ have a clear descriptive interpretation: the conditional mean difference in log income per capita between regime types, adjusting for pre-transition income dynamics. This simplifies interpretation and facilitates comparison to canonical papers. Third, and related, the specification of binary treatments aligns our work with existing panel methods and associated identification assumptions.

**Identification**

Causal claims from cross-country panel regressions must obviously be treated with caution. As in Acemoglu et al. (2019), the key assumption is sequential exogeneity:

$$\mathbb{E}\left[\epsilon_{ct} \mid A_{ct} \ldots, A_{c1}, P_{ct} \ldots, P_{c1}, y_{ct-1}, \ldots, y_{c1}, \alpha_c, \delta_t, \ldots, \delta_1\right] = 0, \ \forall t \geq 1. \tag{3}$$

This assumption, which is weaker than strict exogeneity, says that shocks to income are uncorrelated with past and present values of the right-hand-side variables, including regime type and lags of the dependent variable. The plausibility of this assumption relies on having the "correct" lag structure, such that the dynamics of GDP per capita are fully specified. As discussed below, we find that the lag structure identified by Acemoglu et al. (2019) is the same when including an indicator for personalist autocracy.

Beyond sequential exogeneity, identification relies on stationarity. Thus, we report $p$-values from a Levin-Lin-Chu test for unit roots. In principle, the presence of lagged outcomes in a model with unit fixed effects generates "Nickell bias," though as our panel is fifty years long, this is likely to be minimal. Finally, we bracket the issue of "inappropriate comparisons"

**Table 1:** Income differences between autocratic and democratic regimes

| | Outcome: Log GDP per capita | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) CGV | (2) GWF | (3) FH | (4) Polity | (5) ANRR | (6) BMR | (7) PS | (8) V-Dem |
| Autocracy | −0.609** | 0.059 | −0.604*** | 0.095 | −0.796*** | −0.512** | −0.727** | −0.124 |
| | (0.271) | (0.267) | (0.228) | (0.228) | (0.225) | (0.252) | (0.315) | (0.241) |
| $p$-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.000 |
| Observations | 5869 | 5117 | 5481 | 5539 | 6385 | 6299 | 5121 | 5984 |
| Countries | 175 | 142 | 177 | 157 | 177 | 177 | 168 | 164 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Four GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Notes:* Using eight different indicators for autocracy, the regressions in this table estimate income differences using the dynamic panel model in Equation 2, adjusting for income dynamics and conditioning on common shocks and time-invariant country characteristics. In parentheses, heteroskedasticity-robust standard errors that correct for arbitrary correlation at the country level. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$.

in staggered difference-in-differences designs, where the literature has yet to catch up to multiple binary treatments (here, autocracy and personalist autocracy).[6]

## 4 The autocratic penalty

Although our focus is on personalism, for transparency we first re-estimate the autocratic penalty using eight common measures. Each measure has strengths and weaknesses—some of which we outline below—and for transparency we present results for all.

Data on autocracy and personalism are generally available from 1960 to 2010 in up to 179 countries. We focus on this period, using dichotomoized measures of regime type from Cheibub, Gandhi and Vreeland (2010) [CGV]; Geddes, Wright and Frantz (2014) [GWF]; Freedom House (2023) [FH]; Polity (Marshall and Gurr, 2020); Acemoglu et al. (2019) [ANRR]; Boix, Miller and Rosato (2013) [BMR]; Papaioannou and Siourounis (2008) [PS]; and V-Dem (Coppedge et al., 2024, where we use the `v2x_polyarchy` variable).[7]

Table 1 reports results from the dynamic panel model of Equation 2, adjusting for income dynamics and conditioning on common shocks and time-invariant country characteristics.[8]

[6]For a reanalysis of the single binary treatment in Acemoglu et al. (2019) that addresses this concern, see Imai, Kim and Wang (2023).

[7]We include summary statistics for these and other variables in Table A1. We lead all GWF measures by one period to reflect the coding of those variables as of January 1, versus December 31 for other measures, where that is explicit.

[8]As in Acemoglu et al. (2019), we find that including four lags of income is sufficient to control for income

(Here and below, we multiply the estimated coefficients on the regime indicators by 100 to simplify presentation.) For five of the eight measures of regime type, the point estimate on autocracy is statistically significant and substantively meaningful, ranging from a decline in GDP in the first year of transition of one-half of a percent (BMR) to eight-tenths of a percent (ANRR).

Although the general pattern is similar to that documented in other work, the existence and size of the autocratic penalty varies across indicators of regime type.[9] There are many sources of difference. The two most important are sample coverage and coding rules.

First, with respect to sample, in addition to omitting small countries, GWF and Polity have a substantial number of coding gaps in large countries that cannot be accounted for by political transitions or stability.[10] These sample differences explain some of the variation across measures. If we restrict the sample for other datasets to that of smaller ones, such as GWF or Polity, the size and significance of the autocratic penalty both decline (Table A3). Likewise, extending the Polity and GWF samples by imputing missing values from CGV restores the autocratic penalty, although statistical insignificance remains (Table A4).

Second, coding practices differ, with correlations between measures varying from 0.73 to 0.92 (Table 2). The main differences arise in how democracy is defined and in how it is coded. For example, following Przeworski et al. (2000), CGV and BMR employ a minimalist and arguably objective coding rule: democracies have popular, multiparty elections for the legislature and chief executive (or, as in parliamentary regimes, the chief executive is elected by such legislature).[11] Conversely, Polity, Freedom House, GWF, and V-Dem aggregate up

dynamics. Results are qualitatively similar if we use eight rather than four lags (Table A2).

[9]For these various measures, the point estimates are similar to those reported in Appendix Table A6 of Acemoglu et al. (2019), with the exception of CGV, where we use the updated dataset provided by Gandhi and Sumner (2020). In particular, the estimate for ANRR differs slightly from that in Acemoglu et al. (2019) due to the apparent omission in the latter of GDP data for the United Arab Emirates (1975–2010) and Serbia & Montenegro (1990–2010). Acemoglu et al. (2019) do not examine GWF or V-Dem.

[10]For example, of the 726 country-year observations missing in Polity but present in CGV and our GDP data, there are eleven additional transitions between democracy and autocracy (versus 95 in the Polity sample). Three of these transitions are in nations with 2023 population under one million (a cutoff for both GWF and Polity but not other datasets). The other eight reflect significant events in larger countries. Only five percent of Polity's missing observations, and three of the transitions, are accounted for by civil war.

[11]CGV also require prior alternation in power under current electoral rules. BMR drop this alternation rule

**Table 2:** Correlations among autocracy measures

| | CGV | GWF | FH | Polity | ANRR | BMR | PS | V-Dem |
|---|---|---|---|---|---|---|---|---|
| CGV | 1.000 | | | | | | | |
| GWF | 0.923 | 1.000 | | | | | | |
| FH | 0.745 | 0.730 | 1.000 | | | | | |
| Polity | 0.801 | 0.868 | 0.765 | 1.000 | | | | |
| ANRR | 0.864 | 0.873 | 0.725 | 0.847 | 1.000 | | | |
| BMR | 0.900 | 0.896 | 0.771 | 0.864 | 0.887 | 1.000 | | |
| PS | 0.815 | 0.840 | 0.785 | 0.830 | 0.902 | 0.839 | 1.000 | |
| V-Dem | 0.798 | 0.817 | 0.801 | 0.833 | 0.800 | 0.842 | 0.846 | 1.000 |

*Note:* The correlations in this table reflect pairwise deletion of missing observations.

to regime type from multiple component measures, drawing on the judgment of internal or external experts.[12] ANRR and PS, in turn, combine Polity and Freedom House to reduce measurement error, with ANRR also using CGV and BMR to fill in missing values. There is no obvious relationship between coding approach and the autocratic penalty. As Table 1 shows, we observe lower autocratic growth among measures that are narrow and broad, comparatively subjective and objective (though of the four more subjective measures, only FH has a substantively large and statistically significant effect).

Of course, many political systems combine elements of autocracy and democracy. Opposition parties and semi-competitive elections are characteristic features of many authoritarian regimes, as is some semblance of media freedom. Table 1 codes these "hybrid" regimes as autocratic, using conventional cutoffs between democracy and nondemocracy for polychotomous and continuous measures of regime type (FH, Polity, and V-Dem). Depending on the measure, this is a meaningful coding decision, as the autocratic penalty loses magnitude and significance if hybrid regimes are excluded (Appendix Table A5).[13]

Ultimately, rather than trying to identify the "correct" threshold to distinguish between autocracy or democracy, we find it more productive to classify regimes based on specific traits, such as personal rule, and to ask whether any growth penalty is concentrated within

and code "autocoups"—when a democratic leader dismantles electoral institutions—as autocratic transitions.

[12]Whether to refer to various measures as "objective" or "subjective" is itself the subject of some debate. See, e.g., Little and Meng (2024) and Knutsen et al. (2024).

[13]ANRR classify an observation as democratic if it has a positive Polity score and FH rates it as Free or Partly Free, but when examining FH alone they use the definition we employ in Table 1 (see their Appendix Table A6 and replication data).

one type of autocracy or another.

## 5 A personalist penalty?

### Concept and measurement

Personalist rule is characterized by the consolidation of power and decision making in a small group of elite decision makers, often organized around a single person. By definition, personalist autocracies are not institutionalized. Moreover, personalism is not synonymous with being more autocratic. Some "full' or "hard" autocracies are relatively institutionalized, such as the post-Stalin USSR or China after Mao. Conversely, some "hybrid" regimes have highly concentrated rule, including Turkey under Tayyip Erdoğan (especially after the failed coup of 2016) and Venezuela under Hugo Chávez.

To compare growth performance under personalist and institutionalized autocracies, we draw on a range of proxies. As with autocracy, for transparency we present results for all plausible measures, outlining the strengths and weaknesses of each. Some of these measures explicitly target the concentration of power *within* authoritarian regimes, and arguably these are best suited to our analysis. Others are designed to capture variation in power concentration or a related regime characteristic in both democracies and autocracies.

As discussed, we convert each measure into a dichotomous indicator for personalist regimes. To simplify the presentation of our main results, whenever possible we nest each personalism indicator in the most closely associated autocracy indicator.

- Gandhi and Sumner (2020) provide a measure of **Power Consolidation** for the sample of autocracies in CGV. This variable, which is time-varying within leaders, mainly captures observable variation in control over political office and freedom from military and party constraints.[14] The Bayesian item response theory (IRT) model on which the measure is based smooths observations within leaders. We dichotomize this variable

[14]Examples of the former include the number of positions held by the ruler and whether any immediate family members hold political office, whereas examples of the latter include the presence and origin of parties associated with the ruler.

at zero, the median of the diffuse prior.

- Geddes, Wright and Frantz (2014) classify autocratic regimes (not leaders) as personalist, military, dominant-party, or monarchic. We create the indicator **Categorical Personalism**, which equals one if a regime is coded as personalist or "hybrid" personalist (military-personal, party-personal, or party-personal-military).
- Geddes, Wright and Frantz (2018), in turn, develop a within-leader measure of **Latent Personalism** from an IRT model that uses proxies for the ruler's connection to security forces, the relationship to the ruling party, and the role of the military.[15] We dichotomize this measure at the sample median.

Other measures are not specific to autocracies but are nonetheless plausible proxies for the concentration of power in authoritarian regimes.[16]

- Polity's measure of **Executive Constraints** (`xconst`) reflects institutionalized constraints on the power of the chief executive by various "accountability groups," the identity of which depends on the nature of the regime.
- V-Dem's measure of **Presidentialism** (`v2xnp_pres`) captures the concentration of political power in members of the executive, with an emphasis on legal constraints.[17]
- Henisz's (2000) measure of **Veto Players** (`POLCONV`) counts the branches of government with veto power over policy change, taking into consideration the alignment of preferences across and within branches.

[15]Relative to GS Power Consolidation, there is more emphasis on coercive power, which receives less attention in the literature but may be consequential for economic growth. Unlike GS Power Consolidation, GWF Latent Personalism does not allow for smoothing within leader episodes.

[16]For each, we construct indicators of personalism by dichotomizing the underlying variables. For Executive Constraints, we follow the Polity codebook (Marshall and Gurr, 2020, p. 62), which states, "Personalist dictatorships are typically coded" `xconst` = 1, though our results are similar (i.e., small and insignificant) if we also code `xconst` = 2 as personalist. We dichotomize Presidentialism and Veto Players at the sample median of `v2xnp_pres` and `POLCONV`, respectively; the latter indicator partitions the sample between the 75 percent of autocratic observations for which `POLCONV` is equal to zero and the 25 percent for which it is not.

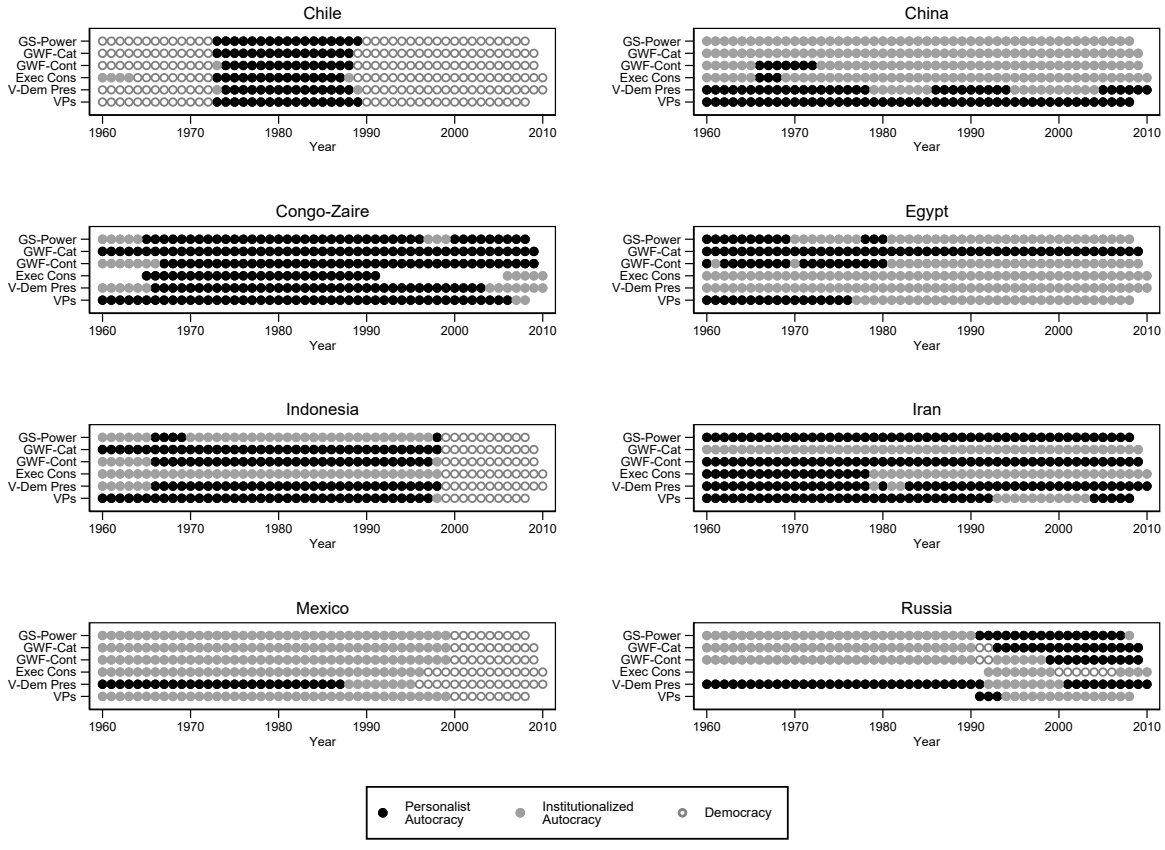
[17]V-Dem's Presidentialism index is constructed from expert-coded indicators of executive respect for the constitution, non-legislative (e.g., comptroller general, general prosecutor, or ombudsman) oversight of the executive, legislative financial independence and demonstrated ability to investigate the executive, higher and lower court independence, compliance with high-court and other judicial decisions, and autonomy of electoral management.

**Table 3:** Correlations among personalism measures

| | GS Power Consolidation | GWF Categorical Personalism | GWF Latent Personalism | Polity Executive Constraints | V-Dem Presidentialism | Veto Players |
|---|---|---|---|---|---|---|
| GS Power Consolidation | 1.000 | | | | | |
| GWF Categorical Personalism | 0.253 | 1.000 | | | | |
| GWF Latent Personalism | 0.125 | 0.432 | 1.000 | | | |
| Polity Executive Constraints | 0.205 | 0.190 | 0.124 | 1.000 | | |
| V-Dem Presidentialism | 0.118 | 0.212 | 0.226 | 0.144 | 1.000 | |
| Veto Players | 0.246 | 0.258 | 0.166 | 0.464 | 0.197 | 1.000 |

*Note:* The correlations in this table reflect pairwise deletion of missing observations on the sample of autocracies.

**Figure 2:** Alternative personalism codings in eight illustrative countries



These measures are much less correlated with each other than are the autocracy indicators. Restricting the sample to autocracies alone, pairwise correlations range from 0.12 to 0.46, with most correlations around 0.2 (Table 3).[18] Figure 2 illustrates the similarities and differences across indicators for eight illustrative countries. There is broad agreement that Augusto Pinochet's Chile was a personalist dictatorship, for example, although the six measures differ slightly in the timing of entry to and exit from that state. In contrast, the period of Mao's rule is inconsistently coded as personalist or institutionalized, and there is disagreement (even comparing the two GWF measures) as to the nature of autocratic rule in Iran under both the Shah and the ayatollahs. There are also different patterns of missingness: Polity assigns no values for Congo–Zaire in the years immediately following independence in 1960 and for the period of state collapse and war during the 1990s and early 2000s, while neither Polity nor Veto Players code Russia during the Soviet period.[19]

**Results**

Table 4 estimates our core specification from Equation 1, with indicators for autocracy and personalist autocracy; the latter variable is nested in the former.[20] A first key finding is that the coefficient on autocracy is never significantly different from zero, implying similar income trajectories for institutionalized autocracies and democracies. A second result is that personalist autocracies significantly underperform institutionalized autocracies if and only if they also underperform democracies (Columns 1, 2, and 7). Put simply, to the extent that there is an autocratic growth penalty, it appears to be concentrated in personalist regimes.

[18]Relatedly, as Table A6 shows, the measures differ substantially in transition rates between regime types: democracy, institutionalized autocracy, and personalist autocracy.

[19]Data for CGV/GS extend through 2008. Further, as discussed above, we lead all GWF measures by one period, which shrinks the panel for those variables by a year. Appendix Figures A1–A8 plot the underlying continuous measures and leader transitions for the same eight countries.

[20]We pair veto players with CGV, as Henisz (2000) provides no additional measure of regime type.

**Table 4:** Income differences between personalist and institutionalized autocracies

| | Outcome: Log GDP per capita | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) CGV | (2) ANRR | (3) GWF | (4) GWF | (5) Polity | (6) V-Dem | (7) CGV |
| Autocracy | 0.031 | −0.050 | 0.394 | 0.004 | 0.082 | −0.202 | −0.037 |
| | (0.345) | (0.340) | (0.337) | (0.326) | (0.242) | (0.274) | (0.319) |
| GS power consolidation | −0.993*** | −1.102*** | | | | | |
| | (0.341) | (0.377) | | | | | |
| GWF Categorical Personalism | | | −0.638 | | | | |
| | | | (0.436) | | | | |
| GWF Latent Personalism | | | | 0.120 | | | |
| | | | | (0.338) | | | |
| Polity-Executive Constraints | | | | | 0.062 | | |
| | | | | | (0.275) | | |
| V-Dem Presidentialism | | | | | | 0.231 | |
| | | | | | | (0.392) | |
| Veto Players | | | | | | | −0.859*** |
| | | | | | | | (0.314) |
| Autocracy + Personalism | −0.962*** | −1.152*** | −0.244 | 0.124 | 0.144 | 0.029 | −0.896*** |
| | (0.303) | (0.327) | (0.351) | (0.306) | (0.297) | (0.361) | (0.323) |
| $p$-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 5869 | 6073 | 5117 | 5117 | 5539 | 5984 | 5712 |
| Countries | 175 | 175 | 142 | 142 | 157 | 164 | 172 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Four GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Notes:* Using six different indicators for personalist autocracy, each paired with one or more indicators of autocracy, the regressions in this table estimate income differences using the dynamic panel model in Equation 1, adjusting for income dynamics and conditioning on common shocks and time-invariant country characteristics. Indicators for personalist autocracy, ordered such that higher values imply fewer constraints, are nested in indicators for autocracy. In parentheses, heteroskedasticity-robust standard errors that correct for arbitrary correlation at the country level. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$.

We first consider the three indicators of personalism expressly created to measure institutional variation in autocracies: GS Power Consolidation (paired with CGV or ANRR), GWF Categorical Personalism, and GWF Latent Personalism. For the first two indicators (Columns 1–3), the estimated income difference between personalist and non-personalist autocracies is negative, with a point estimate that is substantively meaningful, but larger and statistically significant for GS Power Consolidation. Examining the linear combination of autocracy and personalism at the base of the table, only when GS Power Consolidation is paired with CGV or ANRR is income in personalist dictatorships significantly lower than in democracies. In these specifications, a transition from democracy to personalist autocracy is associated with a decline in GDP of close to one percentage point in the first year of transition.

In Columns 5 to 7, we examine the three indicators not specific to autocracies. We find inconsistent results: a small and insignificant effect of Polity Executive Constraints, a somewhat larger but still insignificant effect of V-Dem Presidentialism, and a negative and significant effect of Veto Players (paired with CGV, as Henisz [2000] does not provide any additional measure of regime type). Again, the difference between personalist and institutionalized autocracies is significant if and only if the difference between personalist autocracies and democracies is—here, when personalism is measured as Veto Players.

**Robustness**

These results are broadly robust to changes in measurement, sample, and specification. Importantly, we show that it is personalism—the concentration of power in an individual ruler or small elite—that matters for economic growth, not whether an autocracy is "hybrid" or "full/hard" (Table A7).[21] We also find similar qualitative results in a model with GDP growth (rather than level) as the outcome (Table A8), even though the identifying variation—

[21] Appendix Figure A9 demonstrates that there is rich variation in personalism within autocratic regimes that is largely orthogonal to the hybrid/full distinction. For Table A7, we nest both personalism and "full" autocracy in three measures of autocracy for which the latter distinction is meaningful (Freedom House, Polity, and V-Dem).

differences in average growth rates across regimes rather than transitions from one regime type to another—is different from that in Table 4. Following the analysis in Martinez (2022), we additionally show that there is no consistent evidence that GDP is systematically underreported in personalist autocracies (Table A9). Most consequential is the particular income series used for the dependent variable (WDI vintage, Penn World Tables), though here too the basic story is largely unchanged.[22]

In the Online Appendix, we further show that the coefficient estimate for each of the personalism indicators is similar in sign, magnitude, and precision if we: drop extreme growth episodes (Table A11), restrict the sample to that for other autocracy/personalism pairs (Table A12), exclude planned economies (Tables A13 and A14), drop one country at a time from the sample (Figure A10), include fewer than four lags of GDP (Tables A15 and A16), include eight rather than four lags of GDP (Table A17, though here the negative estimated effect of GWF Categorical is statistically significant), account for the fact that regime transitions often coincide with leadership turnover (Table A18), control for the leader's tenure (Table A19, reflecting the tendency of established leaders to adjust policy as they learn their "affinity" for coalition members: see Bueno de Mesquita and Smith, 2024), model personalism as a continuous rather than discrete variable (Table A20; the point estimate for Veto Players is no longer precisely estimated, though the linear combination of autocracy and personalism remains significant), and mixing and matching autocracy and personalism indicators (Table A21).

[22]The World Bank regularly updates the WDI based on reports from national statistical agencies. Among other consequences, this introduces different patterns of missingness from one vintage to the next (Goes, 2023). Across seven alternative data series (Table A10), including the Penn World Tables, there are two non-trivial differences from the results reported in Table 4. First, for GWF Categorical, the (negative) difference between institutionalized and personalist autocracies is consistently larger and typically statistically significant. Second, for V-Dem Presidentialism, the better growth performance of personalist (relative to institutionalized) autocracies is greater than reported in Table 4, although the point estimate is statistically significant only in three cases, while the difference between personalist autocracies and democracies is never significant.

## 6 Mechanisms

Guided by the conceptual framework above, we examine various mechanisms by which personalism could affect economic growth, including, but not only, those outcomes explored by Acemoglu et al. (2019). Table 5 measures autocracy and personalist autocracy, respectively, using CGV and GS Power Consolidation. Appendix Tables A22 and A23 do the same for ANRR/GS and CGV/Veto Players, the other two pairs of institutional measures for which we robustly find a personalist growth penalty. We restrict attention to outcomes with wide sample coverage, thus bracketing mechanisms consistently measured only for democracies and institutionalized autocracies. Following Acemoglu et al. (2019), we include country and year fixed effects, four lags of GDP, and four lags of the outcome in all regressions.

The regressions using GS Power Consolidation to measure personalism tell a somewhat different story from those using Veto Players, although there are commonalities. Consistent with the theoretical framework of Gehlbach and Keefer (2011, 2012), in Table 5 (CGV/GS) and Table A22 (ANRR/GS), personalist autocracy is associated with lower private but not public investment. Total factor productivity (TFP) is also lower in personalist than institutionalized autocracies, though roughly similar to that in democracies. The TFP result carries over to CGV/Veto Players, but otherwise the results in Table A23 mirror the emphasis in Bueno de Mesquita et al. (2003) and Besley and Kudamatsu (2007) on public goods, with lower primary and secondary enrollment and higher child mortality in personalist autocracies than institutionalized ones. Consistent with these results, the ratio of tax revenue to GDP is also lower in personalist regimes, as is a measure of state capacity from Hanson and Sigman (2021) and used in a similar exercise in Wang and Xu (2018).

**Table 5:** Potential mechanisms

| | Investment | | | Public Goods | | | State Capacity | |
|---|---|---|---|---|---|---|---|---|
| | (1) Log Private Investment | (2) Log Public Investment | (3) Log TFP | (4) Log Primary Enrollment | (5) Log Secondary Enrollment | (6) Log Child Mortality Rate | (7) Log Tax to GDP | (8) HS State Capacity |
| CGV Autocracy | −0.003 | −0.038* | 1.013*** | −0.372 | −0.498 | 0.095 | −2.460 | −0.010*** |
| | (0.022) | (0.020) | (0.338) | (0.419) | (0.761) | (0.089) | (1.651) | (0.002) |
| GS Power Consolidation | −0.045** | 0.006 | −1.276*** | −0.610 | −0.271 | 0.096 | −0.566 | −0.001 |
| | (0.018) | (0.018) | (0.449) | (0.403) | (0.651) | (0.083) | (1.465) | (0.002) |
| Autocracy + Personalism | −0.048** | −0.032 | −0.262 | −0.982** | −0.769 | 0.191*** | −3.026* | −0.010*** |
| | (0.019) | (0.022) | (0.356) | (0.382) | (0.625) | (0.068) | (1.672) | (0.002) |
| Mean of outcome variable | 6.571 | 5.500 | -3.753 | 452.870 | 396.148 | 350.192 | -181.774 | 0.500 |
| Observations | 5586 | 5586 | 3655 | 3462 | 2696 | 5644 | 4496 | 5174 |
| Countries | 164 | 164 | 108 | 165 | 156 | 172 | 131 | 156 |

| | Macroeconomic Policy/Outcomes | | | | Civil Unrest | | Civil Conflict/War | |
|---|---|---|---|---|---|---|---|---|
| | (1) Inflation Crisis (0-1) | (2) Hyperinflation (0-1) | (3) Log Trade | (4) Index of Market Reforms | (5) Log Protests | (6) Riots (0-1) | (7) Conflict (0-1) | (8) War (0-1) |
| CGV Autocracy | 0.014 | −0.006 | −0.122 | −0.851 | 0.060 | −0.001 | 0.020 | 0.003 |
| | (0.020) | (0.010) | (0.908) | (0.537) | (0.060) | (0.028) | (0.017) | (0.013) |
| GS Power Consolidation | −0.014 | 0.001 | −1.233 | 0.523 | 0.092 | 0.094*** | −0.009 | −0.000 |
| | (0.015) | (0.007) | (0.767) | (0.394) | (0.079) | (0.026) | (0.019) | (0.014) |
| Autocracy + Personalism | −0.000 | −0.005 | −1.355* | −0.328 | 0.152** | 0.093*** | 0.010 | 0.003 |
| | (0.016) | (0.008) | (0.753) | (0.428) | (0.067) | (0.024) | (0.015) | (0.009) |
| Mean of outcome variable | 0.145 | 0.029 | 414.101 | 42.447 | -4.827 | 0.251 | 0.151 | 0.039 |
| Observations | 5870 | 5870 | 5342 | 4569 | 2874 | 5259 | 5805 | 5805 |
| Countries | 175 | 175 | 171 | 149 | 159 | 170 | 175 | 175 |

*Notes:* All regressions include country and year fixed effects, four lags of GDP, and four lags of the outcome. In parentheses, heteroskedasticity-robust standard errors that correct for arbitrary correlation at the country level. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$.

Personalist autocracies also appear to experience more conflict, although the particular relationship depends on whether we measure personalism using GS Power Consolidation or Veto Players. In the former case, a transition to personalist rule is associated with more riots. In the latter, the incidence of civil war is more likely in personalist than institutionalized regimes. Finally, regardless of how we measure personalism, we find little evidence that macroeconomic outcomes—high or "hyper" inflation, trade, or market reforms—are systematically related to autocratic transitions.

Together, these results provide suggestive evidence that personalized autocracies suffer from some combination of low private investment, poor public goods provision, and conflict—all conditions negatively associated with productivity and economic growth.

## 7 Conclusions

The dangers of personal rule have been apparent for centuries. In *Discourses on Livy*, Niccolo Machiavelli contrasted personalist princes to other forms of autocratic rule—oligarchies and elite-ruled republics. A government of well-organized people, he argued, rules more prudently and more stably than that of a prince, who is more prone to tyranny and wickedness (Machiavelli, Bondanella and Conaway, 1531/1997; McCormick, 2018).

Our analysis of regimes from 1960 to 2010 provides cautious support for Machiavelli's observations. We see authoritarian regimes underperforming democracies across a majority of measures (especially those with the broadest sample coverage). But to the extent that an autocratic growth penalty exists, it is concentrated in unchecked regimes where power is more concentrated. In contrast, there is no evidence that institutionalized autocracies perform any differently than democracies. With respect to mechanisms, personalist autocracies appear to suffer from some combination of lower private investment, worse public goods, and greater conflict, all of which are consequential for productivity and growth.

Our broader point, however, is that it is time for the study of economic growth to move beyond comparisons of autocracy and democracy.[23] There are many dimensions of regime

[23]Lind (2025) makes a similar point with respect to innovation.

type: recent work on the economic performance of populist leaders provides an example of what else can be done (Funke, Schularick and Trebesch, 2023). Autocracies in particular are highly heterogeneous, and the measures used here weigh underlying characteristics differently. Isolating the most important sources of variation can provide further insight into economic growth and the various penalties of autocratic governance.

## References


Acemoglu, Daron, Suresh Naidu, Pascual Restrepo and James A Robinson. 2019. "Democracy Does Cause Growth." *Journal of Political Economy* 127(1):47–100.

Barro, Robert J. 1996. "Democracy and Growth." *Journal of Economic Growth* 1:1–27.

Besley, Timothy J and Masayuki Kudamatsu. 2007. "Making Autocracy Work." *Working Paper* .

Blattman, Christopher. 2022. *Why We Fight: The Roots of War and the Paths to Peace*. New York: Penguin.

Blattman, Christopher and Edward Miguel. 2010. "Civil War." *Journal of Economic Literature* 48(1):3–57.

Boix, Carles, Michael Miller and Sebastian Rosato. 2013. "A Complete Data Set of Political Regimes, 1800–2007." *Comparative Political Studies* 46(12):1523–1554.

Bueno de Mesquita, Bruce and Alastair Smith. 2024. "Anticipating Instability." Unpublished book manuscript.

Bueno de Mesquita, Bruce, Alastair Smith, Randolph M. Siverson and James D. Morrow. 2003. *The Logic of Political Survival*. Cambridge, MA: MIT Press.

Cerra, Valerie and Sweta Chaman Saxena. 2008. "Growth Dynamics: The Myth of Economic Recovery." *American Economic Review* 98(1):439–457.

Cheibub, José Antonio, Jennifer Gandhi and James Raymond Vreeland. 2010. "Democracy and Dictatorship Revisited." *Public Choice* pp. 67–101.

Chin, John, Wonjun Song and Joseph Wright. 2023. "Personalization of Power and Mass

Uprisings in Dictatorships." *British Journal of Political Science* 53(1):25–44.

Choi, Seung-Whan. 2010. "Legislative Constraints: A Path to Peace?" *Journal of Conflict Resolution* 54(3):438–470.

Clarke, Killian. 2023. "Revolutionary Violence and Counterrevolution." *American Political Science Review* 117(4):1344–1360.

Clarke, Killian, Anne Meng and Jack Paine. 2025. "Violent Origins and Authoritarian Order: Divergent Trajectories after Successful Rebellions.".

Colgan, Jeff D. and Jessica L. P. Weeks. 2015. "Revolution, Personalist Dictatorships, and International Conflict." *International Organization* 69(1):163–194.

Coppedge, Michael, John Gerring, Carl Henrik Knutsen and 35 others. 2024. "V-Dem Codebook V14." V-Dem Working Paper.

Easterly, William. 2011. "Benevolent Autocrats." Unpublished manuscript.

Egorov, Georgy and Konstantin Sonin. 2009. "Dictators and Their Viziers: Endogenizing the Loyalty-Competence Tradeoff." *Journal of the European Economic Association* 9(5):903–930.

Egorov, Georgy and Konstantin Sonin. 2023. "Why Did Putin Invade Ukraine? A Theory of Degenerate Autocracy." Unpublished manuscript.

Frantz, Erica, Andrea Kendall-Taylor, Joseph Wright and Xu Xu. 2020. "Personalization of Power and Repression in Dictatorships." *Journal of Politics* 82(1):372–377.

Freedom House. 2023. "Freedom in the World 2023: Marking 50 Years in the Struggle for Democracy." `https://freedomhouse.org/report/freedom-world/2023/marking-50-years`.

Funke, Manuel, Moritz Schularick and Christoph Trebesch. 2023. "Populist Leaders and the Economy." *American Economic Review* 113(12):3249–3288.

Gandhi, Jennifer. 2008. *Political Institutions Under Dictatorship*. Cambridge University Press.

Gandhi, Jennifer and Adam Przeworski. 2006. "Cooperation, Cooptation, and Rebellion

Under Dictatorships." *Economics & Politics* 18(1):1–26.

Gandhi, Jennifer and Jane Lawrence Sumner. 2020. "Measuring the Consolidation of Power in Nondemocracies." *Journal of Politics* 82(4):1545–1558.

Geddes, Barbara. 1999. "What Do We Know About Democratization After Twenty Years?" *Annual Review of Political Science* 2(1):115–144.

Geddes, Barbara, Joseph Wright and Erica Frantz. 2014. "Autocratic Breakdown and Regime Transitions: a New Data Set." *Perspectives on Politics* 12(2):313–331.

Geddes, Barbara, Joseph Wright and Erica Frantz. 2018. *How Dictatorships Work: Power, Personalization, and Collapse*. New York: Cambridge University Press.

Gehlbach, Scott and Edmund J. Malesky. 2010. "The Contribution of Veto Players to Economic Reform." *Journal of Politics* 72(4):957–975.

Gehlbach, Scott and Philip Keefer. 2011. "Investment Without Democracy: Ruling-party Institutionalization and Credible Commitment in Autocracies." *Journal of Comparative Economics* 39(2):123–139.

Gehlbach, Scott and Philip Keefer. 2012. "Private Investment and the Institutionalization of Collective Action in Autocracies: Ruling Parties and Legislatures." *Journal of Politics* 74(2):621–635.

Gehlbach, Scott, Zhaotian Luo, Anton Shirikov and Dmitriy Vorobyev. 2025. "Is There Really a Dictator's Dilemma? Information and Repression in Autocracy." *American Journal of Political Science*. Forthcoming.

Gerring, John, Philip Bond, William T Barndt and Carola Moreno. 2005. "Democracy and Economic Growth: a Historical Perspective." *World Politics* 57(3):323–364.

Goemans, Henk E, Kristian Skrede Gleditsch and Giacomo Chiozza. 2009. "Introducing Archigos: A Dataset of Political Leaders." *Journal of Peace Research* 46(2):269–283.

Goes, Iasmin. 2023. "New Data, New Results? How Data Sources and Vintages Affect the Replicability of Research." *Research & Politics* 10(2):20531680231170502.

Hadenius, Axel and Jan Teorell. 2007. "Pathways from Authoritarianism." *Journal of Democ-*

*racy* 18:143.

Hanson, Jonathan K. and Rachel Sigman. 2021. "Leviathan's Latent Dimensions: Measuring State Capacity for Comparative Political Research." *Journal of Politics* 83(4):1495–1510.

Henisz, Witold J. 2000. "The Institutional Environment for Economic Growth." *Economics and Politics* 12(1):1–31.

Imai, Kosuke, In Song Kim and Erik H Wang. 2023. "Matching Methods for Causal Inference with Time-series Cross-sectional Data." *American Journal of Political Science* 67(3):587–605.

Jackson, Matthew O and Massimo Morelli. 2007. "Political Bias and War." *American Economic Review* 97(4):1353–1373.

Knutsen, Carl Henrik, Kyle L. Marquardt, Brigitte Seim, Michael Coppedge, Amanda B. Edgell, Juraj Medzihorsky, Daniel Pemstein, Jan Teorell, John Gerring and Staffan I. Lindberg. 2024. "Conceptual and Measurement Issues in Assessing Democratic Backsliding." *PS: Political Science & Politics* 57(2):162–177.

Levitsky, Steven and Lucan A. Way. 2022. *Revolution and Dictatorship: The Violent Origins of Durable Authoritarianism.* Princeton, NJ: Princeton University Press.

Lind, Jennifer M. 2025. *Autocracy 2.0 How China's Rise Reinvented Tyranny.* Ithaca, NY: Cornell University Press.

Little, Andrew T. and Anne Meng. 2024. "Measuring Democratic Backsliding." *PS: Political Science & Politics* 57(2):149–161.

Luo, Zhaotian and Adam Przeworski. 2019. "Why Are the Fastest Growing Countries Autocracies?" *Journal of Politics* 81(2):663–669.

Machiavelli, Niccolo, Peter E. Bondanella and Julia Conaway. 1531/1997. *Discourses on Livy.* Oxford, UK: Oxford University Press.

Mankiw, N Gregory, David Romer and David N Weil. 1992. "A Contribution to the Empirics of Economic Growth." *Quarterly Journal of Economics* 107(2):407–437.

Marshall, Monty G. and Ted R. Gurr. 2020. "Polity5: Political Regime Characteristics

and Transitions, 1800–2018, Dataset Users' Manual." Center for Systemic Peace, `https://www.systemicpeace.org/polityproject.html`.

Martinez, Luis R. 2022. "How Much Should We Trust the Dictator's GDP Growth Estimates?" *Journal of Political Economy* 130(10):2731–2769.

McCormick, John P. 2018. *Reading Machiavelli: Scandalous Books, Suspect Engagements, and the Virtue of Populist Politics*. Princeton University Press.

Meng, Anne and Jack Paine. 2022. "Power Sharing and Authoritarian Stability: How Rebel Regimes Solve the Guardianship Dilemma." *American Political Science Review* 116(4):1208–1225.

Mueller, Hannes. 2012. "Growth Dynamics: the Myth of Economic Recovery: Comment." *American Economic Review* 102(7):3774–3777.

Myerson, Roger B. 2008. "The Autocrat's Credibility Problem and Foundations of the Constitutional State." *American Political Science Review* 102(1):125–139.

Olson, Mancur. 1993. "Dictatorship, Democracy, and Development." *American Political Science Review* 87(3):567–576.

Ostrom, Elinor. 2010. "Beyond Markets and States: Polycentric Governance of Complex Economic Systems." *American Economic Review* 100(3):641–672.

Ostrom, Vincent. 1997. *The Meaning of Democracy and the Vulnerability of Democracies: a Response to Tocqueville's Challenge*. University of Michigan Press.

Pan, Mingcong. 2025. "Personalization and Its Governance Consequences in Authoritarian Regimes: Theory and Evidence from China." Unpublished manuscript.

Papaioannou, Elias and Gregorios Siourounis. 2008. "Democratisation and Growth." *Economic Journal* 118(532):1520–1551.

Persson, Torsten and Guido Tabellini. 2006. "Democracy and Development: the Devil in the Details." *American Economic Review* 96(2):319–324.

Przeworski, Adam and Fernando Limongi. 1993. "Political Regimes and Economic Growth." *Journal of Economic Perspectives* 7(3):51–69.

Przeworski, Adam, Michael E. Alvarez, José Antonio Cheibub and Fernando Limongi. 2000. *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990*. Cambridge Studies in the Theory of Democracy New York: Cambridge University Press.

Rodrik, Dani and Romain Wacziarg. 2005. "Do Democratic Transitions Produce Bad Economic Outcomes?" *American Economic Review* 95(2):50–55.

Svolik, Milan W. 2012. *The Politics of Authoritarian Rule*. Cambridge University Press.

Wang, Erik H. and Yiqing Xu. 2018. "Awakening Leviathan: The Effect of Democracy on State Capacity." *Research & Politics* 5(2):1–7.

Weeks, Jessica L. 2012. "Strongmen and Straw Men: Authoritarian Regimes and the Initiation of International Conflict." *American Political Science Review* 106(2):326–347.

Wintrobe, Ronald. 1998. *The Political Economy of Dictatorship*. New York: Cambridge University Press.

Wright, Joseph. 2008. "Do Authoritarian Institutions Constrain? How Legislatures Affect Economic Growth and Investment." *American Journal of Political Science* 52(2):322–343.

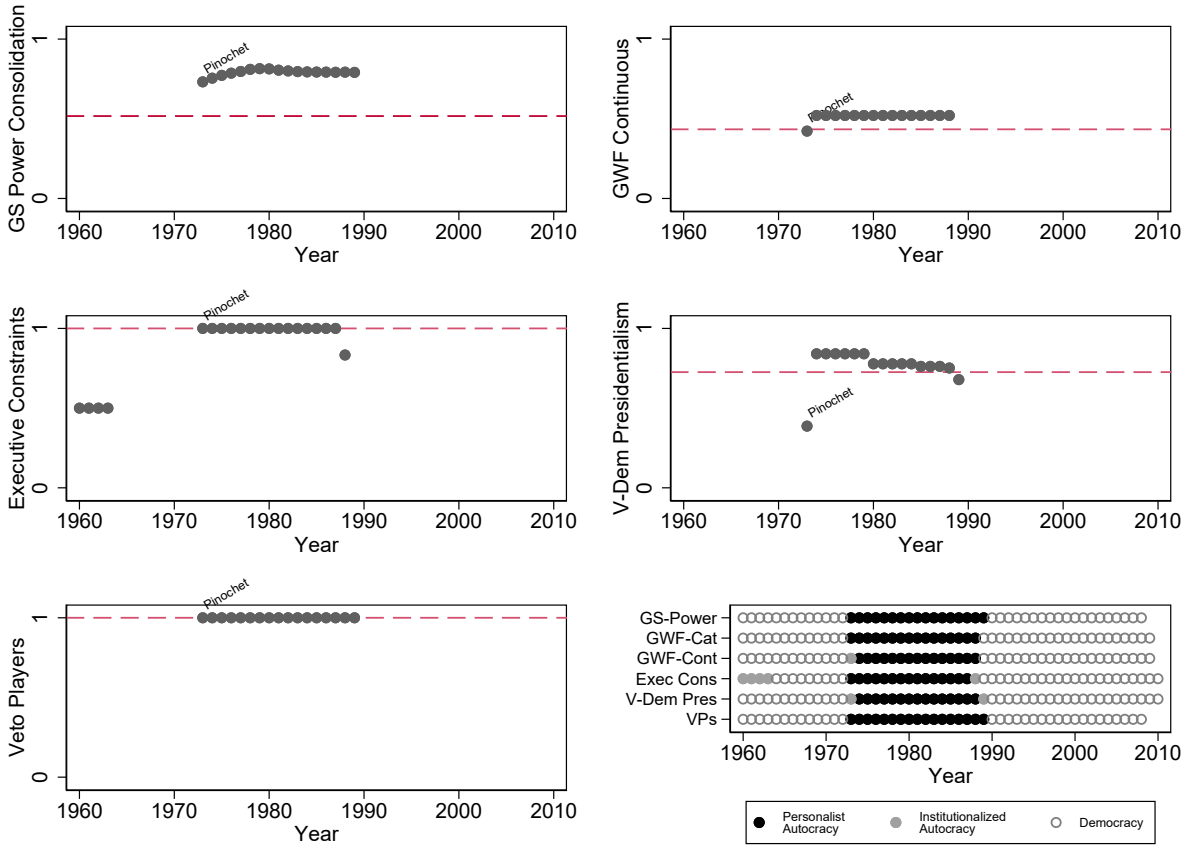
Zakharov, Alexei V. 2016. "The Loyalty-Competence Trade-off in Dictatorships and Outside Options for Subordinates." *Journal of Politics* 78(2):457–466.

# The Personalist Penalty: Online Appendix

## Contents

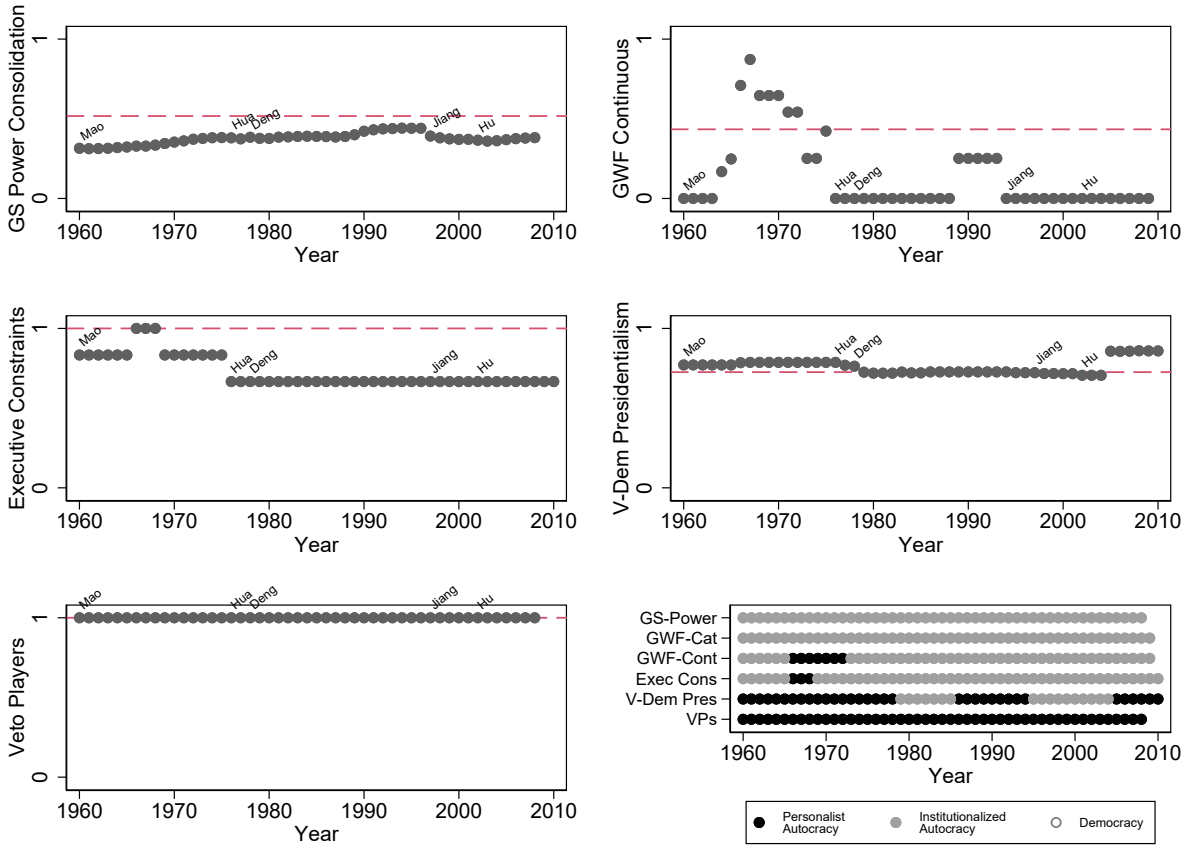
Additional figures A1
Additional tables A11

**Figure A1:** Personalism measures for Chile



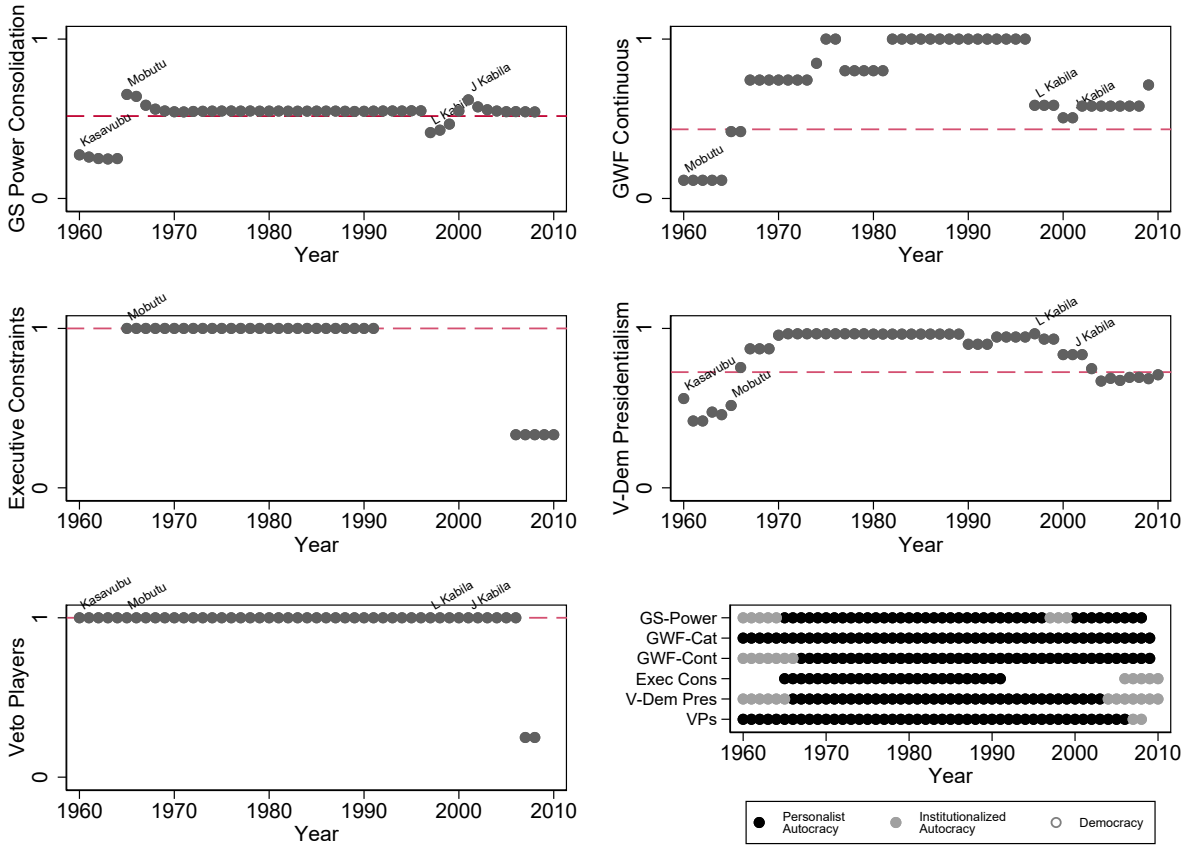

*Notes:* For purposes of presentation, all variables are placed on a common unit interval and ordered such that higher values indicate fewer constraints. The red dotted line indicates the threshold used to create an indicator for personalist autocracy: see text for further details.

**Figure A2:** Personalism measures for China



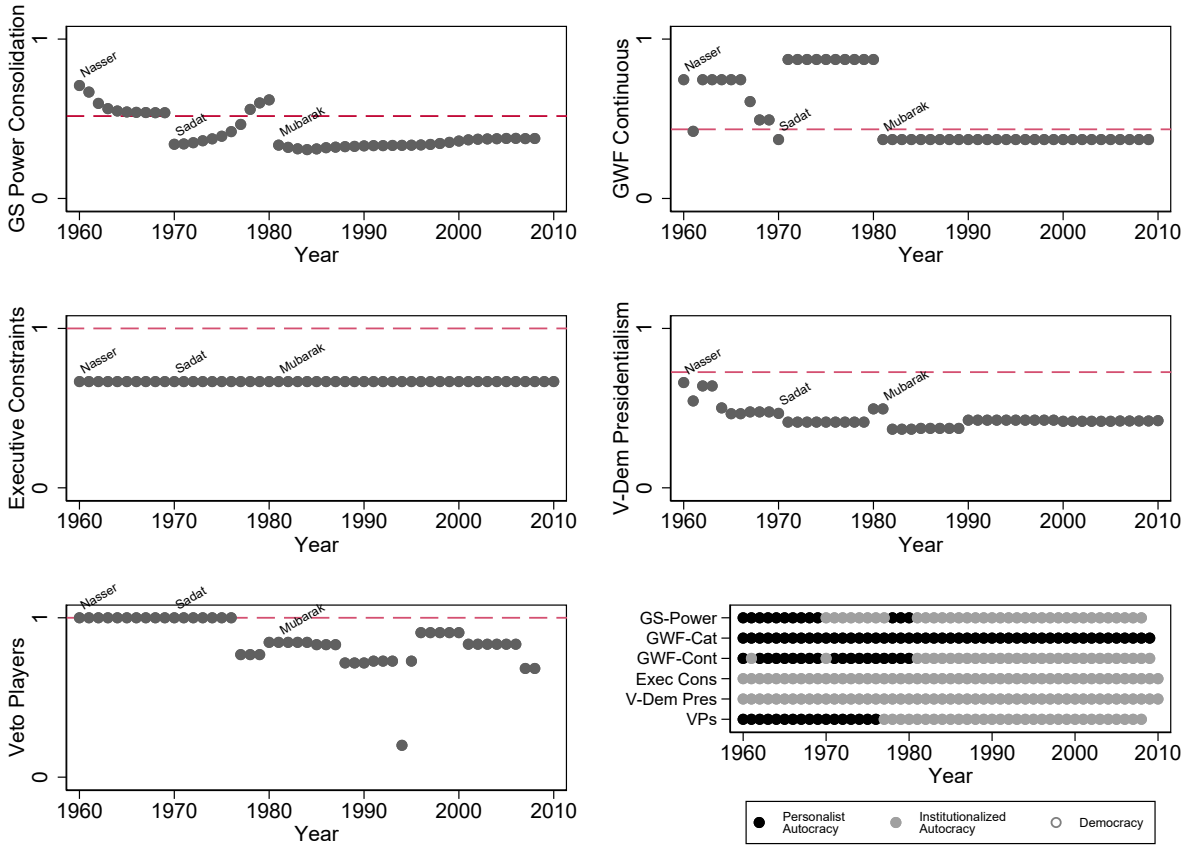

*Notes:* For purposes of presentation, all variables are placed on a common unit interval and ordered such that higher values indicate fewer constraints. The red dotted line indicates the threshold used to create an indicator for personalist autocracy: see text for further details.

**Figure A3:** Personalism measures for Congo-Zaire



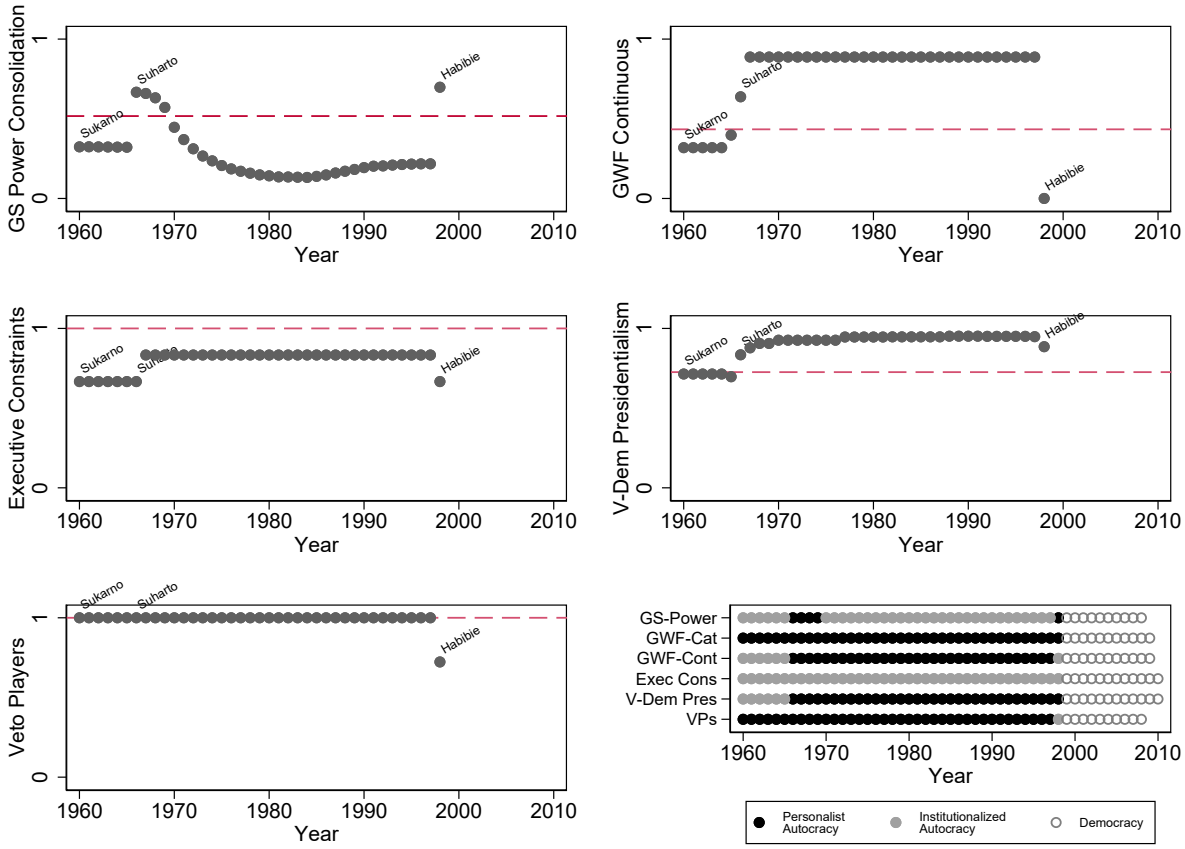

*Notes:* For purposes of presentation, all variables are placed on a common unit interval and ordered such that higher values indicate fewer constraints. The red dotted line indicates the threshold used to create an indicator for personalist autocracy: see text for further details.

**Figure A4:** Personalism measures for Egypt



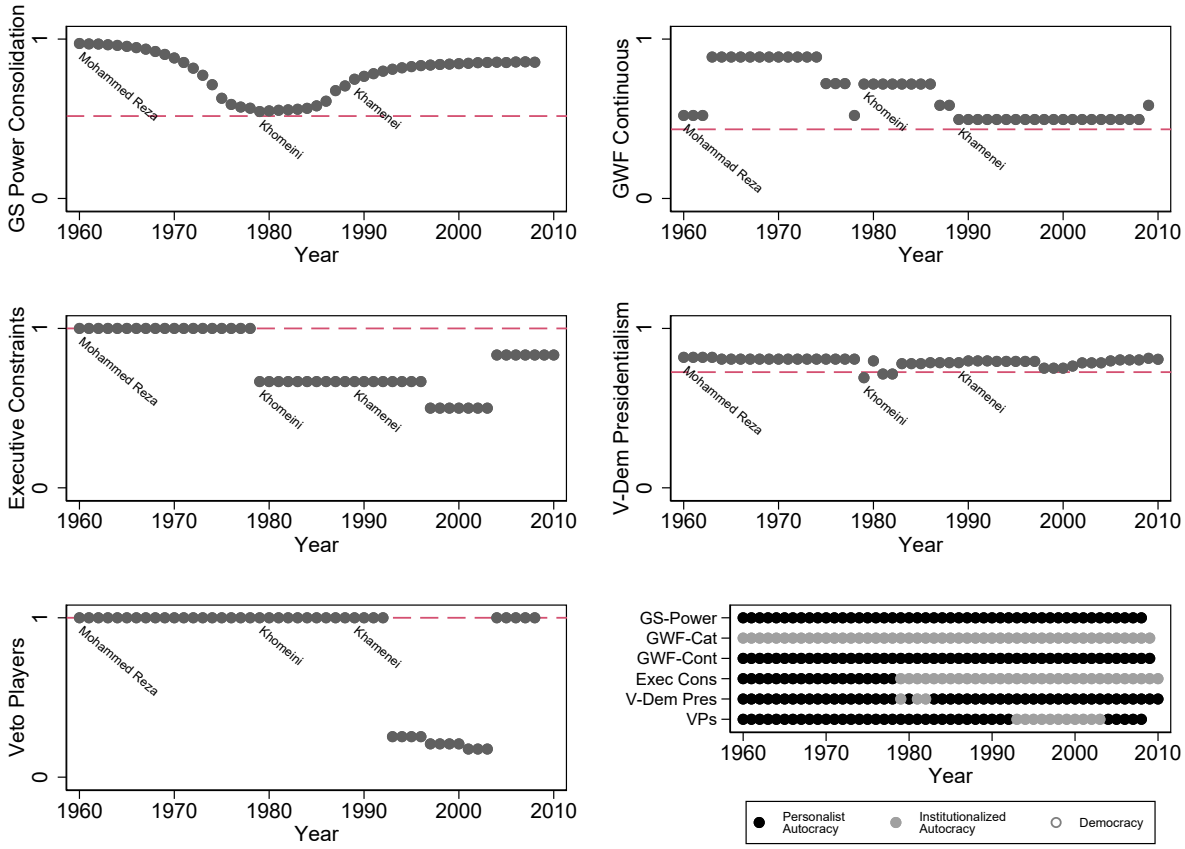

*Notes:* For purposes of presentation, all variables are placed on a common unit interval and ordered such that higher values indicate fewer constraints. The red dotted line indicates the threshold used to create an indicator for personalist autocracy: see text for further details.

**Figure A5:** Personalism measures for Indonesia



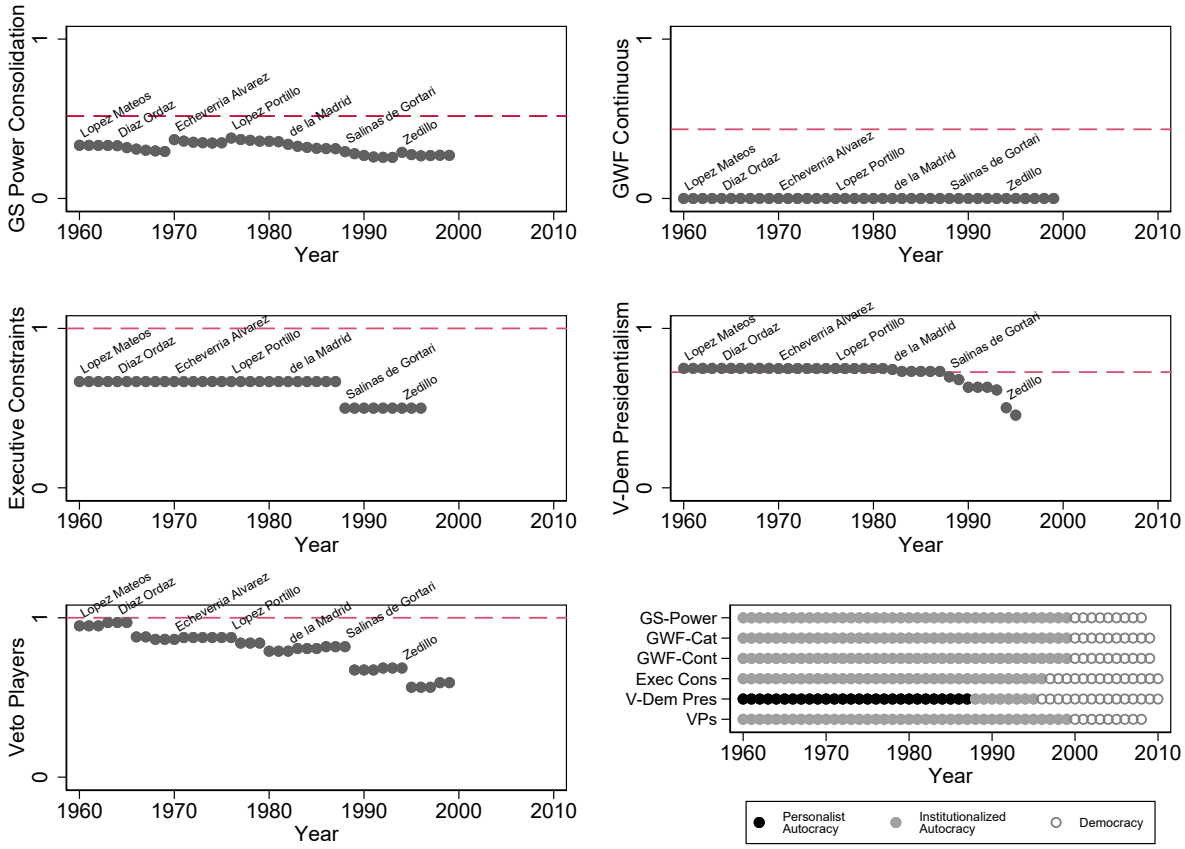

*Notes:* For purposes of presentation, all variables are placed on a common unit interval and ordered such that higher values indicate fewer constraints. The red dotted line indicates the threshold used to create an indicator for personalist autocracy: see text for further details.

**Figure A6:** Personalism measures for Iran



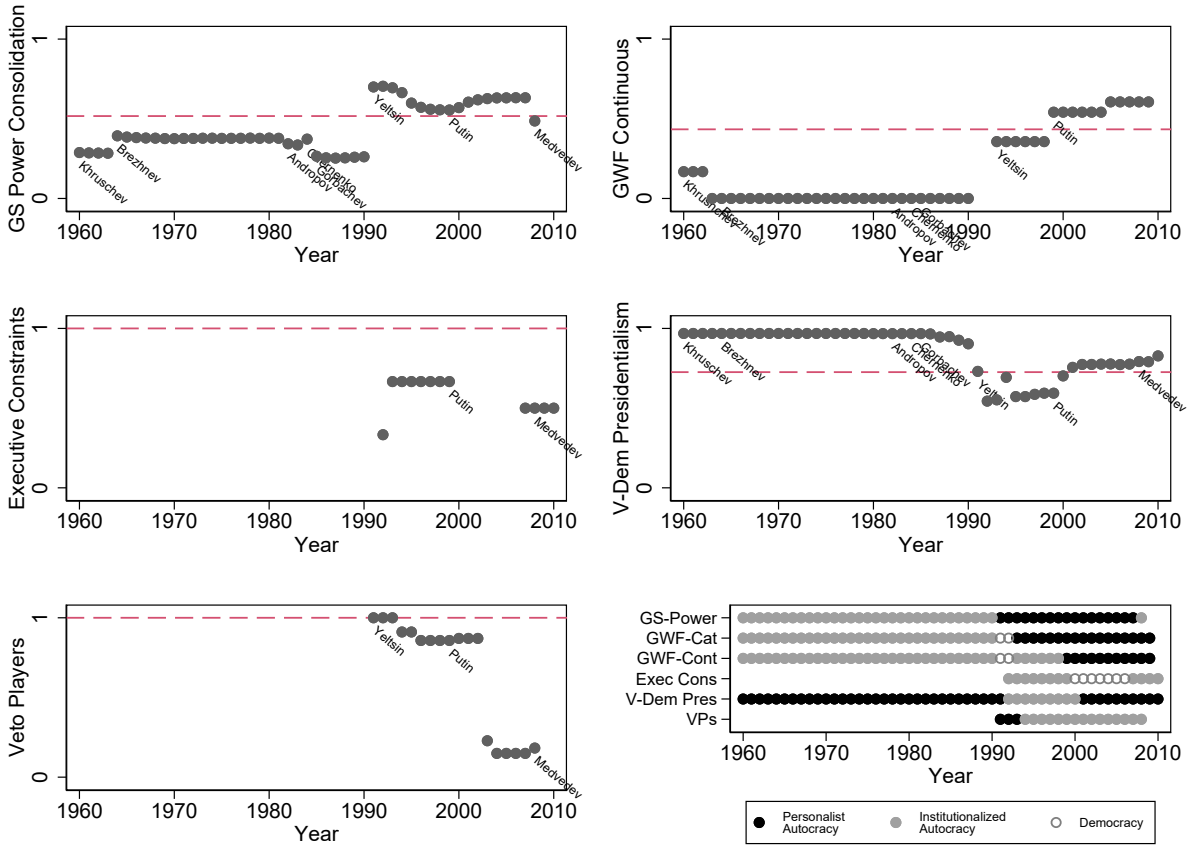

*Notes:* For purposes of presentation, all variables are placed on a common unit interval and ordered such that higher values indicate fewer constraints. The red dotted line indicates the threshold used to create an indicator for personalist autocracy: see text for further details.

**Figure A7:** Personalism measures for Mexico



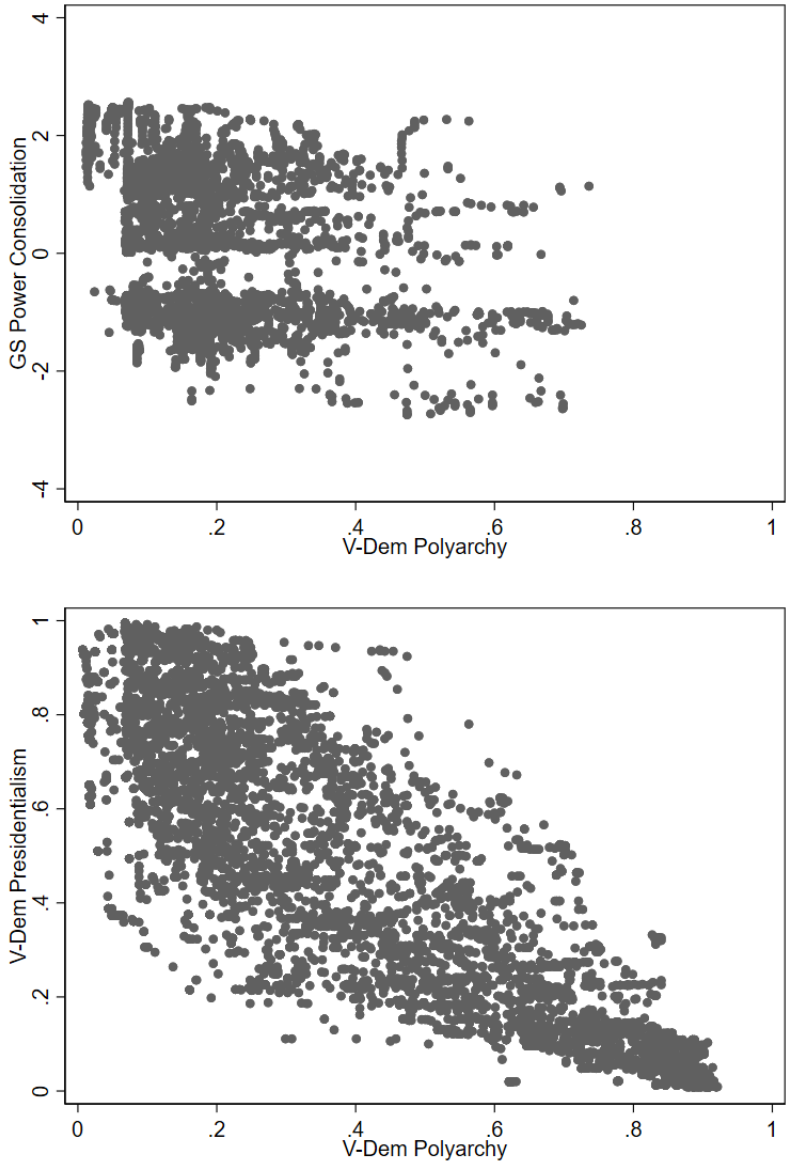

*Notes:* For purposes of presentation, all variables are placed on a common unit interval and ordered such that higher values indicate fewer constraints. The red dotted line indicates the threshold used to create an indicator for personalist autocracy: see text for further details.

**Figure A8:** Personalism measures for Russia



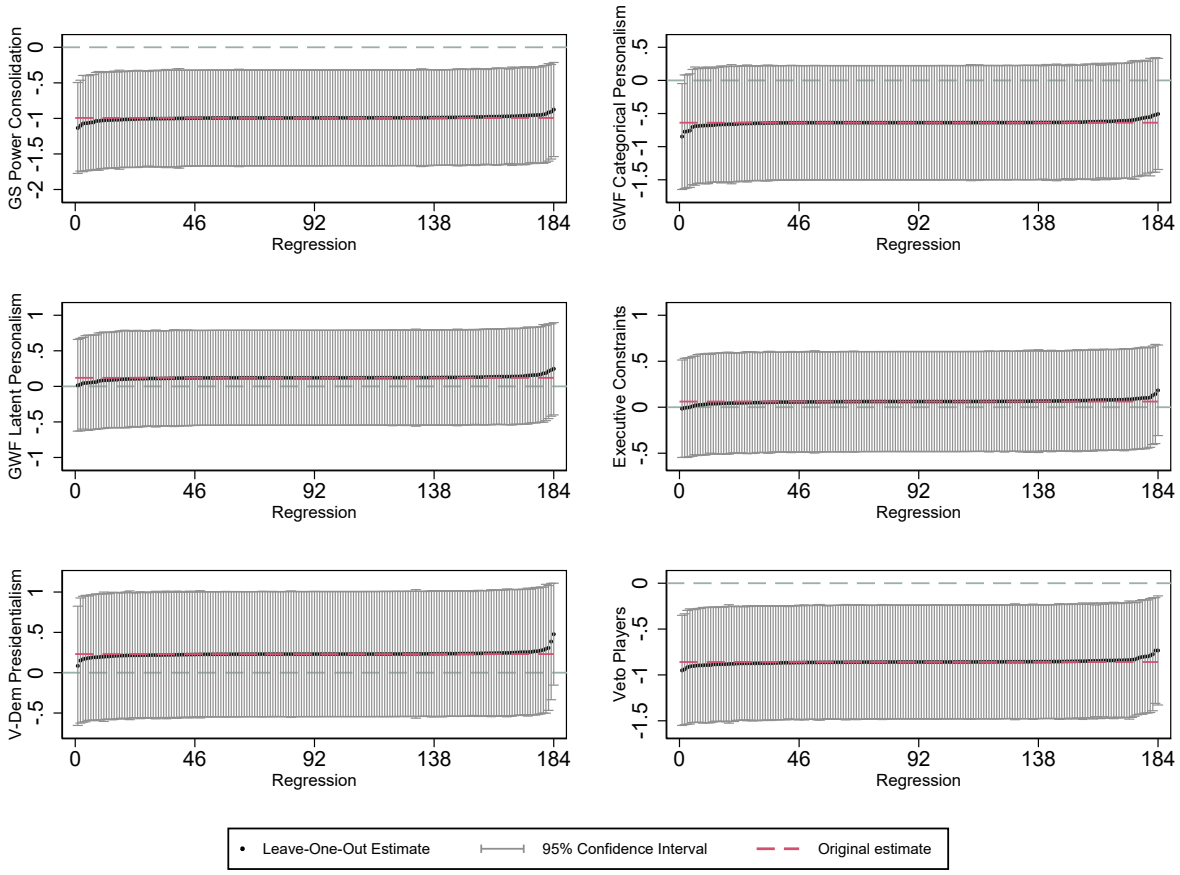

*Notes:* For purposes of presentation, all variables are placed on a common unit interval and ordered such that higher values indicate fewer constraints. The red dotted line indicates the threshold used to create an indicator for personalist autocracy: see text for further details.

**Figure A9:** Institutional Variation Within Autocracies




*Notes:* The top panel presents a scatterplot of the Power Consolidation measure from Gandhi and Sumner (2020) against the V-Dem Polyarchy index. The bottom panel presents a scatterplot of the V-Dem Presidentialism measure against the V-Dem Polyarchy index.

**Figure A10:** Leave-one-out personalism estimates at country level for the baseline growth regressions




*Notes:* This figure plots the estimated coefficients on Personalism from Table 4, excluding the country with code identified on the horizontal axis. The red dashed lines mark the original coefficients from 4.

**Table A1:** Summary Statistics

| | N | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| Panel A: Autocracy | | | | | |
| CGV Autocracy | 7,477 | 0.575 | 0.494 | 0 | 1 |
| GWF Autocracy | 6,429 | 0.588 | 0.492 | 0 | 1 |
| Freedom House Autocracy | 6,375 | 0.621 | 0.485 | 0 | 1 |
| Polity Autocracy | 6,914 | 0.603 | 0.489 | 0 | 1 |
| ANRR Autocracy | 8,733 | 0.568 | 0.495 | 0 | 1 |
| BMR Autocracy | 8,006 | 0.563 | 0.496 | 0 | 1 |
| PS Autocracy | 7,623 | 0.654 | 0.476 | 0 | 1 |
| V-Dem Autocracy | 7,975 | 0.646 | 0.478 | 0 | 1 |
| Panel B: Personalism | | | | | |
| GS Power Consolidation | 7,477 | 0.328 | 0.470 | 0 | 1 |
| GWF Categorical Personalism | 6,429 | 0.264 | 0.441 | 0 | 1 |
| GWF Latent Personalism | 6,429 | 0.287 | 0.452 | 0 | 1 |
| Polity-Executive Constraints | 6,914 | 0.217 | 0.412 | 0 | 1 |
| V-Dem Presidentialism | 7,975 | 0.323 | 0.467 | 0 | 1 |
| Veto Players | 7,206 | 0.424 | 0.494 | 0 | 1 |
| Panel C: GDP | | | | | |
| Log GDP per capita | 7,200 | 750 | 154 | 406 | 1,102 |
| Log GDP per capita (April 2014) | 7,152 | 779 | 156 | 391 | 1,138 |
| Log GDP per capita (February 2016) | 7,084 | 779 | 156 | 424 | 1,138 |
| Log GDP per capita (February 2018) | 7,045 | 810 | 150 | 475 | 1,164 |
| Log GDP per capita (February 2020) | 7,129 | 812 | 149 | 489 | 1,166 |
| Log GDP per capita (February 2022) | 7,006 | 809 | 143 | 497 | 1,163 |
| Log GDP per capita (October 2023) | 7,025 | 810 | 143 | 497 | 1,164 |
| Log GDP per capita (PWT 10.01) | 7,634 | 875 | 123 | 551 | 1,223 |
| Panel D: Mechanisms | | | | | |
| Log Private Investment | 8,547 | 6.416 | 1.711 | -5.394 | 10.961 |
| Log Public Investment | 8,547 | 5.408 | 1.543 | -4.593 | 10.565 |
| Log TFP | 4,662 | -4.717 | 25.632 | -143.647 | 167.058 |
| Log Primary Enrollment | 5,824 | 451 | 36 | 103 | 554 |
| Log Secondary Enrollment | 5,068 | 383 | 89 | -171 | 509 |
| Log Child Mortality Rate | 8,130 | 363 | 104 | 64 | 560 |
| Log Tax to GDP | 6,047 | -189 | 62 | -626 | -35 |
| HS State Capacity | 7,180 | 0.481 | 0.181 | 0 | 1 |
| Inflation Crisis | 9,384 | 0.125 | 0.331 | 0 | 1 |
| Hyperinflation | 9,384 | 0.025 | 0.155 | 0 | 1 |
| Log Trade | 6,791 | 413 | 64 | -103 | 607 |
| Index of Market Reforms | 6,527 | 34.907 | 28.200 | 0 | 100 |
| Log Protests | 4,807 | -4.782 | 0.686 | -7.511 | 0 |
| Riots | 7,378 | 0.254 | 0.435 | 0 | 1 |
| Civil Conflict Incidence | 8,258 | 0.150 | 0.357 | 0 | 1 |
| Civil War Incidence | 8,258 | 0.047 | 0.213 | 0 | 1 |
| Log Nighttime Lights | 3,454 | -0.051 | 2.070 | -6.467 | 4.142 |

**Table A2:** Autocracy vs. democracy: Controlling for eight lags of income

| | Outcome: Log GDP per capita | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Autocracy measure → | CGV | GWF | FH | Polity | ANRR | BMR | PS | V-Dem |
| Autocracy | -0.564* | 0.034 | -0.609** | 0.055 | -0.934*** | -0.651** | -0.938*** | -0.269 |
| | (0.297) | (0.292) | (0.244) | (0.245) | (0.247) | (0.264) | (0.354) | (0.248) |
| *p*-value, lags 5–8 | 0.557 | 0.022 | 0.560 | 0.213 | 0.561 | 0.457 | 0.515 | 0.319 |
| Observations | 5255 | 4598 | 5214 | 4985 | 5729 | 5668 | 4453 | 5357 |
| Countries | 175 | 141 | 177 | 157 | 177 | 177 | 166 | 164 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Eight GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Note:* The specifications in this table are identical to those in Table 1, but that they include eight outcome lags.

**Table A3:** Autocracy vs. democracy: Various sample restrictions

| | Outcome: Log GDP per capita | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Autocracy measure → | CGV | GWF | FH | Polity | ANRR | BMR | PS | V-Dem |
| | Panel A: CGV Sample | | | | | | | |
| Autocracy | −0.609** | 0.066 | −0.693*** | 0.145 | −0.858*** | −0.494* | −0.930** | −0.132 |
| | (0.271) | (0.278) | (0.238) | (0.238) | (0.281) | (0.275) | (0.401) | (0.238) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.000 |
| Observations | 5869 | 4924 | 5043 | 5164 | 5868 | 5848 | 4899 | 5533 |
| Countries | 175 | 142 | 175 | 156 | 175 | 175 | 167 | 163 |
| | Panel B: GWF Sample | | | | | | | |
| Autocracy | −0.340 | 0.059 | −0.336 | 0.173 | −0.512* | −0.204 | −0.631 | 0.128 |
| | (0.288) | (0.267) | (0.260) | (0.245) | (0.288) | (0.290) | (0.424) | (0.267) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.000 |
| Observations | 4924 | 5117 | 4329 | 4950 | 5115 | 5115 | 4279 | 5099 |
| Countries | 142 | 142 | 142 | 141 | 142 | 142 | 141 | 142 |
| | Panel C: FH Sample | | | | | | | |
| Autocracy | −0.549* | 0.040 | −0.604*** | 0.080 | −0.939*** | −0.479* | −0.855** | −0.110 |
| | (0.311) | (0.307) | (0.228) | (0.262) | (0.295) | (0.280) | (0.426) | (0.261) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.000 |
| Observations | 5043 | 4329 | 5481 | 4772 | 5480 | 5460 | 4128 | 5117 |
| Countries | 175 | 142 | 177 | 157 | 177 | 177 | 168 | 164 |
| | Panel D: Polity Sample | | | | | | | |
| Autocracy | −0.108 | 0.158 | −0.357 | 0.095 | −0.291 | −0.082 | −0.214 | 0.236 |
| | (0.252) | (0.257) | (0.240) | (0.228) | (0.237) | (0.255) | (0.346) | (0.248) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.000 |
| Observations | 5164 | 4950 | 4772 | 5539 | 5539 | 5539 | 4469 | 5538 |
| Countries | 156 | 141 | 157 | 157 | 157 | 157 | 154 | 157 |
| | Panel E: ANRR Sample | | | | | | | |
| Autocracy | −0.602** | 0.059 | −0.601*** | 0.095 | −0.796*** | −0.507** | −0.751** | −0.123 |
| | (0.271) | (0.265) | (0.228) | (0.228) | (0.225) | (0.252) | (0.323) | (0.237) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.000 |
| Observations | 5868 | 5115 | 5480 | 5539 | 6385 | 6298 | 5031 | 5938 |
| Countries | 175 | 142 | 177 | 157 | 177 | 177 | 168 | 164 |
| | Panel F: BMR Sample | | | | | | | |
| Autocracy | −0.632** | 0.051 | −0.604*** | 0.095 | −0.889*** | −0.512** | −0.920** | −0.127 |
| | (0.268) | (0.266) | (0.227) | (0.228) | (0.251) | (0.252) | (0.375) | (0.238) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.000 |
| Observations | 5848 | 5115 | 5460 | 5539 | 6298 | 6299 | 4946 | 5933 |
| Countries | 175 | 142 | 177 | 157 | 177 | 177 | 168 | 164 |
| | Panel G: PS Sample | | | | | | | |
| Autocracy | −0.641* | 0.140 | −0.622** | 0.223 | −0.664** | −0.506 | −0.727** | −0.024 |
| | (0.329) | (0.308) | (0.280) | (0.277) | (0.273) | (0.317) | (0.315) | (0.296) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.000 |
| Observations | 4899 | 4279 | 4128 | 4469 | 5031 | 4946 | 5121 | 4813 |
| Countries | 167 | 141 | 168 | 154 | 168 | 168 | 168 | 160 |
| | Panel H: V-Dem Sample | | | | | | | |
| Autocracy | −0.595** | 0.061 | −0.546** | 0.097 | −0.868*** | −0.496* | −0.914** | −0.124 |
| | (0.268) | (0.268) | (0.230) | (0.228) | (0.257) | (0.253) | (0.378) | (0.241) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.000 |
| Observations | 5533 | 5099 | 5117 | 5538 | 5938 | 5933 | 4813 | 5984 |
| Countries | 163 | 142 | 164 | 157 | 164 | 164 | 160 | 164 |

*Notes:* In each panel, we restrict the regression to non-missing observations for the dataset listed in the panel heading. Observations and countries may still vary across columns because of additional missing data in that column's dataset. All regressions include country and year fixed effects and four GDP lags.

**Table A4:** Autocracy vs. democracy: Imputing missing values with CGV

| | Outcome: Log GDP per capita | |
|---|---|---|
| | (1) GWF | (2) Polity |
| Autocracy | −0.251 | −0.256 |
| | (0.243) | (0.228) |
| $p$-value, unit root test | 0.000 | 0.000 |
| Observations | 6062 | 6244 |
| Countries | 175 | 176 |
| Country & year FE | ✓ | ✓ |
| Four GDP lags | ✓ | ✓ |

*Note:* We impute missing values for GWF and Polity, respectively, using data from CGV.

**Table A5:** Autocracy vs. democracy: Classifying "hybrid" regimes as democratic

| | Outcome: Log GDP per capita | | |
|---|---|---|---|
| | (1) FH: NF | (2) Polity: 0 | (3) V-Dem: 0.25 |
| Autocracy | −0.317 | 0.017 | 0.320 |
| | (0.503) | (0.229) | (0.228) |
| $p$-value, unit root test | 0.000 | 0.000 | 0.000 |
| Observations | 5481 | 5539 | 5984 |
| Countries | 177 | 157 | 164 |
| Country & year FE | ✓ | ✓ | ✓ |
| Four GDP lags | ✓ | ✓ | ✓ |

*Notes:* In Table 1, we code an observation as autocratic if, respectively, Freedom House codes the country as Partly Free or Not Free, Polity $\leq 5$, and V-Dem $\leq 0.50$. In this table, we instead code an observation as autocratic if, respectively, Freedom codes the country as Not Free, Polity $\leq 0$, and V-Dem $\leq 0.25$.

**Table A6:** Regime Transitions

| | Democracy | Institutionalized | Personalist |
|---|---|---|---|
| | CGV–GS Power Consolidation | | |
| Democracy | 2667 | 6 | 34 |
| Institutionalized | 20 | 1216 | 43 |
| Personalist | 56 | 34 | 1616 |
| | ANRR–GS Power Consolidation | | |
| Democracy | 3184 | 7 | 38 |
| Institutionalized | 21 | 975 | 35 |
| Personalist | 54 | 27 | 1532 |
| | GWF–GWF Categorical Personalism | | |
| Democracy | 2234 | 18 | 21 |
| Institutionalized | 37 | 1387 | 10 |
| Personalist | 20 | 12 | 1215 |
| | GWF–GWF Latent Personalism | | |
| Democracy | 2234 | 32 | 7 |
| Institutionalized | 42 | 1260 | 65 |
| Personalist | 15 | 47 | 1252 |
| | Polity–Polity Executive Constraints | | |
| Democracy | 2352 | 22 | 14 |
| Institutionalized | 47 | 1886 | 41 |
| Personalist | 8 | 61 | 903 |
| | V-Dem–V-Dem Presidentialism | | |
| Democracy | 2399 | 42 | 3 |
| Institutionalized | 80 | 1743 | 50 |
| Personalist | 6 | 60 | 1437 |
| | CGV–Veto Players | | |
| Democracy | 2667 | 10 | 28 |
| Institutionalized | 23 | 786 | 44 |
| Personalist | 50 | 64 | 1864 |

*Note:* Period $t-1$ is listed along the left side and period $t$ along the top.

**Table A7:** Personalist vs. institutionalized autocracy: Hybrid and full autocracies

| | Outcome: Log GDP per capita | | | | | |
|---|---|---|---|---|---|---|
| | (1) GS | (2) GWF | (3) GWF | (4) Polity | (5) V-Dem | (6) Veto Players |
| | Panel A: FH | | | | | |
| Autocracy | −0.187 | −0.305 | −0.010 | −0.480* | −0.580** | −0.166 |
| | (0.404) | (0.292) | (0.463) | (0.267) | (0.283) | (0.266) |
| Personalism | −0.739* | −0.294 | −0.336 | 0.466 | 0.208 | −0.992*** |
| | (0.390) | (0.431) | (0.468) | (0.322) | (0.320) | (0.367) |
| Full Autocracy | −0.164 | −0.086 | −0.022 | −0.012 | −0.245 | 0.049 |
| | (0.615) | (0.525) | (0.450) | (0.350) | (0.509) | (0.587) |
| Observations | 4694 | 5038 | 4440 | 5197 | 5410 | 5279 |
| Countries | 173 | 166 | 163 | 173 | 175 | 175 |
| | Panel B: Polity | | | | | |
| Autocracy | 0.417 | 0.275 | 0.219 | 0.142 | 0.085 | 0.234 |
| | (0.388) | (0.307) | (0.519) | (0.287) | (0.300) | (0.289) |
| Personalism | −1.127*** | −0.496 | −0.078 | 0.091 | 0.364 | −0.870** |
| | (0.290) | (0.381) | (0.343) | (0.308) | (0.352) | (0.356) |
| Full Autocracy | 0.311 | 0.080 | −0.033 | −0.104 | −0.197 | 0.465 |
| | (0.371) | (0.323) | (0.465) | (0.328) | (0.329) | (0.340) |
| Observations | 5078 | 5246 | 5024 | 5539 | 5539 | 5445 |
| Countries | 155 | 149 | 149 | 157 | 157 | 157 |
| | Panel C: V-Dem | | | | | |
| Autocracy | −0.658* | −0.077 | −0.692* | −0.039 | −0.303 | 0.100 |
| | (0.372) | (0.309) | (0.380) | (0.274) | (0.276) | (0.278) |
| Personalism | −0.941** | −0.601* | −0.046 | −0.249 | 0.079 | −1.458*** |
| | (0.370) | (0.340) | (0.351) | (0.328) | (0.474) | (0.300) |
| Full Autocracy | 1.135*** | 0.589** | 1.177*** | 0.748** | 0.391 | 1.152*** |
| | (0.342) | (0.287) | (0.404) | (0.347) | (0.342) | (0.307) |
| Observations | 5360 | 5597 | 5184 | 5718 | 5984 | 5791 |
| Countries | 163 | 157 | 156 | 163 | 164 | 163 |

*Notes:* This table reports panel regressions of GDP per capita on an autocracy measure, a binary personalism indicator (with institutionalized regimes the omitted category), and a measure of "full" autocracy (with hybrid regimes the omitted category). All specifications include country and year fixed effects and four lags of GDP. Autocracy and personalism indicators are defined as in Table 4. Hybrid/full autocracies are defined as in Table A5. In parentheses, heteroskedasticity-robust standard errors that correct for arbitrary correlation at the country level. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$.

**Table A8:** Personalist vs. institutionalized autocracy: GDP Growth

| | Outcome: GDP Growth | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) CGV | (2) ANRR | (3) GWF | (4) GWF | (5) Polity | (6) V-Dem | (7) CGV |
| Autocracy | −0.002 | −0.587 | 0.195 | −0.100 | 0.310 | 0.049 | 0.120 |
| | (0.414) | (0.397) | (0.413) | (0.436) | (0.325) | (0.432) | (0.422) |
| GS power consolidation | −0.979*** | −0.801** | | | | | |
| | (0.351) | (0.385) | | | | | |
| GWF Categorical Personalism | | | −0.060 | | | | |
| | | | (0.483) | | | | |
| GWF Latent Personalism | | | | 0.594 | | | |
| | | | | (0.438) | | | |
| Polity-Executive Constraints | | | | | −0.071 | | |
| | | | | | (0.333) | | |
| V-Dem Presidentialism | | | | | | 0.453 | |
| | | | | | | (0.470) | |
| Veto Players | | | | | | | −1.064*** |
| | | | | | | | (0.395) |
| Autocracy + Personalism | −0.981*** | −1.387*** | 0.135 | 0.494 | 0.238 | 0.502 | −0.944** |
| | (0.337) | (0.401) | (0.467) | (0.429) | (0.370) | (0.505) | (0.373) |
| Observations | 6283 | 6473 | 5476 | 5476 | 5912 | 6440 | 6109 |
| Countries | 175 | 175 | 142 | 142 | 157 | 164 | 172 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Notes:* The table reports regressions of growth in GDP per capita on indicators for autocracy and personalism, with country and year fixed effects. In parentheses, heteroskedasticity-robust standard errors that correct for arbitrary correlation at the country level. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$.

**Table A9:** Personalist vs. institutionalized autocracy: Differential misreporting of GDP

| | Outcome: Log GDP per capita | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Autocracy measure → | CGV | ANRR | GWF | GWF | Polity | V-Dem | CGV |
| Autocracy | 1.312 | 8.814 | 9.128** | 4.070 | 2.917 | −3.277 | −2.006 |
| | (5.651) | (6.410) | (4.283) | (3.707) | (2.717) | (2.510) | (3.231) |
| Personalism | −4.579 | −7.042 | −11.758* | −6.009 | 6.241 | 7.435 | −0.446 |
| | (7.098) | (8.410) | (6.007) | (5.991) | (8.367) | (5.033) | (2.649) |
| ln(NTL) | 18.278*** | 15.660*** | 19.598*** | 19.540*** | 18.520*** | 18.462*** | 20.191*** |
| | (5.228) | (5.060) | (4.002) | (4.076) | (5.078) | (4.734) | (3.686) |
| Autocracy × ln(NTL) | −0.237 | 1.900 | 2.365 | 1.210 | −1.975 | −0.469 | −2.702 |
| | (2.945) | (2.551) | (2.499) | (1.961) | (1.574) | (1.091) | (2.222) |
| GS power consolidation × ln(NTL) | −1.772 | −2.164 | | | | | |
| | (3.044) | (2.989) | | | | | |
| GWF Categorical Personalism × ln(NTL) | | | −4.506 | | | | |
| | | | (2.966) | | | | |
| GWF Latent Personalism × ln(NTL) | | | | −4.082 | | | |
| | | | | (2.666) | | | |
| Polity-Executive Constraints × ln(NTL) | | | | | −0.658 | | |
| | | | | | (1.803) | | |
| V-Dem Presidentialism × ln(NTL) | | | | | | 1.070 | |
| | | | | | | (2.637) | |
| Veto Players × ln(NTL) | | | | | | | 1.553 |
| | | | | | | | (1.034) |
| Observations | 2845 | 3086 | 2478 | 2478 | 2817 | 3050 | 2764 |
| Countries | 172 | 174 | 142 | 142 | 157 | 164 | 169 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Notes:* The regressions in this table follow Martinez (2022) in allowing nighttime light elasticity of GDP to vary with regime type.

**Table A10:** Personalist vs. institutionalized autocracy: WDI vintage and Penn World Tables

| Autocracy measure → | (1) CGV | (2) ANRR | (3) GWF-Cat | (4) GWF-Cont | (5) Polity | (6) V-Dem | (7) CGV |
|---|---|---|---|---|---|---|---|
| | Panel A: April 2014 | | | | | | |
| Autocracy | −0.057 | −0.005 | 0.534 | 0.099 | 0.026 | −0.243 | −0.030 |
| | (0.360) | (0.358) | (0.365) | (0.327) | (0.254) | (0.283) | (0.325) |
| Personalism Measure | −0.928*** | −1.095*** | −0.759* | 0.090 | 0.161 | 0.244 | −0.898*** |
| | (0.343) | (0.387) | (0.448) | (0.344) | (0.290) | (0.399) | (0.323) |
| Observations | 5815 | 6025 | 5101 | 5101 | 5489 | 5936 | 5657 |
| Countries | 176 | 176 | 142 | 142 | 156 | 165 | 173 |
| | Panel B: February 2016 | | | | | | |
| Autocracy | −0.063 | −0.177 | 0.325 | −0.109 | −0.137 | −0.449 | −0.161 |
| | (0.361) | (0.355) | (0.399) | (0.361) | (0.270) | (0.311) | (0.332) |
| Personalism Measure | −1.048*** | −1.125*** | −0.740 | 0.101 | 0.296 | 0.414 | −0.877** |
| | (0.370) | (0.411) | (0.499) | (0.374) | (0.338) | (0.431) | (0.340) |
| Observations | 5776 | 5993 | 5028 | 5028 | 5478 | 5894 | 5613 |
| Countries | 176 | 176 | 142 | 142 | 156 | 165 | 173 |
| | Panel C: February 2018 | | | | | | |
| Autocracy | 0.015 | −0.092 | 0.478 | −0.045 | 0.054 | −0.414 | −0.096 |
| | (0.360) | (0.355) | (0.395) | (0.357) | (0.258) | (0.304) | (0.336) |
| Personalism Measure | −1.206*** | −1.313*** | −1.085** | −0.071 | −0.052 | 0.413 | −1.020*** |
| | (0.365) | (0.403) | (0.503) | (0.396) | (0.312) | (0.427) | (0.344) |
| Observations | 5744 | 5963 | 5001 | 5001 | 5446 | 5855 | 5581 |
| Countries | 176 | 176 | 142 | 142 | 156 | 165 | 173 |
| | Panel D: February 2020 | | | | | | |
| Autocracy | −0.132 | −0.212 | 0.445 | −0.038 | −0.034 | −0.453 | −0.063 |
| | (0.369) | (0.354) | (0.381) | (0.335) | (0.241) | (0.294) | (0.335) |
| Personalism Measure | −0.812** | −0.921** | −0.943* | −0.006 | 0.139 | 0.689** | −0.868** |
| | (0.370) | (0.407) | (0.508) | (0.395) | (0.292) | (0.348) | (0.347) |
| Observations | 5816 | 6035 | 5079 | 5079 | 5506 | 5947 | 5653 |
| Countries | 176 | 176 | 143 | 143 | 156 | 165 | 173 |
| | Panel E: February 2022 | | | | | | |
| Autocracy | −0.123 | −0.224 | 0.445 | −0.021 | −0.003 | −0.402 | −0.035 |
| | (0.386) | (0.356) | (0.385) | (0.337) | (0.245) | (0.304) | (0.349) |
| Personalism Measure | −0.787** | −0.896** | −0.935* | −0.024 | 0.155 | 0.663* | −0.889** |
| | (0.374) | (0.404) | (0.491) | (0.379) | (0.279) | (0.359) | (0.345) |
| Observations | 5691 | 5913 | 4944 | 4944 | 5416 | 5822 | 5528 |
| Countries | 176 | 177 | 143 | 143 | 156 | 165 | 173 |
| | Panel F: October 2023 | | | | | | |
| Autocracy | −0.097 | −0.217 | 0.414 | −0.071 | −0.015 | −0.443 | −0.041 |
| | (0.386) | (0.360) | (0.385) | (0.336) | (0.245) | (0.301) | (0.349) |
| Personalism Measure | −0.833** | −0.942** | −0.951* | 0.001 | 0.129 | 0.697* | −0.878** |
| | (0.374) | (0.407) | (0.484) | (0.373) | (0.276) | (0.357) | (0.345) |
| Observations | 5710 | 5932 | 4963 | 4963 | 5435 | 5841 | 5547 |
| Countries | 176 | 177 | 143 | 143 | 156 | 165 | 173 |
| | Panel G: Penn World Tables | | | | | | |
| Autocracy | 0.344 | 0.177 | 0.742* | 0.414 | 0.213 | −0.270 | 0.528 |
| | (0.393) | (0.391) | (0.402) | (0.328) | (0.264) | (0.342) | (0.415) |
| Personalism Measure | −1.078*** | −1.168*** | −0.890* | −0.256 | 0.034 | 0.646 | −1.322*** |
| | (0.392) | (0.436) | (0.475) | (0.328) | (0.313) | (0.397) | (0.423) |
| Observations | 6364 | 6577 | 5522 | 5522 | 5992 | 6587 | 6179 |
| Countries | 169 | 169 | 141 | 141 | 154 | 161 | 167 |

*Notes:* The first six panels in this table use the earliest vintage of the World Development Indicators in a given year. Panel G uses real GDP from national accounts (`rgdpna`) from the Penn World Tables 10.01.

**Table A11:** Personalist vs. institutionalized autocracy: Omitting extreme values

| | Outcome: Log GDP per capita | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Autocracy measure → | CGV | ANRR | GWF | GWF | Polity | V-Dem | CGV |
| Autocracy | 0.081 | −0.052 | 0.330 | 0.067 | 0.074 | −0.172 | 0.030 |
| | (0.338) | (0.325) | (0.298) | (0.280) | (0.214) | (0.258) | (0.283) |
| GS Power Consolidation | −0.995*** | −1.020*** | | | | | |
| | (0.332) | (0.350) | | | | | |
| GWF Categorical Personalism | | | −0.565 | | | | |
| | | | (0.388) | | | | |
| GWF Latent Personalism | | | | −0.073 | | | |
| | | | | (0.298) | | | |
| Polity-Executive Constraints | | | | | −0.160 | | |
| | | | | | (0.251) | | |
| V-Dem Presidentialism | | | | | | 0.263 | |
| | | | | | | (0.250) | |
| Veto Players | | | | | | | −0.879*** |
| | | | | | | | (0.283) |
| Autocracy + Personalism | −0.914*** | −1.072*** | −0.235 | −0.007 | −0.086 | 0.090 | −0.849*** |
| | (0.289) | (0.288) | (0.306) | (0.272) | (0.284) | (0.267) | (0.312) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 5848 | 6053 | 5105 | 5105 | 5524 | 5962 | 5695 |
| Countries | 175 | 175 | 142 | 142 | 157 | 164 | 172 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Four GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Note:* The samples in this table exclude observations with GDP per capita growth less than or equal to –30 percent or greater than or equal to 30 percent.

**Table A12:** Personalist vs. institutionalized autocracy: Various sample restrictions

| Autocracy → | (1) CGV | (2) ANRR | (3) GWF | (4) GWF | (5) Polity | (6) V-Dem | (7) CGV |
|---|---|---|---|---|---|---|---|
| Personalism → | GS | GS | GWF-Cat | GWF-Cont | Exec Cons | Pres | VP |
| | Panel A: CGV–GS Sample | | | | | | |
| Autocracy | 0.031 | −0.012 | 0.403 | 0.009 | 0.128 | −0.207 | −0.037 |
| | (0.345) | (0.355) | (0.358) | (0.339) | (0.254) | (0.282) | (0.319) |
| Personalism | −0.993*** | −1.020** | −0.629 | 0.123 | 0.073 | 0.202 | −0.859*** |
| | (0.341) | (0.394) | (0.457) | (0.352) | (0.291) | (0.435) | (0.314) |
| Autocracy + Personalism | −0.962*** | −1.032*** | −0.226 | 0.132 | 0.201 | −0.005 | −0.896*** |
| | (0.303) | (0.347) | (0.359) | (0.318) | (0.311) | (0.375) | (0.323) |
| Observations | 5869 | 5796 | 4924 | 4924 | 5164 | 5533 | 5712 |
| Countries | 175 | 175 | 142 | 142 | 156 | 163 | 172 |
| | Panel B: ANRR-GS Sample | | | | | | |
| Autocracy | −0.041 | −0.050 | 0.270 | −0.082 | 0.195 | −0.140 | −0.028 |
| | (0.331) | (0.340) | (0.317) | (0.321) | (0.240) | (0.272) | (0.305) |
| Personalism | −0.905*** | −1.102*** | −0.609 | 0.089 | 0.030 | 0.112 | −0.911*** |
| | (0.332) | (0.377) | (0.430) | (0.344) | (0.280) | (0.431) | (0.309) |
| Autocracy + Personalism | −0.946*** | −1.152*** | −0.339 | 0.007 | 0.225 | −0.028 | −0.939*** |
| | (0.297) | (0.327) | (0.358) | (0.304) | (0.296) | (0.379) | (0.313) |
| Observations | 5796 | 6073 | 4983 | 4983 | 5356 | 5717 | 5639 |
| Countries | 175 | 175 | 142 | 142 | 156 | 163 | 172 |
| | Panel C: GWF Sample | | | | | | |
| Autocracy | 0.170 | 0.097 | 0.394 | 0.004 | 0.179 | −0.025 | 0.188 |
| | (0.392) | (0.389) | (0.337) | (0.326) | (0.260) | (0.316) | (0.348) |
| Personalism | −0.809** | −0.859** | −0.638 | 0.120 | −0.025 | 0.401 | −0.822** |
| | (0.361) | (0.395) | (0.436) | (0.338) | (0.296) | (0.373) | (0.372) |
| Autocracy + Personalism | −0.639** | −0.762** | −0.244 | 0.124 | 0.153 | 0.376 | −0.634* |
| | (0.303) | (0.355) | (0.351) | (0.306) | (0.318) | (0.346) | (0.343) |
| Observations | 4924 | 4983 | 5117 | 5117 | 4950 | 5099 | 4869 |
| Countries | 142 | 142 | 142 | 142 | 141 | 142 | 142 |
| | Panel D: Polity Sample | | | | | | |
| Autocracy | 0.540* | 0.540* | 0.369 | 0.084 | 0.082 | 0.088 | 0.325 |
| | (0.307) | (0.308) | (0.332) | (0.320) | (0.242) | (0.298) | (0.306) |
| Personalism | −1.010*** | −1.089*** | −0.409 | 0.165 | 0.062 | 0.419 | −0.648* |
| | (0.287) | (0.304) | (0.416) | (0.337) | (0.275) | (0.324) | (0.342) |
| Autocracy + Personalism | −0.470* | −0.549** | −0.039 | 0.248 | 0.144 | 0.508* | −0.323 |
| | (0.274) | (0.270) | (0.327) | (0.292) | (0.297) | (0.297) | (0.318) |
| Observations | 5164 | 5356 | 4950 | 4950 | 5539 | 5538 | 5077 |
| Countries | 156 | 156 | 141 | 141 | 157 | 157 | 156 |
| | Panel E: V-Dem Sample | | | | | | |
| Autocracy | 0.017 | −0.052 | 0.397 | 0.006 | 0.083 | −0.202 | −0.045 |
| | (0.339) | (0.332) | (0.337) | (0.327) | (0.242) | (0.274) | (0.313) |
| Personalism | −0.949*** | −1.054*** | −0.639 | 0.122 | 0.063 | 0.231 | −0.837*** |
| | (0.335) | (0.371) | (0.436) | (0.338) | (0.275) | (0.392) | (0.312) |
| Autocracy + Personalism | −0.932*** | −1.106*** | −0.242 | 0.127 | 0.146 | 0.029 | −0.882*** |
| | (0.299) | (0.323) | (0.351) | (0.306) | (0.297) | (0.361) | (0.319) |
| Observations | 5533 | 5717 | 5099 | 5099 | 5538 | 5984 | 5400 |
| Countries | 163 | 163 | 142 | 142 | 157 | 164 | 161 |
| | Panel F: CGV–Veto Players Sample | | | | | | |
| Autocracy | 0.045 | 0.003 | 0.381 | −0.013 | 0.176 | −0.197 | −0.037 |
| | (0.352) | (0.363) | (0.364) | (0.346) | (0.261) | (0.292) | (0.319) |
| Personalism | −1.030*** | −1.060*** | −0.589 | 0.176 | −0.013 | 0.184 | −0.859*** |
| | (0.347) | (0.405) | (0.473) | (0.366) | (0.295) | (0.445) | (0.314) |
| Autocracy + Personalism | −0.985*** | −1.057*** | −0.208 | 0.164 | 0.163 | −0.013 | −0.896*** |
| | (0.322) | (0.365) | (0.372) | (0.330) | (0.323) | (0.379) | (0.323) |
| Observations | 5712 | 5639 | 4869 | 4869 | 5077 | 5400 | 5712 |
| Countries | 172 | 172 | 142 | 142 | 156 | 161 | 172 |

*Notes:* In each panel, we restrict the regression to non-missing observations for the dataset listed in the panel heading. Observations and countries may still vary across columns because of additional missing data in that column's dataset. All regressions include country and year fixed effects and four GDP lags.

**Table A13:** Personalist vs. institutionalized autocracy: Excluding planned economies

| | Outcome: Log GDP per capita | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Autocracy measure → | CGV | ANRR | GWF | GWF | Polity | V-Dem | CGV |
| Autocracy | −0.036 | −0.068 | 0.299 | −0.160 | 0.008 | −0.311 | −0.110 |
| | (0.362) | (0.355) | (0.353) | (0.324) | (0.244) | (0.280) | (0.321) |
| GS Power Consolidation | −1.006*** | −1.129*** | | | | | |
| | (0.350) | (0.380) | | | | | |
| GWF Categorical Personalism | | | −0.593 | | | | |
| | | | (0.449) | | | | |
| GWF Latent Personalism | | | | 0.287 | | | |
| | | | | (0.327) | | | |
| Polity-Executive Constraints | | | | | 0.188 | | |
| | | | | | (0.272) | | |
| V-Dem Presidentialism | | | | | | 0.380 | |
| | | | | | | (0.395) | |
| Veto Players | | | | | | | −0.924*** |
| | | | | | | | (0.313) |
| Autocracy + Personalism | −1.042*** | −1.196*** | −0.294 | 0.127 | 0.196 | 0.069 | −1.034*** |
| | (0.301) | (0.317) | (0.350) | (0.315) | (0.304) | (0.371) | (0.333) |
| $p$-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 5765 | 5974 | 5013 | 5013 | 5435 | 5872 | 5608 |
| Countries | 174 | 174 | 141 | 141 | 156 | 163 | 171 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Four GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Note:* The samples in this table exclude the period of state planning in the (former) Soviet republics, (former) Yugoslav republics, (former) Czechoslovakia, Albania, Bulgaria, Hungary, Mongolia, Poland, Romania, Cuba, China, and Vietnam.

**Table A14:** Personalist vs. institutionalized autocracy: Excluding countries that were ever planned

| | Outcome: Log GDP per capita | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Autocracy measure → | CGV | ANRR | GWF | GWF | Polity | V-Dem | CGV |
| Autocracy | 0.021 | −0.093 | 0.204 | −0.118 | 0.009 | −0.598** | −0.007 |
| | (0.294) | (0.295) | (0.345) | (0.316) | (0.248) | (0.275) | (0.290) |
| GS Power Consolidation | −1.033*** | −1.069*** | | | | | |
| | (0.331) | (0.344) | | | | | |
| GWF Categorical Personalism | | | −0.497 | | | | |
| | | | (0.443) | | | | |
| GWF Latent Personalism | | | | 0.118 | | | |
| | | | | (0.298) | | | |
| Polity-Executive Constraints | | | | | 0.086 | | |
| | | | | | (0.282) | | |
| V-Dem Presidentialism | | | | | | 0.528 | |
| | | | | | | (0.420) | |
| Veto Players | | | | | | | −0.993*** |
| | | | | | | | (0.297) |
| Autocracy + Personalism | −1.012*** | −1.162*** | −0.294 | −0.001 | 0.095 | −0.069 | −1.000*** |
| | (0.289) | (0.281) | (0.358) | (0.309) | (0.309) | (0.347) | (0.304) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 5265 | 5452 | 4489 | 4489 | 4897 | 5306 | 5119 |
| Countries | 144 | 144 | 112 | 112 | 127 | 133 | 142 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Four GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Note:* The samples in this table exclude the (former) Soviet republics, (former) Yugoslav republics, (former) Czechoslovakia, Albania, Bulgaria, Hungary, Mongolia, Poland, Romania, Cuba, China, and Vietnam.

**Table A15:** Personalist vs. institutionalized autocracy: One GDP lag

| | Outcome: Log GDP per capita | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) CGV | (2) ANRR | (3) GWF | (4) GWF | (5) Polity | (6) V-Dem | (7) CGV |
| Autocracy | 0.470 | 0.172 | 0.584 | 0.187 | 0.450 | 0.017 | 0.199 |
| | (0.390) | (0.400) | (0.450) | (0.474) | (0.337) | (0.423) | (0.411) |
| GS power consolidation | −1.621*** | −1.630*** | | | | | |
| | (0.382) | (0.442) | | | | | |
| GWF Categorical Personalism | | | −0.469 | | | | |
| | | | (0.585) | | | | |
| GWF Latent Personalism | | | | 0.336 | | | |
| | | | | (0.443) | | | |
| Polity-Executive Constraints | | | | | 0.059 | | |
| | | | | | (0.339) | | |
| V-Dem Presidentialism | | | | | | 0.379 | |
| | | | | | | (0.484) | |
| Veto Players | | | | | | | −1.100*** |
| | | | | | | | (0.411) |
| Autocracy + Personalism | −1.151*** | −1.457*** | 0.115 | 0.523 | 0.509 | 0.396 | −0.901** |
| | (0.358) | (0.436) | (0.530) | (0.436) | (0.401) | (0.527) | (0.382) |
| $p$-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 6283 | 6473 | 5476 | 5476 | 5912 | 6440 | 6109 |
| Countries | 175 | 175 | 142 | 142 | 157 | 164 | 172 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| One GDP lag | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Note:* The specifications in this table are identical to those in Table 4, but that they include only one outcome lag.

**Table A16:** Personalist vs. institutionalized autocracy: Two GDP lags

| | Outcome: Log GDP per capita | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) CGV | (2) ANRR | (3) GWF | (4) GWF | (5) Polity | (6) V-Dem | (7) CGV |
| Autocracy | 0.314 | 0.198 | 0.544 | 0.216 | 0.286 | −0.099 | 0.123 |
| | (0.330) | (0.346) | (0.362) | (0.371) | (0.252) | (0.315) | (0.332) |
| GS power consolidation | −1.234*** | −1.231*** | | | | | |
| | (0.307) | (0.345) | | | | | |
| GWF Categorical Personalism | | | −0.562 | | | | |
| | | | (0.467) | | | | |
| GWF Latent Personalism | | | | 0.076 | | | |
| | | | | (0.346) | | | |
| Polity-Executive Constraints | | | | | 0.033 | | |
| | | | | | (0.269) | | |
| V-Dem Presidentialism | | | | | | 0.331 | |
| | | | | | | (0.399) | |
| Veto Players | | | | | | | −0.894*** |
| | | | | | | | (0.320) |
| Autocracy + Personalism | −0.920*** | −1.033*** | −0.018 | 0.291 | 0.319 | 0.232 | −0.771** |
| | (0.308) | (0.342) | (0.411) | (0.339) | (0.309) | (0.410) | (0.327) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 6148 | 6345 | 5359 | 5359 | 5790 | 6289 | 5980 |
| Countries | 175 | 175 | 142 | 142 | 157 | 164 | 172 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Two GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Note:* The specifications in this table are identical to those in Table 4, but that they include only two outcome lags.

**Table A17:** Personalist vs. institutionalized autocracy: Eight GDP lags

| | Outcome: Log GDP per capita | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Autocracy measure → | CGV | ANRR | GWF | GWF | Polity | V-Dem | CGV |
| Autocracy | 0.019 | −0.204 | 0.486 | 0.015 | −0.018 | −0.341 | −0.058 |
| | (0.383) | (0.361) | (0.378) | (0.350) | (0.260) | (0.273) | (0.329) |
| GS Power Consolidation | −0.891** | −0.993** | | | | | |
| | (0.403) | (0.424) | | | | | |
| GWF Categorical Personalism | | | −0.842* | | | | |
| | | | (0.492) | | | | |
| GWF Latent Personalism | | | | 0.040 | | | |
| | | | | (0.335) | | | |
| Polity-Executive Constraints | | | | | 0.329 | | |
| | | | | | (0.327) | | |
| V-Dem Presidentialism | | | | | | 0.213 | |
| | | | | | | (0.412) | |
| Veto Players | | | | | | | −0.783** |
| | | | | | | | (0.337) |
| Autocracy + Personalism | −0.872*** | −1.197*** | −0.355 | 0.056 | 0.311 | −0.127 | −0.840** |
| | (0.338) | (0.370) | (0.381) | (0.321) | (0.347) | (0.390) | (0.356) |
| *p*-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| *p*-value, lags 5-8 | 0.534 | 0.769 | 0.022 | 0.022 | 0.210 | 0.322 | 0.549 |
| Observations | 5255 | 5472 | 4598 | 4598 | 4985 | 5357 | 5122 |
| Countries | 175 | 175 | 141 | 141 | 157 | 164 | 172 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Eight GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Note:* The specifications in this table are identical to those in Table 4, but that they include eight outcome lags.

**Table A18:** Personalist vs. institutionalized autocracy: Controlling for leader changes

| | Outcome: Log GDP per capita | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Autocracy measure → | CGV | ANRR | GWF | GWF | Polity | V-Dem | CGV |
| Autocracy | −0.162 | −0.176 | 0.267 | −0.103 | 0.023 | −0.159 | −0.234 |
| | (0.351) | (0.337) | (0.348) | (0.334) | (0.247) | (0.273) | (0.326) |
| GS Power Consolidation | −0.953*** | −1.062*** | | | | | |
| | (0.335) | (0.371) | | | | | |
| GWF Categorical Personalism | | | −0.704 | | | | |
| | | | (0.437) | | | | |
| GWF Latent Personalism | | | | 0.005 | | | |
| | | | | (0.336) | | | |
| Polity-Executive Constraints | | | | | 0.074 | | |
| | | | | | (0.274) | | |
| V-Dem Presidentialism | | | | | | 0.165 | |
| | | | | | | (0.397) | |
| Veto Players | | | | | | | −0.830*** |
| | | | | | | | (0.310) |
| Leader Change | −1.075*** | −1.124*** | −0.964*** | −0.948*** | −0.777*** | −1.016*** | −1.073*** |
| | (0.242) | (0.225) | (0.214) | (0.211) | (0.206) | (0.197) | (0.246) |
| Autocracy + Personalism | −1.115*** | −1.239*** | −0.438 | −0.098 | 0.097 | 0.006 | −1.064*** |
| | (0.312) | (0.330) | (0.357) | (0.311) | (0.298) | (0.365) | (0.331) |
| $p$-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 5572 | 5750 | 5047 | 5047 | 5465 | 5800 | 5415 |
| Countries | 164 | 164 | 140 | 140 | 154 | 159 | 161 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Four GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Notes:* The specifications in Columns 1, 2, and 7 use Archigos for democracies (as coded) and CGV leadership data for autocracies. Colums 3 and 4 use Archigos for democracies and GWF leadership data for autocracies. Columns 5 and 6 use Archigos for both democracies and autocracies.

**Table A19:** Personalist vs. institutionalized autocracy: Controlling for leader tenure

| | Outcome: Log GDP per capita | | | | | | |
|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Autocracy measure → | CGV | ANRR | GWF | GWF | Polity | V-Dem | CGV |
| Autocracy | −0.065 | −0.149 | 0.336 | −0.029 | 0.028 | −0.250 | −0.123 |
| | (0.341) | (0.320) | (0.341) | (0.330) | (0.248) | (0.274) | (0.323) |
| GS Power Consolidation | −0.950*** | −1.044*** | | | | | |
| | (0.333) | (0.364) | | | | | |
| GWF Categorical Personalism | | | −0.651 | | | | |
| | | | (0.437) | | | | |
| GWF Latent Personalism | | | | 0.060 | | | |
| | | | | (0.340) | | | |
| Polity-Executive Constraints | | | | | 0.072 | | |
| | | | | | (0.277) | | |
| V-Dem Presidentialism | | | | | | 0.227 | |
| | | | | | | (0.403) | |
| Veto Players | | | | | | | −0.864*** |
| | | | | | | | (0.307) |
| Leader Tenure | 0.021 | 0.026* | 0.014 | 0.013 | 0.016 | 0.020 | 0.024 |
| | (0.016) | (0.015) | (0.016) | (0.016) | (0.014) | (0.014) | (0.016) |
| Autocracy + Personalism | −1.015*** | −1.193*** | −0.315 | 0.032 | 0.100 | −0.023 | −0.987*** |
| | (0.310) | (0.331) | (0.366) | (0.322) | (0.302) | (0.373) | (0.326) |
| $p$-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 5572 | 5750 | 5047 | 5047 | 5465 | 5800 | 5415 |
| Countries | 164 | 164 | 140 | 140 | 154 | 159 | 161 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Four GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Notes:* The specifications in Columns 1, 2, and 7 use Archigos for democracies (as coded) and CGV leadership data for autocracies. Colums 3 and 4 use Archigos for democracies and GWF leadership data for autocracies. Columns 5 and 6 use Archigos for both democracies and autocracies.

**Table A20:** Personalist vs. institutionalized autocracy: Continuous personalism measures

| | Outcome: Log GDP per capita | | | | | |
|---|---|---|---|---|---|---|
| | (1) CGV | (2) ANRR | (3) GWF | (4) Polity | (5) V-Dem | (6) CGV |
| Autocracy | 0.582 | 0.673 | −0.042 | 0.193 | −0.488 | −0.282 |
| | (0.569) | (0.561) | (0.400) | (0.388) | (0.429) | (0.537) |
| GS Power Consolidation | −2.189** | −2.670** | | | | |
| | (1.032) | (1.087) | | | | |
| GWF Latent Personalism | | | 0.274 | | | |
| | | | (0.676) | | | |
| Polity-Executive Constraints | | | | −0.150 | | |
| | | | | (0.493) | | |
| V-Dem Presidentialism | | | | | 0.692 | |
| | | | | | (0.660) | |
| Veto Players | | | | | | −0.369 |
| | | | | | | (0.567) |
| Autocracy + Personalism | −1.607*** | −1.997*** | 0.232 | 0.043 | 0.204 | −0.650** |
| | (0.592) | (0.649) | (0.459) | (0.288) | (0.394) | (0.303) |
| $p$-value, unit root test | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Observations | 5869 | 6073 | 5117 | 5539 | 5984 | 5712 |
| Countries | 175 | 175 | 142 | 157 | 164 | 172 |
| Country & year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Four GDP lags | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*Notes:* This table reports regressions of GDP per capita on an autocracy indicator and a continuous measure of personalism, controlling for country and year fixed effects and four lags of GDP. The personalism measures are normalized to the unit interval and ordered so that higher values indicate fewer constraints. In parentheses, heteroskedasticity-robust standard errors that correct for arbitrary correlation at the country level. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$.

**Table A21:** Personalist vs. institutionalized autocracy: Mixing and matching indicators

| | Outcome: Log GDP per capita | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Personalism → | GS | GWF-Cat | GWF-Cont | Exec Cons | Pres | VP |
| | Panel A: CGV | | | | | |
| Autocracy | 0.031 | −0.355 | −0.181 | −0.132 | −0.790** | −0.037 |
| | (0.345) | (0.379) | (0.338) | (0.291) | (0.346) | (0.319) |
| Personalism | −0.993*** | −0.330 | −0.041 | 0.151 | 0.405 | −0.859*** |
| | (0.341) | (0.421) | (0.378) | (0.310) | (0.434) | (0.314) |
| Autocracy + Personalism | −0.962*** | −0.685** | −0.222 | 0.019 | −0.385 | −0.896*** |
| | (0.303) | (0.318) | (0.357) | (0.328) | (0.353) | (0.323) |
| Observations | 5869 | 5501 | 5400 | 5619 | 5820 | 5712 |
| Countries | 175 | 166 | 165 | 171 | 173 | 172 |
| | Panel B: ANRR | | | | | |
| Autocracy | −0.050 | −0.638* | −0.330 | −0.357 | −1.101*** | −0.278 |
| | (0.340) | (0.368) | (0.317) | (0.274) | (0.338) | (0.398) |
| Personalism | −1.102*** | −0.179 | −0.032 | 0.186 | 0.566 | −0.846** |
| | (0.377) | (0.442) | (0.350) | (0.303) | (0.435) | (0.388) |
| Autocracy + Personalism | −1.152*** | −0.817** | −0.362 | −0.171 | −0.535 | −1.125*** |
| | (0.327) | (0.327) | (0.356) | (0.291) | (0.334) | (0.284) |
| Observations | 6073 | 5951 | 5846 | 6023 | 6245 | 6117 |
| Countries | 175 | 167 | 167 | 171 | 174 | 173 |
| | Panel C: GWF | | | | | |
| Autocracy | 0.578* | 0.394 | 0.004 | 0.269 | −0.149 | 0.632* |
| | (0.338) | (0.337) | (0.326) | (0.290) | (0.367) | (0.325) |
| Personalism | −1.084*** | −0.638 | 0.120 | −0.005 | 0.497 | −0.929*** |
| | (0.352) | (0.436) | (0.338) | (0.313) | (0.396) | (0.349) |
| Autocracy + Personalism | −0.506 | −0.244 | 0.124 | 0.264 | 0.348 | −0.297 |
| | (0.320) | (0.351) | (0.306) | (0.315) | (0.289) | (0.325) |
| Observations | 4946 | 5117 | 5117 | 5036 | 5117 | 5054 |
| Countries | 141 | 142 | 142 | 142 | 142 | 142 |
| | Panel D: Polity | | | | | |
| Autocracy | 0.642** | 0.319 | 0.192 | 0.082 | −0.018 | 0.426* |
| | (0.272) | (0.269) | (0.298) | (0.242) | (0.286) | (0.251) |
| Personalism | −1.091*** | −0.473 | −0.077 | 0.062 | 0.304 | −0.654** |
| | (0.286) | (0.354) | (0.339) | (0.275) | (0.315) | (0.306) |
| Autocracy + Personalism | −0.450 | −0.154 | 0.115 | 0.144 | 0.286 | −0.228 |
| | (0.277) | (0.280) | (0.314) | (0.297) | (0.262) | (0.302) |
| Observations | 5078 | 5246 | 5024 | 5539 | 5539 | 5445 |
| Countries | 155 | 149 | 149 | 157 | 157 | 157 |
| | Panel E: V-Dem | | | | | |
| Autocracy | 0.026 | 0.116 | 0.027 | 0.210 | −0.202 | 0.366 |
| | (0.334) | (0.296) | (0.319) | (0.262) | (0.274) | (0.267) |
| Personalism | −0.938** | −0.460 | −0.066 | 0.026 | 0.231 | −0.990*** |
| | (0.362) | (0.334) | (0.347) | (0.278) | (0.392) | (0.267) |
| Autocracy + Personalism | −0.912*** | −0.343 | −0.039 | 0.236 | 0.029 | −0.624** |
| | (0.284) | (0.297) | (0.351) | (0.299) | (0.361) | (0.283) |
| Observations | 5360 | 5597 | 5184 | 5718 | 5984 | 5791 |
| Countries | 163 | 157 | 156 | 163 | 164 | 163 |

*Notes:* This table reports regressions of GDP per capita on binary indicators of autocracy (defined by panel) and personalism (defined by column), controlling for country and year fixed effects and four lags of GDP. In parentheses, heteroskedasticity-robust standard errors that correct for arbitrary correlation at the country level. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$.

**Table A22:** Potential mechanisms: ANRR/GS

| | Investment | | | Public Goods | | | State Capacity | |
|---|---|---|---|---|---|---|---|---|
| | (1) Log Private Investment | (2) Log Public Investment | (3) Log TFP | (4) Log Primary Enrollment | (5) Log Secondary Enrollment | (6) Log Child Mortality Rate | (7) Log Tax to GDP | (8) HS State Capacity |
| ANRR Autocracy | −0.007 | −0.044** | 1.080*** | −1.256** | −2.202** | 0.189** | −3.355* | −0.009*** |
| | (0.019) | (0.021) | (0.388) | (0.482) | (0.855) | (0.090) | (1.739) | (0.002) |
| GS Power Consolidation | −0.048*** | 0.007 | −1.300*** | −0.016 | 0.986 | 0.027 | 0.231 | 0.000 |
| | (0.018) | (0.023) | (0.479) | (0.414) | (0.790) | (0.090) | (1.853) | (0.002) |
| Autocracy + Personalism | −0.055*** | −0.037* | −0.220 | −1.272*** | −1.216* | 0.215*** | −3.124* | −0.009*** |
| | (0.018) | (0.020) | (0.395) | (0.406) | (0.698) | (0.067) | (1.681) | (0.002) |
| Mean of outcome variable | 6.601 | 5.526 | -3.660 | 453.462 | 398.959 | 346.873 | -181.360 | 0.505 |
| Observations | 5782 | 5782 | 3777 | 3605 | 2818 | 5849 | 4469 | 5363 |
| Countries | 164 | 164 | 108 | 165 | 157 | 172 | 131 | 156 |

| | Macroeconomic Policy/Outcomes | | | | Civil Unrest | | Civil Conflict/War | |
|---|---|---|---|---|---|---|---|---|
| | (1) Inflation Crisis (0-1) | (2) Hyperinflation (0-1) | (3) Log Trade | (4) Index of Market Reforms | (5) Log Protests | (6) Riots (0-1) | (7) Conflict (0-1) | (8) War (0-1) |
| ANRR Autocracy | 0.016 | −0.003 | −0.274 | −0.761 | 0.049 | 0.015 | 0.047** | 0.033** |
| | (0.020) | (0.010) | (0.850) | (0.467) | (0.073) | (0.034) | (0.018) | (0.014) |
| GS Power Consolidation | −0.013 | 0.002 | −0.856 | 0.451 | 0.131 | 0.077** | −0.036 | −0.021 |
| | (0.017) | (0.008) | (0.763) | (0.406) | (0.091) | (0.034) | (0.022) | (0.016) |
| Autocracy + Personalism | 0.003 | −0.002 | −1.130 | −0.311 | 0.179*** | 0.093*** | 0.011 | 0.013 |
| | (0.014) | (0.008) | (0.756) | (0.328) | (0.064) | (0.024) | (0.016) | (0.010) |
| Mean of outcome variable | 0.139 | 0.027 | 415.473 | 42.608 | -4.832 | 0.243 | 0.146 | 0.038 |
| Observations | 6077 | 6077 | 5542 | 4539 | 3082 | 5468 | 6020 | 6020 |
| Countries | 175 | 175 | 171 | 149 | 163 | 170 | 175 | 175 |

*Notes:* All regressions include country and year fixed effects, four lags of GDP, and four lags of the outcome. In parentheses, heteroskedasticity-robust standard errors that correct for arbitrary correlation at the country level. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$.

**Table A23:** Potential mechanisms: CGV/Veto Players

| | Investment | | | Public Goods | | | State Capacity | |
|---|---|---|---|---|---|---|---|---|
| | (1) Log Private Investment | (2) Log Public Investment | (3) Log TFP | (4) Log Primary Enrollment | (5) Log Secondary Enrollment | (6) Log Child Mortality Rate | (7) Log Tax to GDP | (8) HS State Capacity |
| CGV Autocracy | −0.037 | −0.032 | 0.755** | −0.003 | 1.055* | 0.039 | −1.389 | −0.007*** |
| | (0.024) | (0.023) | (0.366) | (0.450) | (0.622) | (0.077) | (1.538) | (0.002) |
| Veto Players | 0.009 | −0.006 | −0.836* | −1.261*** | −2.709*** | 0.174*** | −2.291* | −0.005*** |
| | (0.017) | (0.017) | (0.430) | (0.429) | (0.580) | (0.060) | (1.161) | (0.002) |
| Autocracy + Personalism | −0.028 | −0.039* | −0.081 | −1.264*** | −1.654** | 0.214*** | −3.681** | −0.012*** |
| | (0.018) | (0.020) | (0.329) | (0.372) | (0.669) | (0.068) | (1.726) | (0.002) |
| Mean of outcome variable | 6.571 | 5.491 | -3.845 | 453.213 | 396.908 | 349.610 | -181.821 | 0.503 |
| Observations | 5453 | 5453 | 3623 | 3374 | 2643 | 5494 | 4381 | 5076 |
| Countries | 162 | 162 | 108 | 162 | 154 | 169 | 129 | 155 |

| | Macroeconomic Policy/Outcomes | | | | Civil Unrest | | Civil Conflict/War | |
|---|---|---|---|---|---|---|---|---|
| | (1) Inflation Crisis (0-1) | (2) Hyperinflation (0-1) | (3) Log Trade | (4) Index of Market Reforms | (5) Log Protests | (6) Riots (0-1) | (7) Conflict (0-1) | (8) War (0-1) |
| CGV Autocracy | 0.010 | −0.001 | −0.852 | −0.564 | 0.121** | 0.038 | 0.006 | −0.015 |
| | (0.020) | (0.010) | (0.852) | (0.542) | (0.056) | (0.029) | (0.016) | (0.010) |
| Veto Players | −0.002 | −0.005 | −0.257 | 0.044 | −0.040 | 0.025 | 0.014 | 0.028*** |
| | (0.017) | (0.010) | (0.698) | (0.396) | (0.049) | (0.024) | (0.015) | (0.009) |
| Autocracy + Personalism | 0.008 | −0.007 | −1.109 | −0.520 | 0.082 | 0.064*** | 0.020 | 0.013 |
| | (0.018) | (0.009) | (0.804) | (0.452) | (0.059) | (0.023) | (0.015) | (0.009) |
| Mean of outcome variable | 0.148 | 0.030 | 413.450 | 42.944 | -4.827 | 0.254 | 0.155 | 0.040 |
| Observations | 5713 | 5713 | 5200 | 4492 | 2854 | 5128 | 5652 | 5652 |
| Countries | 172 | 172 | 168 | 148 | 157 | 167 | 172 | 172 |

*Notes:* All regressions include country and year fixed effects, four lags of GDP, and four lags of the outcome. In parentheses, heteroskedasticity-robust standard errors that correct for arbitrary correlation at the country level. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$.