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Abstract

While a large literature suggests an important role for political parties in economic development, this is the first attempt to lay out a comprehensive theory and a reasonably comprehensive empirical test of the proposition. We argue that strong parties broaden the constituencies to which policy makers respond and help politicians solve coordination problems. These features help ensure better economic management, public services, and political stability. And this, in turn, enhances economic growth.

Drawing on a novel measure of party strength from the Varieties of Democracy dataset, we test this theory on data drawn from more than 150 countries, observed annually from 1900–2012. We identify a sizeable effect which is robust to various specifications, estimators, and samples. The effect operates in both democracies and autocracies and is fairly stable across regions and time periods. We also find provisional evidence in favor of causal mechanisms pertaining to public services and political stability.

Introduction

Many scholars of international development subscribe to some version of institutionalism. They believe that the vast cross-country differences in development evident today are the product of varying political institutions (Acemoglu & Robinson 2012; Fukuyama 2011; Haggard et al. 2008; Hall & Jones 1999; Huntington 1968; Knack & Keefer 1995; North 1990; Rodrik et al. 2004; Rothstein 2011). The story is plausible but hard to prove, prompting skepticism from some quarters (e.g., Aron 2000; Chang 2011; Glaeser et al. 2004; Przeworski 2004; Sachs 2003; Vollrath 2014).

Several impediments to falsifiability impair this research agenda. First, institutional theories are often pitched at a high level of abstraction, relying on concepts such as good institutions, inclusion, accountability, predation, rent-seeking, or good governance that are open to many interpretations and operationalizations (e.g., Jütting 2003). Relatedly, measures of institutional quality are often highly aggregated and highly correlated, making it difficult to distinguish one institutional feature from another. They may also be limited in temporal or spatial coverage, or of questionable validity when placed on the right side of a causal model (Arndt & Oman 2006; Kurtz & Schrank 2007; Thomas 2010). Leaving aside problems of measurement and collinearity, it is difficult to envision the ceteris paribus conditions of an argument centered on the role of "good institutions."

Ambiguously framed and hard to operationalize, institutional theories seem to explain everything, or nothing. Even for proponents of the institutional story there is a vexing lack of specificity. Institutions matter, concludes Bardhan (2005), "but *which ones?*" Accordingly, we propose to shift attention from the macro-level to the meso-level, where arguments and empirical tests promise greater tractability – though less comprehensiveness. (What follows is emphatically not a comprehensive theory of economic development.)

We argue that a key institution fostering long-term country-level development is the organization of political parties. Strong parties enhance growth by incentivizing leaders to cater to broad interests and enable them to solve coordination problems. In contrast to prior work, we argue that these capabilities transcend regime-type; they matter as much for economic growth in democratic contexts as in authoritarian contexts, and for many of the same reasons. The theory we put forth thus bridges two traditions of work on political parties, one focused on democracies and the other on autocracies.

To test the theory we draw on a unique dataset from the Varieties of Democracy (V-Dem) project (Coppedge et al. 2015a). Based on coding by thousands of country experts and

covering most sovereign and semi-sovereign states over the past century, V-Dem provides multiple indicators focused on different features of political parties, which we employ to construct a composite index of Party Strength. Using this index, we conduct myriad tests to probe the relationship between political parties and economic growth. Estimators include fixed effects, generalized method of moments (GMM), and instrumental variables.

In Section I, we present our theoretical argument about how and why party strength affects economic growth. In Section II, we describe our data and the construction of the index of Party Strength. In Section III, we explore country cases in East and Southeast Asia, which provide a face validity test for the index and an illustration of our theoretical argument. In Section IV, we estimate the impact of Party Strength on growth in a global sample. In Section V, the relationship is subjected to a series of specification tests. In Section VI we explore the impact of Party Strength on economic stability. In Section VII, we conduct several empirical tests focused on causal mechanisms. In Section VIII, we review the argument and discuss its ramifications.

I. Theory

A large literature extending back to the birth of modern political science attests to the importance of political parties in establishing conditions for democratic stability and accountability (Bryce 1888; Key 1949; Ranney 1962; Schattschneider 1942; Wilson 1908). More recently, scholars have demonstrated the capacity of strong parties to resist clientelism and provide public goods, functions that presumably enhance economic performance (Croissant & Volkel 2012; Hicken & Kuhonta 2014; Hicken, Kollman & Simmons forthcoming; Keefer 2013; Kitschelt 2000; Kitschelt & Wilkinson 2006; Levitsky 1998; Mainwaring & Scully 1995; Pierskalla & Fernandez 2011; Powell & Tucker, 2013; Randall & Svåsand 2002; Simmons 2016; Simmons et. al. forthcoming; Tommasi 2006; Ufen 2008).

Meanwhile, a distinct literature on autocratic regimes finds that institutionalized parties help to stabilize authoritarian rule (Boix & Svolik 2013; Brownlee 2009; Greene 2007; Huntington 1968; Magaloni 2006, 2008; Magaloni & Kricheli 2010; Svolik 2012). Researchers have also noted that one-party regimes are associated with greater investment and stronger growth performance than other types of autocracies (Gandhi 2008; Gehlbach & Keefer 2011; Keefer 2007; Miller 2015; Wright 2008), though problems of causal identification persist (Pepinsky 2014).

A schematic review of the literature on political parties in democratic and autocratic contexts thus suggests that the strength of political parties matters in very different contexts. This is not to say that parties operate identically in democratic and autocratic settings. Where multi-party elections exist parties are in direct competition with each other, which is bound to change their policymaking role in some respects. However, the impact of parties on economic growth may depend less on inter-party dynamics than on intra-party dynamics, i.e., the way in which parties are organized.[1] Sweden (a strong-party regime within a democratic context) is different from Papua New Guinea (where parties are small, weak, evanescent, and subordinate to individual politicians), just as China (where all power is centralized in the Chinese Communist party) is different from Saudi Arabia (a party-less monarchy). In both democratic and autocratic contexts we expect the strength of political parties to affect the incentives and behavior of elites, i.e., the choice of public policies and the effectiveness with which those policies are implemented – and, ultimately, long-term growth performance.

At this juncture, we need to define several key terms. When referring to *political parties* we are primarily concerned with the major parties within a polity, not the smaller and (for our purposes) less consequential ones. In polities where only one party is allowed to compete this is the only party of theoretical interest. In party systems that are highly fragmented but where long-standing coalitions perform the work of large parties (i.e., they act in a coordinated and predictable fashion), coalitions perform the function of major parties.

Party strength refers to the unity, centralization, organizational complexity, and mass constituency of parties in a country. Where these traits are lacking – i.e., parties are weak or absent – other forms of political organization predominate. Non-party formats may be characterized broadly as *personal rule*, either familial or charismatic (Jackson & Rosberg 1982), *group-based rule*, where ethnic, racial, or religious groups form the basis of power (Wimmer 2013), or *military rule* (Finer 1988; Huntington 1957). These are the causal counterfactuals of our argument. To the extent that parties are weak, we assume that governance is monopolized by an individual and his/her clique, a social group, or a military junta.

It may seem axiomatic that strong parties are preferable to these other forms of political organization. Nonetheless, it is important to specify – albeit in rather broad terms – why strong parties might facilitate stronger growth performance over the long term. Parties, we surmise,

[1] Work on parties in democracies usually focused on the "external dimension" of party system institutionalization, i.e., patterns of inter-party competition. Our conceptualization of party strength leans toward the "internal dimension" of party system institutionalization, i.e., party organizational structures and party rootedness in society (Mainwaring and Scully 1995 Levitsky 1998; Randall and Svåsand 2002; Ufen 2008; Croissant and Volkel 2012; Hicken and Kuhonta 2014; Powell and Tucker, 2013). The literature on autocratic parties, naturally, focuses mainly on the latter (e.g., Geddes 1999; Magaloni 2006; Gehlbach & Keefer 2011; Svolik 2012), with some attention to linkages between opposition party actors and the ruling party (e.g., Gandhi 2008).

align the interests of leaders with the interests of the party, thereby (1) imposing constraints on leaders, (2) institutionalizing power, and (3) elongating time-horizons. Parties also serve as coordination mechanisms among powerful groups and interests within a society by virtue of (4) their encompassing-ness, (5) their ability to overcome veto points, and (6) their effective implementation of policies. Let us unpack these relationships.

First, strong parties provide a mechanism for constraining leaders so that they fulfill the ambitions of the party rather than (or in addition to) their personal ambitions. Constraints on leaders stem partly from the process of leadership selection, which in a strong party favors individuals with a demonstrated commitment to the party, usually those who have risen through the ranks. Organization men, not mavericks, are likely to emerge from a party-centered selection process (Carreras 2012). The chosen individual, having been thoroughly socialized in the party, is unlikely to work against its wider interests once installed in a top policymaking position. Nor is it likely that a leader would be able to deviate from the party line, even if s/he so desired. Strong parties provide checks against wayward leaders, employing internal mechanisms of control, often of an informal nature (Panebianco 1988; Gehlbach & Keefer 2011, 2012; Svolik 2012). Indeed, party activists and officials may resist actions by the executive if they conflict with their interests and the long-term interests of the party (Stokes 1999). Note also that party leaders need party members; they cannot afford to alienate their base. More generally, a tightly organized party structure – where members are in continual contact with one another and have long-standing personal relationships – allows party members to better overcome collective action problems and thus serve as an effective counterweight to the top leadership (Svolik 2012).

For these reasons, we expect a modicum of accountability operating within a strong party, even when there are no formal institutions mandating anything that might be described as intra-party democracy. As evidence of this, one might consider the capacity of strong parties to limit the tenure of rulers and, in some cases, to control the leadership selection process in autocratic settings such as Vietnam (after Ho Chi Minh), China (in recent years), and Mexico (under the PRI). It follows that we may regard the political party as providing a credible check on executive power, preventing predatory behavior that might harm long-run growth in much the same fashion as is claimed for formal, constitutional constraints (e.g., Acemoglu et al. 2001; Besley & Kudamatsu 2008; North & Weingast 1989; Wright 2008).

Second, strong parties establish highly institutionalized spheres of politics and policymaking. They may or may not be transparent in formulation, but they are clear in execution so that investors and other actors know what to expect. More important, once adopted, policies are likely to be sustained, and this track-record means that strong parties can

credibly commit to policies. Market uncertainties associated with unpredictable policy swings are minimized, and growth performance should be enhanced. More generally, the institutionalization of political conflict – and of leadership succession in particular – should enhance political stability over the long run. Extant work suggests that polities ruled by strong parties are less susceptible to civil war (Fjelde 2010), an event with strongly negative repercussions for growth (Collier 1999; Gates et al. 2012).

Third, strong parties are enduring. Because of this longevity leaders and others whose interests are aligned with a party's fate are compelled to approach policymaking with a long-term perspective. Studies have shown that a party's image and overall support among the citizenry is colored by the policies and overall performance achieved during periods when the party ruled (Magaloni 2006). Legacies matter. This means that parties that expect to stick around for a while are likely to have an incentive to invest in policies that are anticipated to increase long-term growth, even if they impose short-term costs (Hankla 2006; Pitcher 2012). For example, a strong party is more likely to prioritize productive public investments in infrastructure and human capital over less productive public spending and to promote policies conducive to private investment, even though the gains from such policies accrue slowly over many years (Olson 1993; Simmons 2016).

Fourth, strong parties often promote an encompassing vision (an ideology intended to embrace most, if not all, citizens), a leadership cadre that includes representatives of major social groups, and a large membership base. A strong party is typically broad, and attempts to fuse its mission and identity with the nation. Groups who are integrated into a party will also be integrated into politics and this, in turn, may serve to vitiate dissent and rebellion. The encompassing vision, and (envisioned) constituency, of a strong party may encourage leaders to prioritize public goods over targeted distribution of private goods, with positive repercussions for growth (Bueno de Mesquita et al. 2003; Knutsen 2011a). Likewise, the sheer size of a strong party means that clientelistic payoffs – designed to compensate party members and supporters – are unlikely to be viable over the long term unless coupled with strong growth performance. Distributive politics may work for a stretch; but, in the absence of economic growth party elites will be unable to refill their coffers indefinitely (Morgan 2011). There is simply not enough pelf to go around. Growth is the only solution that will placate members of a large party, not to mention broader constituencies whose allegiance the party claims.

Fifth, strong parties can serve as vehicles for formulating objectives and overcoming potential veto points – whether located within government, in informal institutions, or in the private sector. In particular, cohesion among elites is enhanced, allowing party leaders to resolve

coordination problems among themselves – striking deals that involve intertemporal tradeoffs and enforcing those deals through time (Boix & Svolik 2013; Hicken & Simmons 2008; Kuhonta 2011; Magaloni 2006; McGillivray 1997; Müller 2000; Nielson 2003; Svolik 2012; Tommasi 2006). Focusing on democratic settings, Gerring & Thacker (2008: 36-37) propose that "wherever parties are weak, policies are necessarily the product of ad hoc coalitions and individual interests," whereas a strong party "synchronizes individual career goals with the party's quest for political power." In an autocratic setting, Magaloni (2008) shows how party organizations, with their associated side-payments, perks and opportunities for future positions and influence, strengthen the incentives of different actors to invest in the current regime. This means that strong-party governments should be capable of reaching authoritative decisions on important matters of public policy and making these decisions stick, establishing credible commitment even in the absence of formal constitutional constraints (Gehlbach & Keefer 2011). Finally, strong parties are better able to implement policies, once adopted. This includes the implementation of routine policies needed for investment and growth (e.g. tax collection, enforcement of property rights), where there is often a gap between formal rules and informal practice. This also includes the implementation of more sweeping efforts to transform societies and economies, providing a level of organization, discipline, and direction that would otherwise be lacking. Strong parties have overturned class relations, ensuring that the state is not the handmaiden of traditional elites. They have developed infrastructure. They have penetrated remote countryside hamlets. They have served as agents of modernization, with all its attendant disruption and more than occasional cruelty. They often share a vision of state-supported development, but have been willing to abandon ideas and programs, switching course when needed (Levitsky 2003). Strong parties are thus a potent tool for modernizing underdeveloped societies, with party leaders providing central direction, activists performing the grunt work, and the state apparatus, sometimes in conjunction with para-military organizations, providing coercive mechanisms (Haggard 1998; Huntington 1968; Hutchcroft & Rocamora 2003; Kuhonta 2011; Pempel 1990; Slater 2010; Woo-Cummings 1999). Party-led modernization, in turn, may serve as a precursor to long-term growth (Murphy et al. 1989).

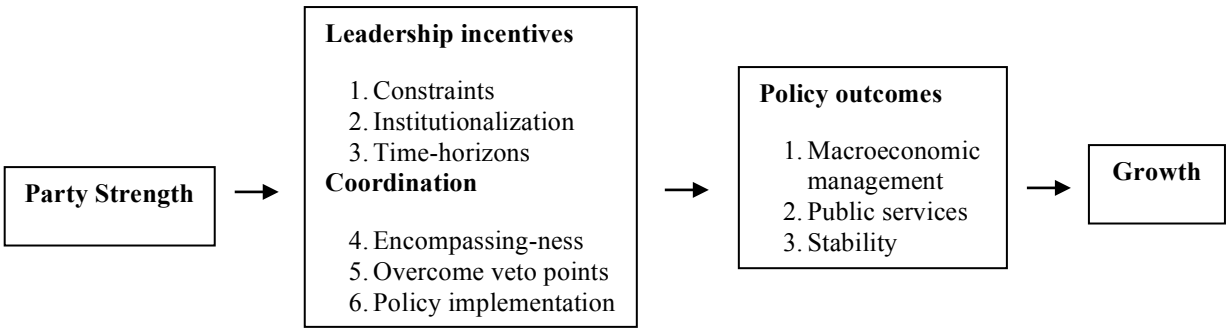
The foregoing features – constraints on leaders, institutionalization of power, elongated time-horizons, encompassing-ness, overcoming veto points, and effective policy implementation – should, in turn, enhance policy outcomes that are generally regarded as conducive to growth. First, party strength should mitigate predatory policies and economic mismanagement, e.g., when calibrating monetary and fiscal policies, thus promoting investment and limiting inflation. Second, party strength should provide productivity-enhancing public services such as

infrastructure, education, and health, with follow-on effects on economic productivity by virtue of lowering transaction costs and improving human capital (Mankiw et al. 1992). Third, party strength should ensure political stability by institutionalizing power – assuring peaceful leadership transitions, allowing for peaceful bargaining, and keeping order. More generally, party strength should guarantee a predictable policy environment, in which policy commitments are credible, which should encourage growth (Alesina et al. 1996; Rodrik 1991).

The disparate mechanisms of our explanatory sketch are summarized in Figure 1. This is evidently a multi-pronged theory and not one that can be reduced to a single explanatory framework. The literature on political parties, upon which our account is based, suggests that party strength initiates a variety of secondary factors, each of which is likely to have important consequences for economic performance. Our aim is to capture the most important elements of this complex, macro-level relationship.

Even so, our theoretical discussion presents a stylized view of the subject. There are, for example, many exceptions to the patterns sketched above. Strong parties do not always play heroic roles, as the disastrous Great Leap Forward campaign in China attests (Dikotter 2010) – though one might point out that this episode occurred during a period when a charismatic leader over-shadowed the party apparatus. In any case, on balance, and compared with the alternatives – *personalistic rule*, *group-based rule*, and *military rule* – the case for parties as vehicles of economic development seems plausible.

Figure 1: The Argument Summarized



II. Party Strength

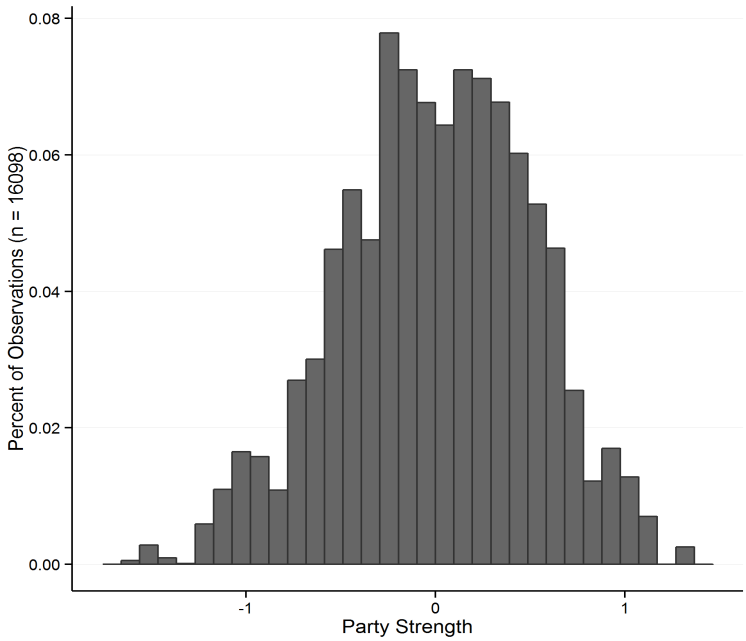
Party strength, as defined initially, refers to unity, centralization, organizational complexity, and a mass constituency. To operationalize this concept we employ six indicators from the V-Dem dataset. These measure the extent to which political parties within a polity are characterized by: (1) permanent national party organizations, (2) permanent local party branches, (3) centralized mechanisms of candidate selection, (4) legislative cohesion, (5) minimal party switching (where elected members of a party change their party affiliation in between elections), and (6) programmatic (rather than clientelistic) linkages to their social base. Indicators are aggregated through simple addition to form a Party Strength index, reflecting the expectation that each element of the index is partially substitutable.

Further detail on these indicators, and discussions of how they map onto the definitional attributes of the key concept, is contained in Appendix B. It bears emphasis that the empirical results shown in subsequent tables are robust to the omission of any of these indicators. Results are also robust to alternate aggregation rules for the index such as principal components analysis or multiplication (see Table B2).

Figure 2 presents a histogram of the Party Strength index for all 16,098 country-year observations in the dataset, revealing a distribution that approximates a normal curve. The index varies from -1.68 to 1.41, with median and mean values of 0.02 and 0.00, respectively, and a standard deviation of 0.53 (see Table A2). When observed over time across our global sample, this shows a slight long-term secular increase with sharp periodic variations – e.g., a strong increase right after World War II, and a small decline around 1990 (coinciding with the collapse of Communist one-party regimes in Eastern Europe and the introduction of multi-party politics in many African countries), as shown in Figure B1.

Cross-country variation at any given point in time is substantial. Some countries are characterized by strong parties (e.g., Sweden, Germany, the Netherlands, Spain, Belgium, Denmark, and Vietnam with the highest scores in 2011) and others by weak or no parties (e.g., PNG, Saudi Arabia, Haiti and Qatar, with the lowest scores in 2011). Point estimates for all countries in 2011 are listed in Table B1. Importantly, not all point estimates are clearly distinguishable, as signaled by the confidence intervals accompanying each score.

Figure 2: Histogram of Party Strength



Convergent validity tests, shown in Appendix C, indicate that our index is associated with other indicators often regarded as measures of party strength or institutionalization. For example, Party Strength is positively correlated with party *age* (average age of the three largest parties in the legislature) and *party system institutionalization* (a stable and socially rooted party system), and negatively correlated with party vote *volatility* (change in share of votes received from election to election), as shown in Table C3. In sub-sets of relatively autocratic countries, Party Strength is much higher in regimes categorized as Single-party, One-party, or Dominant Multi-party, than in regimes categorized by Geddes et al. (2014) or Hadenius & Teorell (2007) as Personalist, Military, or Monarchic (see Tables C1 and C2).

By contrast, the Party Strength index is only modestly associated with commonly used measures of good governance (e.g., the Worldwide Governance Indicators) and democracy (e.g., Polity2). To be sure, Party Strength is somewhat higher in democracies and in countries that exhibit higher degrees of rule of law and control of corruption (see Table C4). Yet, the modest correlations suggest that our index is not reducible to these ancillary concepts and probably enjoys some independence from these macro-level institutions (as conventionally measured).

III. Regional Analysis

To provide further validation of the index, and to preliminarily check some of our theoretical expectations, we begin our empirical foray by exploring a region of the world that exemplifies enormous variation in party development. By common understanding, "East and Southeast Asia" includes Burma/Myanmar, Cambodia, China, Indonesia, Japan, Laos, Malaysia, North and South Korea, the Philippines, Taiwan, Thailand, and Vietnam. We exclude micro-states (e.g., Hong Kong, Singapore) and countries generally classified as part of the Oceanic region (e.g., Australia, Papua New Guinea).

While some regions feature parties that are generally quite strong (e.g., Western Europe), and others feature parties that are generally quite weak (e.g., Africa), East/Southeast Asia illustrates extreme diversity. As such, this region provides an ideal setting for a most-similar style analysis, where variation in the causal factor of interest is maximized while variation on background conditions is minimized (Gerring 2007). Of course, being situated in the same geographic region does not entail that *ceteris paribus* conditions have been achieved. Nonetheless, it provides some *ex ante* plausibility for making cross-country comparisons given that countries in the same region are likely to share many cultural, geographic, and historical features.

The literature on the developmental trajectories of East and Southeast Asia has focused on explaining the rapid growth and development of the so-called high performing Asian economies. Chalmers Johnson (1982) initiated a tradition of work on the developmental state with his study of Japan, which was followed by studies of the four "tiger" economies (Taiwan, South Korea, Singapore, and Hong Kong),[2] and the "mini-tigers" (Indonesia, Malaysia, and Thailand).[3] A common theme in this literature is the importance of a strong state that can engage in long-term developmental planning, establish developmental priorities, mediate between competing interests, and coordinate tasks among various public and private stake-holders.

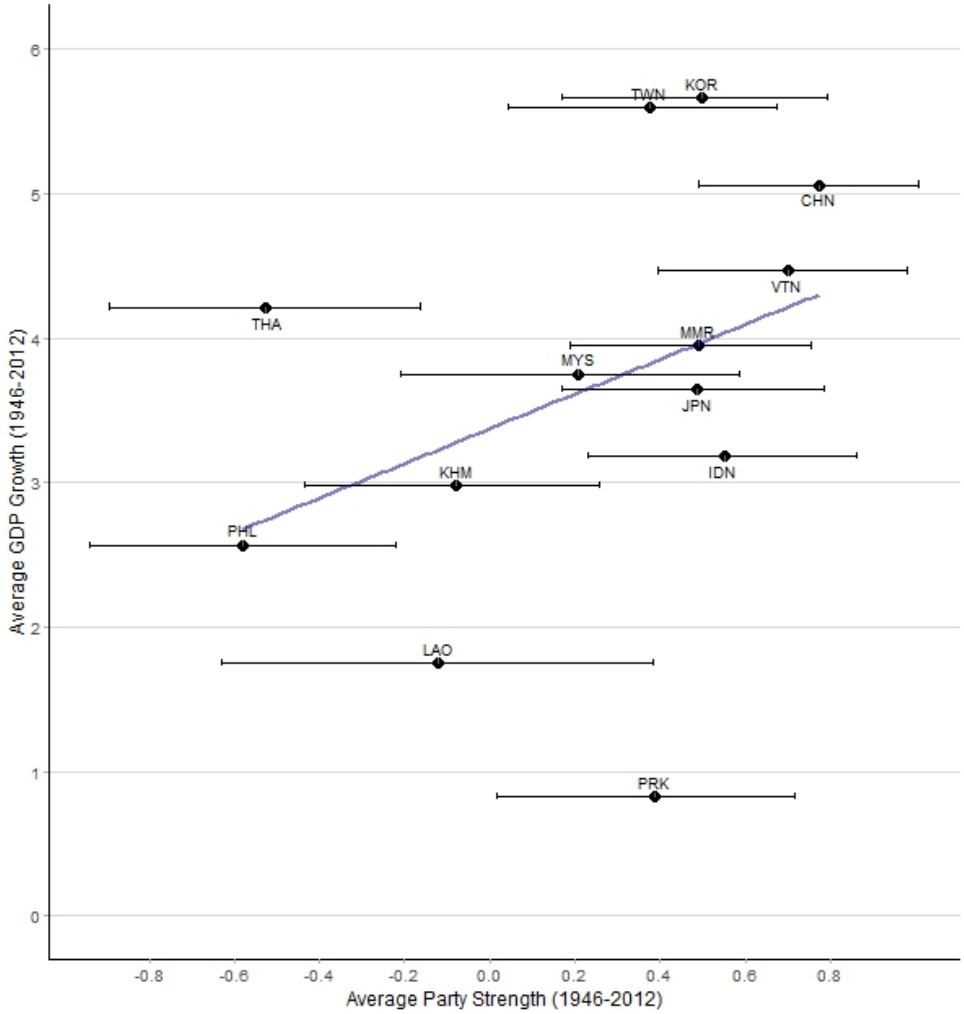
Most strong states were run by strong parties. With some exceptions, high performing Asian economies were governed by dominant parties that enjoyed long time-horizons, had the power to maneuver around potential veto points, could shield the bureaucracy from special interests, and could effectively oversee policy implementation.[4] While these tasks might still be carried out without a strong party (as the Thai case demonstrates), much of what scholars have attributed to strong states may well be a function of strong parties. Arguably, by focusing on *state*

[2] See Amsden 1989; Cheng 1990; Wade 1990; Haggard 1990; World Bank 1993; Rodrick 1995; Evans 1995; Campus and Root 1996; Woo-Cummings 1999.
[3] See Lim 1983; Bowie 1991; Doner 1991, 2009; McVey 1992; MacIntyre 1994.
[4] Again, there are important differences among states along each of these dimensions. See MacIntyre 1994 for example.

capacity the literature has neglected the *political* capacity embedded in political parties (Leftwich 1995, 2008).

This impression is bolstered when comparing Party Strength (as measured by our index) with growth rates over the postwar period, as shown in Figure 3.[5] Countries with strong growth trajectories (e.g., China, Vietnam, Taiwan, Japan and Malaysia) are generally characterized by stronger parties. The index is centered on zero so positive scores signal above-average score across the entire sample, which includes most sovereign and semi-sovereign countries globally, 1900-2012.

Figure 3: East & Southeast Asian Cases at a Glance



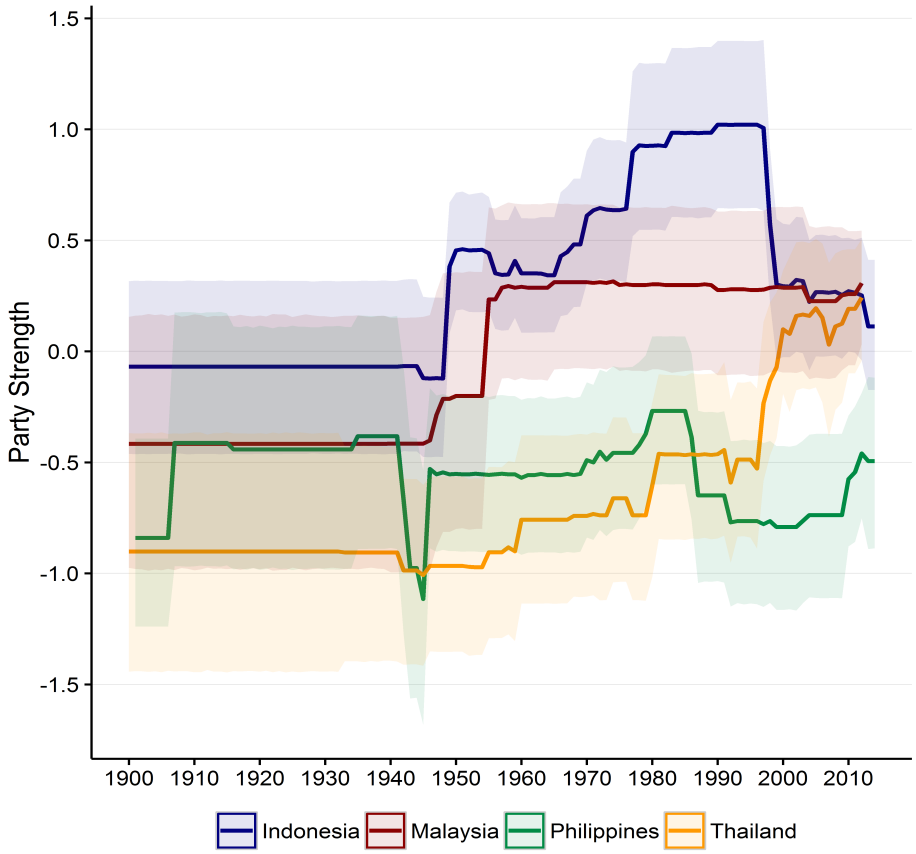
Party Strength and per capita GDP growth averaged across the 1946-2012 period. 70% High Posterior Density Intervals based on posterior distribution of point estimates (see Coppedge et al. 2015b). Best fit line resulting from a bivariate regression of the mean of per capita GDP growth (1946-2012) on the mean of Party Strength (1946-2012) for the following countries: MMR (Burma/Myanmar), KHM (Cambodia), CHN (China), IDN (Indonesia), JPN (Japan), LAO (Laos), MYS (Malaysia), PRK (North Korea), PHL (Philippines), KOR (South Korea), TWN (Taiwan), THA (Thailand), VTN (Vietnam).

[5] The slope of the best fit line in the graph is 1.20, remarkably similar to the coefficient (1.59) presented below in our baseline test (Table 1, Model 1).

Readers will be aware that the group of countries classified as members of the East and Southeast Asia region are heterogeneous along a number of dimensions that might be expected to affect party strength and economic development. Arguably, a more satisfactory most-similar analysis may be attained by focusing on a smaller group of countries that are more homogeneous on background characteristics. For this focused comparison, we choose Indonesia, Malaysia, Philippines, and Thailand. These four countries have long coastlines and are therefore exposed to international currents of trade, technology, and ideas. They have no history of communist control or of "total" colonial control exercised by Japan, often regarded as a modernizing force (Kohli 1994). Except for Thailand, which was never colonized, they transitioned to independence at about the same time. And, they had comparable socioeconomic characteristics at mid-century as measured by per capita GDP, education, and urbanization.

Figure 4 plots Party Strength for these cases over the past century. (This includes periods of colonial rule, as coded by V-Dem.) Several features of this comparison are notable. First, corresponding with the scholarly consensus, Thailand and the Philippines consistently register the lowest levels of party strength. In both countries, parties are generally described as ephemeral alliances of convenience, with little commitment to program or ideology and only tenuous connections to voters and societal groups (Brownlee 2008; Croissant & Volkel 2012; Hicken 2006a, 2006b, 2009; Hicken & Kuhonta 2014; Hutchroft & Rocamora 2003; Quimpo 2005; Ufen 2012). These stand in sharp contrast to Indonesia and Malaysia, where party strength has historically been much stronger (Kuhonta 2011).

Figure 4: Party Development in Selected Cases (1900-2013)



Party Strength through time for selected East and Southeast Asian cases, including pre-independence periods. 70% High Posterior Density intervals based on posterior distribution of point estimates (see Coppedge et al. 2015b).

The Party Strength index also appears to capture important changes to party systems over time, as described in the scholarly literature. For example, the time-series for Thailand shows a modest increase in party strength beginning in the late 1990s. This corresponds to changes to the Thai party system following the 1997 constitutional reforms and rise of Thaksin Shinawatra and the Thai Rak Thai party (Hicken 2006b, 2013). Malaysia displays an increase in party strength in the 1950s, reflecting the creation of three ethnically-based parties (UMNO, MCA and MIC) and their banding together to form the ruling Alliance—a pact that has formed the core of the ruling coalition ever since. Indonesia's score picks up during the period of turbulent party competition after the country's independence, which pitted secular nationalist, Communist, and Islamic parties against each other. It also captures the substantial increase in party strength accompanying the creation of Suharto's ruling GOLKAR party in the late 1960s. And, it registers the decline in strength and rootedness of parties corresponding to the return of democracy in 1998. The index, finally, shows a modest decline in party strength in Indonesia since 2005, which fits nicely with accounts highlighting the deinstitutionalization of Indonesia's party system, which accelerated after the switch to open-list PR in 2008 (Aspinall 2014).

Considering more closely the cases of Malaysian and the Philippines, Figure 4 shows a large gap in Party Strength for most of their history. Indeed, the differences between these two party systems could help account for the developmental disparity between the two countries. With its institutionalized and pragmatic parties, Malaysia was poised to "create organizational power that is necessary to drive through social reforms, provide capacity and continuity that sustain and protect a reform agenda, and maintain the ideological moderation that is crucial for balancing pro-poor measures with growth and stability" (Kuhonta 2011: 4). By contrast, the Philippines has featured parties distinguished by their lack of interest in programmatic policies and a striking lack of institutionalization. At the conclusion of WWII, the Philippines was one of the wealthiest countries in the region, behind only Japan and Malaysia. However, beginning in the 1970s and extending up until very recently, other countries soared ahead, leaving the Philippines as the perennial "sick man" of East/Southeast Asia. One oft-cited explanation centers on the role of political parties. Philippine parties "are characterized by factionalism, frequent party switching…and party labels that generally mean little to voters or candidates. As a result they…are not cohesive unitary actors pursuing unique policy agendas. Rather, they are temporary alliances of narrowly oriented politicians primarily concerned with distributing the spoils of government…to themselves and their supporters" (Hicken 2008: 223). Among the states of East/Southeast Asia, the Philippines stands out with the lowest level of party strength as measured by our index (see Figure 3). This, in turn, has contributed to a chronic undersupply of collective goods and comprehensive national policies, which by all accounts has stunted growth prospects (de Dios & Hutchcroft 2003; Hawes 1992; Hutchcroft & Rocamora 2003; Mackie & Villegas 1999).

A number of scholars link the persistent underperformance of the Philippine economy to weak parties. Indeed, few accounts of the country's development experience omit reference to the problem of anemic parties. Taken as a whole, the literature describes weak parties undermining growth through four mechanisms, which closely correspond to the argument outlined in Section I. First, weak parties are unable to transcend powerful economic interests that have long dominated Philippine politics (Hutchcroft 1998). As a result, public policy caters to the interests of narrow elites at the expense of broader interests (de Dios and Hutchcroft 2003). Second, weak parties, often the vehicles of powerful personalities, are unable to constrain party leaders, particularly presidents. Hence, Philippine policy has been dependent on the peculiar preferences and personalities of individuals, which, in turn, undermines the predictability and credibility of policy (Balisacan and Hill 2003; de Dios and Esfahani 2001; Hutchcroft 2000). Third, weak parties have meant that Philippine politicians operate with very short time horizons

(Lim and Pascual 2001), yielding chronic underinvestment or inefficient investment in public services, human capital and physical infrastructure. Finally, the failure of parties to adequately respond to broader societal interests has meant that pressures for reform often take "extra-parliamentary—and even extra-legal—forms..." (Hutchinson 2001: 57), resulting in periodic eruptions of political instability and a concomitant erosion of investor confidence.

In the following section, we show that the relationship between party strength and economic growth is not restricted to the East and South-East Asian context but rather reflects a general pattern found throughout the world.

IV. Main Tests

The empirical tests in this section and the following section include most sovereign countries, observed across the past century. We conduct numerous tests on the relationship between Party Strength and GDP per capita growth (obtained from Bolt & van Zanden 2014), employing different estimation techniques, specifications, samples, time lag specifications, and operationalizations of key concepts. It is worth signaling at the outset that the main result – Party Strength enhances economic growth – is robust to an extent that has few parallels in the literature on institutional determinants of growth.

We begin with a parsimonious specification, displayed in Model 1, Table 1. Here, growth is regressed on Party Strength in an ordinary least squares model along with year and country fixed effects, and GDP per capita (logged). The latter is intended to account for convergence effects (Barro & Sala-i-Martin 2004) and the possibility that parties may be stronger in richer countries. All right-side variables are lagged one period behind the outcome, and (robust) errors are clustered by country to correct for panel-specific autocorrelation. This benchmark model incorporates 10,141 observations from 153 countries observed annually from 1900 to 2012.

The estimated coefficient and standard error for Party Strength in Model 1 indicate a strong relationship with subsequent growth. Based on that model, Figure 5 plots the estimated impact of hypothetical changes in Party Strength, surrounded by 95% confidence intervals. Holding initial level of income constant, and controlling for country- and year-fixed effects, the point estimate suggests that a 1-point increase in the Party Strength index boosts GDP per capita growth in the subsequent year by about 1.5 percentage points. A 1-point difference in Party Strength is not far from the 0.72-point difference in 2011 Party Strength scores separating the cases of Malaysia (0.26) and the Philippines (-0.54), discussed above. Such a difference in party

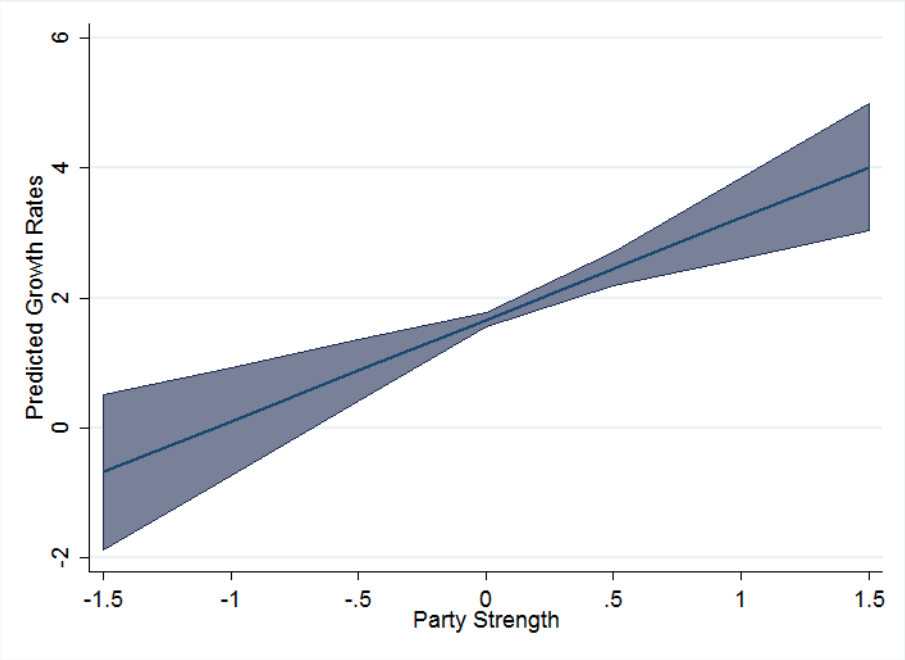
strength has substantial consequences for economic development over time. Model 1 suggests that if two otherwise equal countries start out today with the 2011 Party Strength scores of Malaysia and the Philippines, respectively, the former will grow to be twice as rich as the latter in about fifty years. Subsequent tests introduce variations in this benchmark model to assess the robustness of this finding.

Table 1: Main Tests

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Sample	Full	Full	Full	Full	Full	Full	Full	Full	Imputed	Full
Estimator	OLS	OLS, MoC	OLS	OLS	OLS	OLS	Sys. GMM	2SLS	OLS	OLS
Time-periods	1 year	1 year	5 years	1 year	1 year	1 year	5 years	1 year	1 year	1 year
Party strength	1.509***	1.245***	1.064***			1.308***	1.994***	1.252***	0.724**	
	(0.369)	(0.393)	(0.358)			(0.328)	(0.649)	(0.250)	(0.342)	
...L10				0.774**						
				(0.367)						
...stock					0.045***					
					(0.014)					
...II										1.070
										(0.901)
...III										1.131
										(0.950)
...IV										1.886*
										(0.976)
...V										1.908*
										(1.072)
GDPpc (ln)	-1.990***	-2.051***	-2.830***	-1.627***	-2.144 ***	-2.225***	-0.468	-2.053***	-2.889***	-1.906**
	(0.347)	(0.371)	(0.403)	(0.306)	(0.367)	(0.326)	(0.295)	(0.194)	(0.277)	(0.335)
Growth						0.176***	0.116*			
						(0.031)	(0.649)			
Growth, regional								0.330***		
								(0.028)		
Growth, global								-4.937***		
								(0.654)		
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓		✓	✓	✓
Countries	153	153	153	153	153	153	153	151	173	153
Years (Max)	110	110	21	100	110	109	21	109	114	110
Obs	10141	9835	1817	9427	10147	9985	1814	9846	16342	10147
R2 (within)	(0.112)	(0.108)	(0.208)	(0.103)	(0.107)	(0.137)		(0.128)+	(0.108)	(0.106)

Outcome: GDP per capita growth. Independent variables lagged by one time-period. *Sample:* Full (all available observations). *Imputed:* based on ten imputed datasets using Amelia (Honaker & King 2010; see Appendix G). *Estimator:* OLS (ordinary least squares), Sys GMM (system GMM [Blundell & Bond 1998]), 2SLS (two-stage least squares), MoC (Method of Composition, 900 draws) (Bizzarro et al. 2016). Standard errors clustered by country. *** p<.01 **p<.05 *p<.10. + Centered R-Squared. Model 1: benchmark.

Figure 5: Party Strength and predicted GDP per capita growth



Predicted growth rates, surrounded by 95% confidence intervals, as a function of Party Strength based on Model 1, Table 1, with other independent variables set at their means.

Model 2 replicates Model 1 with the incorporation of uncertainty estimates produced by the V-Dem measurement model for the Party Strength index. Note that measurement error, while it might be recognized in an informal fashion by those who study country-level phenomena, is rarely incorporated into an estimator. V-Dem is virtually unique among institutional measures insofar as it draws on multiple coders, whose ratings are combined with a Bayesian item response theory (IRT) measurement model to produce an estimate as well as a confidence interval (Appendix D; see also Pemstein et al. 2015). Using the method of composition (Melton et al. 2010; Bizzarro et al. 2016), we run our benchmark model on the 900 draws of the posterior distribution estimated for the Party Strength index (resulting from the aggregation of the posteriors of each indicator). The resulting coefficients and standard errors, it turns out, are very similar to those reported in Model 1, demonstrating that the association is robust even when accounting for measurement uncertainty in Party Strength.

Model 3 in Table 1 employs variables measured across 5-year intervals (rather than annually). Specifically, we generate a moving average of all variables and then run the benchmark model on every fifth year (1900, 1905,…). This reduces the amount of information available and blunts proximal relationships that may exist between Party Strength and growth. However, it also reduces noise from short-term business cycles, and models the relationship in a more distal fashion (a five-year lag replaces a one-year lag). While the point estimate for Party Strength is reduced, the relationship persists and remains statistically significant ($p<.01$).

In Model 4, we return to annualized data but now introduce a longer lag on the variable of theoretical interest. Party Strength is lagged ten years behind the outcome, while per capita GDP retains its usual one-year lag. This model accounts for the possibility that it might take considerable time for party characteristics to influence social and economic policies and for these policies to affect the behavior of economic actors. It could also reduce the possibility of spurious results (since we are separating right- and left-side variables by a longer interval). The estimated impact is somewhat weaker than in our benchmark model, indicating that the relationship weakens as inputs and outputs are separated in time. However, the coefficient remains positive and statistically significant ($p<.05$).

Another approach to functional form, reported in Model 5, considers a country's historical experience with Party Strength as the determinant of growth. Following Gerring et al. (2005), we generate a stock variable summarizing Party Strength scores over a country's observed time-series, with an annual discount rate of 1%. The estimated coefficient is positive and highly significant, suggesting that Party Strength may have both short-term and long-term effects. This result also offers further assurance that the relationship between Party Strength and growth is not the product of simultaneity, as the stock variable extends back to 1900 (or the first year in which Party Strength is observed for a country).

In Model 6, we include a lagged dependent variable as an additional regressor in the benchmark model. This dynamic model estimates how Party Strength at *t-1* affects changes in the economic growth rate from *t-1* to *t*. Point estimates and t-values are very close to our benchmark model.

In Model 7, we test more complex dynamic panel model known as system generalized method of moments, a version of GMM regarded as appropriate for studying sluggish variables such as Party Strength (Blundell & Bond 1998).[6] Initial tests using the benchmark specification revealed extremely large and highly significant coefficients for Party Strength. However, model diagnostics suggest that the overidentifying restrictions may not be valid with annualized data due to the large number of instruments. Here, we follow a standard approach for GMM models that incorporate long time series, i.e., re-coding annual data at five-year intervals (as in Model 3). This reduces the number of time series units and hence the number of instruments, and allows for valid identification (following the assumptions of the model). We allow two lags for

[6] The system GMM estimator includes level and differences regressions, and accounts for endogenous regressors by using lags of levels to instrument for differences and lags of differences to instrument for levels. Two lags (second and third) are used for instrumentation to mitigate the "too-many-instruments" problem (Roodman 2009), and Party Strength and lagged growth are modelled as endogenous. The Ar(2) test p-value is 0.06, and the Hansen J-test p-value is 0.60. We tested various other GMM models, for instance only considering Party Strength as endogenous, or altering the number of lagged dependent variables or lags used for instrumentation, and the coefficient on Party Strength is quite stable and robust.

instrumentation, producing 139 instruments. This is well below the number of cross-sectional units (153), often regarded as a rule-of-thumb threshold (Roodman 2009). The Hansen J-test p-value is 1, suggesting that Model 7 provides consistent estimates. Even when modelling Party Strength as endogenous, the GMM model estimates that the short-term effect of a one-point increase in Party Strength results in 1.99 percentage points additional growth (significant at 1 percent), and the long-term effect ($\beta_{\text{party strength}}/(1-\beta_{\text{lagged DV}})$ is about 2.25 percentage points.

In Model 8, we apply an instrumental-variable approach to causal identification. To instrument for Party Strength we adopt a technique developed for testing the effects of institutional features on economic performance (Acemoglu et al. 2014; Knutsen 2011b; Miller 2015; Persson & Tabellini 2003). This technique rests on the assumption that institutional forms are, in part, the product of diffusion (Weyland 2008). Insofar as we can measure pressures for diffusion by taking account the institutional forms adopted by a country's neighbors, and insofar as the institutional evolution of these neighbors has no direct impact on the outcome of interest (conditional on other factors in the causal model), we may regard such a factor as a valid instrument, satisfying the exclusion restriction.

Specifically, we construct a variable that measures average levels of Party Strength in a region (excluding the country in question) and another variable that measures average values of Party Strength globally (also excluding the country in question), with the expectation that these regional and global factors predict Party Strength in the country of interest. F-tests of these instruments in the first stage regression confirm that they are very strong predictors, explaining a substantial amount of variation in Party Strength (see Table E1). We also include as regressors two variables measuring average growth rates regionally and globally to mitigate the possibility that our diffusion instruments are correlated with economic performance, violating the exclusion restriction. The Sargan test of the exclusion restriction ($p=0.21$) suggests that the chosen instruments are valid. If so, the estimated coefficient for Party Strength in Model 8 – which is similar to our benchmark model – should provide a consistent estimate of the causal effect of Party Strength on growth. To test the stability of this result, we conduct a number of robustness tests, employing different sets of instruments and controls, as shown in Table E2. Results suggest that our specifications is not susceptible to arbitrary choices of instruments.

Another threat to inference is posed by sample bias, a product of the fact that data for key variables is not available for all countries. To mitigate this problem we employ the Amelia II multiple imputation algorithm (Honaker & King 2010), adapted to the cross-section time-series structure of our data (for more information see Appendix G). Ten imputed datasets are produced, encompassing 173 countries and a time-series extending from 1900-2014. Model 9

reports the coefficients for the benchmark model, averaged across these imputed datasets, and with standard errors that reflect variability across datasets. The effect of Party Strength on growth remains positive and significant ($p<.05$), although somewhat attenuated relative to the benchmark model.

To explore functional form we construct an ordinal measure of Party Strength consisting of dummies representing different levels of Party Strength. Dummies are constructed by dividing up the index – which stretches from -1.68 to 1.46 – into five equidistant units. These dummies (I-V) replace our continuous measure of Party Strength in Model 10, with the first level constituting the reference category. Only the upper categories are statistically significant, as one might expect (small increases in Party Strength relative to the baseline are not enough to generate an effect statistically distinguishable from zero). For our purposes, the salient result is that the coefficients increase monotonically from II to V, suggesting that our index captures the true functional form quite well. It also reassures us that the effect reported in the benchmark model is not driven by a few unusual cases.

V. Robustness Tests

In Table 2, we conduct a series of specification tests intended to probe the sensitivity of the Party Strength/growth relationship to potential confounders. Variables are defined in Table A1 and descriptive statistics are shown in Table A2.

Model 1 is a spare model, including only country and year dummies (excluding per capita GDP). Model 2 deals with temporal confounders by measuring one-period changes in the main independent variable and economic growth as the dependent variable – a first-difference model. Model 3 adds several time-varying covariates to the benchmark specification, including urbanization, life expectancy, petroleum production, intra-state armed conflict, and inter-state armed conflict. Model 4 adds a number of fixed covariates to the benchmark model including ethnic fractionalization, percent Muslim, percent Protestant, land area, legal origin (English, French, et al.), regime-type (following the typology from Geddes et al. 2014), and region dummies. These variables, which change little, or not at all, across the period of observation, replace country fixed effects in a random effects model. Coefficient estimates for Party Strength are stable across all of these tests and comparable in magnitude to the benchmark model.

The final specification tests of Table 2 (Models 5-6) focus on indices measuring the quality of political institutions. Model 5 includes several high-level indices drawn from the V-Dem dataset: Polyarchy (a composite measure of electoral democracy), Rule of Law, Judicial and

Legislative Constraints on the Executive, Corruption, State Ownership of Economy, and Core Civil Society. Model 6 includes a non-V-Dem measure of democracy: the Polity2 index from the Polity IV dataset, often regarded as a summary measure of the quality of institutions. Somewhat surprisingly, the estimated effect of Party Strength on growth is even stronger when these additional measures of governance are included. Equally surprising, the other institutional measures – with the exception of State Ownership of Economy – are not robust predictors of growth.

The inclusion of these indices also mitigates a potential threat to inference stemming from the foreknowledge that V-Dem coders have about the "left side" of our causal model. Specifically, country experts may be more inclined to assign a high score to a country along some institutional parameter during a period in which a country experiences high growth. If so, the relationship in our benchmark model could be spurious, a product of coding circularity. However, if coding circularity exists we would also expect it to affect other institutional variables coded by V-Dem or Polity raters. Moreover, we would expect it to manifest itself more strongly with institutional variables that are widely assumed to be associated with economic performance such as corruption. The fact that the main result holds even when controlling for these subjectively coded institutions alleviates concern about coding circularity.

Table 2: Specification Tests

	1	2	3	4	5	6
Estimator	OLS	OLS Diff	OLS	RE	OLS	OLS
Party Strength	1.211***	2.674***	1.229**	1.022***	1.979***	1.947***
	(0.333)	(1.011)	(0.490)	(0.318)	(0.419)	(0.239)
GDPpc (ln)		-1.762***	-2.543***	-0.627**	-2.376***	-0.754***
		(0.325)	(0.531)	(0.285)	(0.368)	(0.117)
Urbanization			-3.139			
			(2.762)			
Life expectancy			0.008			
			(0.035)			
Petroleum			0.001*			
			(0.000)			
Internal conflict			-1.298***			
			(0.313)			
External conflict			-0.451			
			(0.467)			
Ethnic fract				-0.752		
				(0.702)		
Latitude (ln)				-0.076		
				(0.168)		
Muslim				-0.001		
				(0.005)		
Protestant				-0.004		
				(0.010)		
Land area				0.000		
				(0.000)		
Polyarchy					-1.389	
					(1.125)	
Rule of Law					0.647	
					(1.396)	
Judicial Constraints					1.652	
					(1.234)	
Legislative Constraints					-1.128	
					(0.886)	
Corruption					0.137	
					(1.239)	
State Ownership of Economy					0.622***	
					(0.163)	
Core Civil Society					-0.669	
					(1.091)	
Polity2						-0.032**
						(0.013)
Legal origin (dummies)				✓		
Regime type, Geddes (dummies)				✓		
Region FE				✓		
Year FE	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓		✓	✓
Countries	153	153	106	136	152	148
Years (Max)	110	109	107	49	110	110
Obs	10142	10083	6817	5663	9420	8841
R2 (within)	(0.102)	(0.104)	(0.117)	(0.088)	(0.122)	(0.106)

Outcome: per capita GDP growth. *Unit of analysis:* country-year. *FE:* fixed effects. All right-side variables lagged by 1 year. *Estimator:* OLS (ordinary least squares), Diff (Difference in Differences), RE (random effects), standard errors clustered by country. *** p<.01 **p<.05 *p<.10.

Our theoretical argument about the role of political parties in conditioning growth performance is intended to apply across many contexts. To probe the scope-conditions of the theory, and to alleviate concerns about influential cases or time-periods, the benchmark model is replicated in a series of split-sample tests, shown in Table 3.

We begin by excluding specific regions of the world – sub-Saharan Africa, Asia and the Pacific, Eastern Europe and the Post-Soviet region, Latin America, the Middle East and North Africa. Models 1-5 demonstrate that the relationship between Party Strength and growth persists in all of these sub-sample tests. Moreover, the coefficient estimates vary within a fairly narrow range (from 1.1 to 1.8) around the estimate from our full sample as shown previously in Model 1, Table 1.

To understand more about the robustness of our findings, we divide the sample into Western countries (Western Europe, North America, Australia, New Zealand), and non-Western countries (the remainder), as shown in Models 6 and 7. Results suggest a somewhat stronger relationship between Party Strength and growth in the west – though estimated coefficient in the non-western sample (Model 7) is comparable to the benchmark model.

To test our supposition that the relationship of interest operates similarly across regime-types, we divide the sample into democracies (Model 8) and autocracies (Model 9), using the binary regime-type index constructed by Boix, Miller & Rosato (2013). The coefficients for Party Strength in both models are comparable, and the t-statistics are large, supporting our claim that the impact of Party Strength on growth is orthogonal to regime-type. Strikingly, the coefficients for Party Strength – as well as for per capita GDP – in both models are considerably higher than in our benchmark model (the standard errors are also larger, presumably a product of reduced sample size).

To check for variation through time, we run the benchmark model across a global sample extending from 1900 to 1969 (Model 10) and 1970 to 2012 (Model 11). Again, we find remarkable consistency. Experimenting with different cut-offs, we find that the point estimate is typically somewhat higher for earlier periods but is more precisely estimated for the later periods (due, presumably, to the larger sample). The relationship between Party Strength and growth does not seem to be subject to strong period effects across the twentieth century.

Table 3: Split-Sample Tests

	1	2	3	4	5	6	7	8	9	10	11
Sample	minus sub-Saharan Africa	minus Asia-Pacific	minus Former Soviet	minus Latin America	minus MENA	Western	non-Western	Democracies	Autocracies	1900□ 1969	1970□ 2012
Party Strength	1.870***	1.406***	1.138***	1.623***	1.461***	2.705**	1.591***	3.307***	2.241***	1.591**	1.188*
	(0.484)	(0.442)	(0.337)	(0.425)	(0.374)	(0.990)	(0.388)	(1.041)	(0.662)	(0.719)	(0.702)
GDPpc (ln)	-2.523***	-2.785***	-1.538***	-1.890***	-1.871***	-5.606***	-1.743***	-5.882***	-2.262***	-5.659***	-3.750***
	(0.476)	(0.390)	(0.300)	(0.383)	(0.386)	(1.443)	(0.371)	(0.822)	(0.629)	(1.149)	(0.629)
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Countries	107	133	125	131	138	20	131	102	123	130	152
Years (Max)	110	110	110	110	110	110	110	107	100	70	40
Obs	7442	8653	9128	8287	9259	2149	7936	3573	4901	4654	5487
R2 (within)	(0.134)	(0.129)	(0.091)	(0.119)	(0.117)	(0.242)	(0.109)	(0.207)	(0.123)	(0.132)	(0.113)

Outcome: per capita GDP growth. *Unit of analysis:* country-year. All right-side variables lagged by 1 year. *FE:* fixed effects. *Estimator:* ordinary least squares, standard errors clustered by country. *** p<.01 **p<.05 *p<.10

VI. Growth Stability

In gauging the impact of economic growth on human welfare one must be concerned not only with average rates but also with stability. A steady growth rate is to be preferred over an irregular one, and severe swings in economic performance usually has negative consequences (Rodrik 2007).

Our theory suggests that strong parties should foster stable economic performance. In Table 4, we provide three tests of this hypothesis. First, we examine whether Party Strength reduces the likelihood of economic crisis, understood as an episode of negative per capita GDP growth (re-coded as a dummy variable). Second, we examine whether Party Strength enhances the likelihood of periods of sustained growth, understood as five years of consecutive growth. Finally, we examine whether Party Strength reduces growth volatility, understood as the standard deviation of growth performance across a 10-year period.

Results, shown in Models 1-3 of Table 4, corroborate our hypothesis. Party Strength is associated not only with higher growth (as shown in previous tables) but also with more stable economic performance. Elaborations of these tests are located in Appendix F, where readers will find a more detailed discussion of the chosen measures and estimators. There, we also present robustness tests using alternate measures of economic stability and alternate estimators (including OLS models).

Table 4: Growth Stability

	1	2	3
Outcome	**Growth crisis**	**Sustained growth**	**Growth volatility**
Measure	(Growth<0)	(Growth>0, 5 years)	(Growth SD, 10 years)
Estimator	Logit	Logit	PCSE
Party Strength	-0.446***	0.658***	-0.553***
	(0.150)	(0.223)	(0.153)
GDPpc (ln)	0.221**	-0.718***	-0.043
	(0.106)	(0.223)	(0.158)
Year FE	✓	✓	✓
Country FE	✓	✓	
Countries	152	152	153
Years (Max)	110	106	101
Obs	10127	9255	8579
Pseudo-R2	(0.139)	(0.216)	(0.181)

Growth crisis: coded 1 if growth is negative. *Sustained growth:* coded 1 if growth is positive in five-year moving window. *Growth volatility:* standard deviation of growth across a 10-year moving window. *Units of analysis:* country-year. Independent variables lagged by one time-period. *FE:* fixed effects. *Estimator:* Logit (logistic regression), PCSE (ordinary least squares with standard errors corrected for panel-specific heteroscedasticity and panel-specific AR(1) autocorrelation), standard errors clustered by country. *** p<.01 **p<.05 *p<.10

VII. Causal Mechanisms

Our final empirical task is to interrogate causal mechanisms. In our theoretical discussion we speculated that party strength affects growth by enhancing (a) macroeconomic management, (b) public services, and (c) political stability. In this section, we provide some suggestive evidence for these channels, focusing on factors that are measurable, and hence testable.

Before beginning, it is important to acknowledge the challenges to causal inference that confront any attempt to estimate the role of causal mechanisms (Gerring 2010; Imai et al. 2010, 2011). These challenges are magnified in a nonexperimental context where the presence of multiple potential mediators – not all of which are measurable – must be reckoned with. Mediation tests constitute the best available method for investigating causal mechanisms in a cross-country context, i.e., with data that lies at the same level of analysis as our treatment and outcome of interest. However, we regard these tests as suggestive rather than conclusive, in the spirit of most work on causal mechanisms.

In the following analyses, the quality of macroeconomic management is proxied by domestic investment and inflation (logged), the quality of public services by the infant mortality rate (logged), and overall stability by measures of internal conflict and irregular leadership exits. Definitions of these variables, and their sources, are contained in Table A1. We employ policy outcomes, rather than direct measures of policy effort, because the former are generally easier to measure and less liable to systematic bias. Note that by including per capita GDP as a covariate in these models we are handicapping countries by their available resources and their overall level of modernization.

Temporal and geographical coverage for some of the specified mediators is, unfortunately, quite limited. To mitigate selection bias and obtain comparable samples across the mediation tests, we use the 10 imputed datasets generated for Model 9, Table 1, for the following analyses. Here, we exclude country-years without observations in the original dataset for either Party Strength or per capita GDP growth in order to minimize noise introduced by the imputation procedures (it is, for example, difficult to precisely predict growth in many Asian and African colonies around 1900, several decades before the first GDP data are recorded in the Maddison project dataset).

We perform two types of mediation analysis. First, single mediator analyses are conducted with the package developed by Tingley et al. (2014), widely regarded as the state-of-the-art procedure for causal mechanism analysis in the potential outcomes framework (Blackwell 2013). Specifications follow the benchmark model, including per capita GDP (logged) and

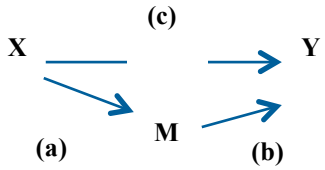
country and year fixed effects. We run the single mediator analysis on each of the 10 datasets and aggregate the results using Rubin's (1987) rules for multiple regressions. Baseline results are presented in Table 5. Table H1 in Appendix H includes results for similar analyses using *non*-imputed data, which track the results in Table 5 fairly closely.

Results displayed in these tables provide some support for our hypotheses. Specifically, the estimates provided in Table 5 suggest an indirect effect of party strength on growth via lowered infant mortality, which accounts for nearly nine percent of the total effect (p<.10). Likewise, there appears to be an indirect effect registered through a reduced probability of internal armed conflict (p<.10). Additionally, there may be an indirect effect via decreased likelihood of irregular leader exit – which, if true, may account for roughly seven percent of the total effect, although it falls short of conventional levels of significance (p<.15). Thus, we are able to corroborate hypotheses pertaining to the mediating role of public services and political stability. In contrast, the evidence does not corroborate the thesis that party strength increases growth via improved macroeconomic management, even though point estimates are in the expected direction for both investment and inflation.

Table 5: Summary of Mediation Analyses (Single Mediator tests)

Direct Effect	**Mediator (M)**	**Indirect Effect**	**Total Effect**	**Proportion**
(c)	***(policy outcome)***	**(a)(b)**	**(a)(b) + (c)**	**mediated**
1.146**	Investment	0.064	1.210**	5.3
(0.497)	*(Macroeconomic management)*	(0.069)	(0.486)	
1.208**	Inflation (logged)	0.004	1.213**	0.3
(0.490)	*(Macroeconomic management)*	(0.025)	(0.486)	
1.103**	Infant Mortality (logged)	0.103*	1.206**	8.5
(0.479)	*(Public goods)*	(0.053)	(0.477)	
1.155**	Internal Conflict	0.054*	1.210**	4.5
(0.486)	*(Stability)*	(0.030)	(0.481)	
1.127**	Irregular Exit	0.080	1.208**	6.6
(0.497)	*(Stability)*	(0.057)	0.481	

Y: outcome, i.e., per capita GDP growth. *X:* independent variable of theoretical interest, i.e., Party Strength. *M*: possible mechanisms, i.e., indicators of macroeconomic management, public goods, and stability. *Specification:* Model 1, Table 1. Estimator: Multilevel OLS and Logit using the lme4 package for R (Bates et al. 2015). Mediation effects estimated with the "Mediation" package for R (Tingley et al. 2014). *Simulations:* 1000. *Units of analysis:* country-year. *Countries:* 153. *Years:* 110. *Observations:* 9947. *Time periods*: Party Strength measured in t, mediators measured at t+1, and GDP per capita measured at t+2. Standard errors clustered by country. *** p<.01 **p<.05 *p<.10



Single-mediator models are subject to bias stemming from omitted mediators. To check for confounding, we also run simultaneous regressions within a structural equation framework (Baron & Kenny 1986; Kline 2015), including all five mediators from Table 5. Table H2, in Appendix H, presents results from one such specification[7] Reassuringly, these results point in the same direction as those shown in Table 5. The point estimates suggest substantial positive indirect effects running via infant mortality (our proxy for public services) as well as via internal conflict and irregular leader exits (both understood as proxies for instability). The indirect effect for infant mortality is statistically significant at the 10% level, though indirect effects via instability fall short of statistical significance (p<.12-.17). As with the single-mediator models, we find much weaker evidence for indirect effects running through inflation and investment (proxies for public services).

In sum, observable proxies of policy outcomes related to public services provision and political stability seem to account for some of the effect of Party Strength on growth, offering support for two of the hypotheses about the causal mechanisms at work in our theory. To reiterate, we regard these results as tentative rather than definitive. Alternative mediators and model specifications might produce more informative results about the mechanisms by which Party Strength affects economic growth.

[7] More specifically, we run six simultaneous regressions once again following our benchmark model (controlling for logged per capita GDP and country and year fixed effects, with robust errors clustered by country). The first five regress the mediator at t+1 on Party Strength at t. The sixth has growth at t + 2 as dependent variable and the five mediators (investment, inflation (logged), infant mortality rate (logged), internal conflict and irregular leadership exits) at t + 1, as well as Party Strength at t, as independent. We thereafter use multiplication to estimate indirect effects.

Conclusion

In this study, we argue that strong parties play a critical role in fostering economic development. Our theoretical argument highlights how parties broaden the constituencies to which policy makers respond and help politicians to solve coordination problems. These features ensure that politicians engage in better economic management, have incentives to provide productivity enhancing public services, and help ensure political (and thus policy) stability. This, in turn, should enhance economic growth.

Drawing on a novel measure of party strength from the Varieties of Democracy dataset, we test this theory on data from 150 countries observed annually across the 20th and 21st centuries. We identify a sizeable and highly significant causal effect which is robust to a variety of specifications, estimators, and samples. The effect is robust in both democracies and autocracies and is fairly stable across various regions of the world and across time periods. We also provide suggestive evidence about causal mechanisms, especially public goods and political stability.

This paper contributes to two large literatures, focused respectively on features of political parties and on the institutional determinants of growth. While previous studies have highlighted the role of parties in improving the quality of governance such claims are usually limited in context – to democratic or authoritarian settings – and generally do not pertain to distal outcomes such as per capita GDP growth. Studies of economic development, while focused explicitly on growth, generally identify other long-run causal factors such as geography, property rights, political constraints, colonial origins, inequality, social capital, or human capital. In these respects, the present study is novel.

With respect to work in the new institutionalist vein it should be pointed out that our argument – that "parties matter" for growth – does not impugn the role of the state, as measured by formal, legal, and constitutional factors such as federalism, separate powers, the judiciary, the bureaucracy, rule of law, and democracy. Nonetheless, our analyses suggest that the character of political parties may be a better predictor of subsequent economic performance than these other factors (whether measured by indices drawn from the V-Dem project or by other datasets). This may reflect our inability to properly measure various features of the state. But it may also signal the relative importance of non-constitutional institutions vis-à-vis constitutional institutions in structuring long-run development. This echoes an intellectual turn initiated over a century ago by the founders of American political science, who shifted their attention from formal-legal institutions to other venues – foremost among them, political parties (Bryce 1888; Ostrogorski 1902; Wilson 1908).

Although the evidence for a party-strength/growth connection is strong, several ancillary questions bear further study. First, we need to know more about the causes of party strength. Why do strong parties develop in some countries and not in others? Second, our preliminary analysis of causal mechanisms might be extended and tested in greater depth with better measures of intermediary factors. Third, we need to know more about the possible impact of party strength on other domestic policies (e.g., social policies) and on international policies (e.g., peace/war). If party strength affects growth by changing the incentives of leaders and easing coordination problems it stands to reason this same institutional factor might matter for other outcomes of interest to scholars and policymakers. We regard these areas a fruitful grounds for future research.

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Appendix A: Data

Table A1: Variable Definitions

Components of the Party Strength Index

Party organizations (v2psorgs) How many political parties for national-level office have permanent organizations? A permanent organization connotes a substantial number of personnel who are responsible for carrying out party activities outside of the election season. Responses: (0) No parties. (1) Fewer than half of the parties. (2) About half of the parties. (3) More than half of the parties. (4) All parties. *Source:* V-Dem (Coppedge et al. 2015a).

Party branches (v2psprbrch) How many parties have permanent local party branches? Responses: (0) None. (1) Fewer than half. (2) About half. (3) More than half. (4) All. *Source:* V-Dem (Coppedge et al. 2015a).

Legislative party cohesion (v2pscohesv) Is it normal for members of the legislature to vote with other members of their party on important bills? Responses: (0) Not really. Many members are elected as independents and party discipline is very weak. (1) More often than not. Members are more likely to vote with their parties than against them, but defections are common. (2) Mostly. Members vote with their parties most of the time. (3) Yes, absolutely. Members vote with their parties almost all the time. *Source:* V-Dem (Coppedge et al. 2015a).

Party linkages (v2psprlnks) Among the major parties, what is the main or most common form of linkage to their constituents? A party-constituent linkage refers to the sort of "good" that the party offers in exchange for political support and participation in party activities. Responses: (0) Clientelistic. Constituents are rewarded with goods, cash, and/or jobs. (1) Mixed clientelistic and local collective. (2) Local collective. Constituents are rewarded with local collective goods, e.g., wells, toilets, markets, roads, bridges, and local development. (3) Mixed local collective and policy/programmatic. (4) Policy/programmatic. Constituents respond to a party's positions on national policies, general party programs, and visions for society. *Source:* V-Dem (Coppedge et al. 2015a).

Candidate selection—national/local (v2pscnslnl_neg) How centralized is legislative candidate selection within the parties? The power to select candidates for national legislative elections is often divided between local/municipal party actors, regional/state-level party organizations, and national party leaders. One level usually dominates the selection process, while sometimes candidate selection is the outcome of bargaining between the different levels of party organization. Responses: (0) National legislative candidates are selected exclusively by national party leaders. (1) National legislative candidate selection is dominated by national party leaders but with some limited influence from local or state level organizations. (2) National legislative candidates are chosen through bargaining across different levels of party organization. (3) National legislative candidates are chosen by regional or state-level organizations, perhaps with some input from local party organizations or constituency groups. (4) National legislative candidates are chosen by a small cadre of local or municipal level actors. (5) National legislative candidates are chosen by constituency groups or direct primaries. Scale reversed. *Source:* V-Dem (Coppedge et al. 2015a).

Party switching (v2psswitch_neg) Roughly what percentage (%) of the members of the national legislature changes or abandons their party in between elections? Does not include official party splits (when one party divides into two or more parties) or dissolutions (when a party formally dissolves). Scale reversed. *Source:* V-Dem (Coppedge et al. 2015a).

Other variables

Core Civil Society (v2xcs_ccsi). Provides «a measure of a robust civil society, understood as one that enjoys autonomy from the state and in which citizens freely and actively pursue their political and civic goals, however conceived.» (Coppedge et al. 2015). The index is formed by taking the point estimates from a Bayesian factor analysis model of the indicators for CSO entry and exit (v2cseeorgs), CSO repression (v2csreprss) and CSO participatory environment (v2csprtcpt). For additional information see Bernhard et al. (2015). *Source*: V-Dem (Coppedge et al. 2015a).

Political corruption index (v2x_corr). Comprised of six measures of corruption that cover different areas and levels of a polity. The index taps into both 'petty' and 'grand' corruption; bribery and theft; corruption aimed at law making and at implementation. Calculated as the average of (a) public sector corruption index (v2x_pubcorr); (b) executive corruption index (v2x_execorr); (c) legislative corruption (v2lgcrrpt); and (d) judicial corruption

(v2jucorrdc). *Source*: V-Dem (Coppedge et al. 2015a).

Democracy, Boix (e_boix_regime). Dichotomous democracy measure based on contestation and participation. Countries coded democratic have (1) political leaders that are chosen through free and fair elections and (2) a minimal level of suffrage. *Source:* Boix et al. (2013).

Democracy, Polity2 (polity2). A weighted additive aggregation procedure across five sub-components: competitiveness and openness of executive recruitment, competitiveness and regulation of political participation, and constraints on the chief executive. *Source:* Polity IV database (Marshall, Gurr & Jaggers 2014).

Ethnic fractionalization (al_ethnic). The probability that two randomly chosen individuals within a society are members of different ethnic groups, calculated with the Herfindahl index. *Source:* Alesina et al (2003).

GDPpc, ln (e_migdppc_ln). Gross domestic product per capita, transformed by the natural logarithm. *Source:* Maddison Project (Bolt & van Zanden 2014).

Infant mortality rate, ln (e_peinfmor). Number of deaths prior to age 1 per 1000 live births in a year, transformed by the natural logarithm. *Sources:* Gapminder (gapminder.org), with additional data imputed from Clio-Infra (clio-infra.eu).

Inflation (e_miinflat). Annual inflation rate, missing data within a time-series interpolated with a linear model, transformed by the natural logarithm (after first converting negative values to positive values). *Source:* Clio Infra (clio-infra.eu).

Internal conflict (e_miinterc). Coded 1 if the country suffered in an internal armed conflict in a given year, 0 otherwise. The original source codebook (Brecke 2001) states that no war is coded as 0 and war is coded as 1. However, the data contains only 1's along with missing data (no 0's). Following the authors' instructions (personal communication), we re-code missing observations as non-conflict (0) for countries where at least one year in the original times series (which runs from 1500 until present) was coded as 1. *Sources:* Clio Infra (clio-infra.eu), drawing on Brecke (2001), compiled by V-Dem (Coppedge et al. 2015a).

Investment (pwt_isg1). Share of investment as a percentage of GDP. *Source:* Penn World Tables (Heston, Summers & Aten 2012).

Irregular Exit (exit_1_irregular1). Coded 1 if head of state ("leader") died of natural causes while in power, retired due to ill health, lost office as a result of suicide, lost power through irregular means, or was deposed by another state. *Source:* Archigos (Goemans et al. 2009).

GDPpc growth (e_migdpgro). Annual growth rate of GDP per capita. *Source:* Maddison Project (Bolt & van Zanden 2014).

Judicial Constraints (v2x_jucon). The index is formed by taking the point estimates from a Bayesian factor analysis model of the indicators for executive respects constitution (v2exrescon), compliance with judiciary (v2jucomp), compliance with high court (v2juhccomp), high court independence (v2juhcind), and lower court independence (v2juncind). *Source:* V-Dem (Coppedge et al. 2015a).

Land area (wdi_area). Land area, square kilometers. *Source:* World Development Indicators (World Bank 2013).

Latitude, ln (lp_lat_abst_ln). The absolute value of the latitude of the capital city, divided by 90 (so as to take values between 0 and 1), transformed by the natural logarithm. *Source:* La Porta et al. (1999).

Legal origin (lp_legor). The legal origin of the Company Law or Commercial code of each country, classified as (1) English Common Law, (2) French Commercial Code, (3) Socialist/Communist Laws, (4) German Commercial Code, (5) Scandinavian Commercial Code. *Source:* La Porta et al. (1999).

Legislative Constraints (v2xlg_legcon). The index is formed by taking the point estimates from a Bayesian factor analysis model of the indicators for legislature questions officials in practice (v2lgqstexp), executive oversight (v2lgotovst), legislature investigates in practice (v2lginvstp), and legislature opposition parties (v2lgoppart). *Source:* V-Dem (Coppedge et al. 2015a).

Life expectancy (e_pelifeex). Expected longevity at birth based on current age-specific mortality rates. *Sources:* Gapminder (gapminder.org), with additional data imputed from Clio Infra (clio-infra.eu).

Muslim (lp_muslim80). Muslims as percentage of population in 1980. *Source:* La Porta et al. (1999).

Party age (partyage). Average age of three largest parties in the lower (or unicameral) chamber of the national legislature. *Source:* Authors.

Party linkage index (bti_q5). The extent to which there is a stable and socially rooted party system, able to

articulate and aggregate societal interests. This includes a consideration of the extent to which parties are socially rooted and organizationally institutionalized, the degree of clientelism and the effects it has in promoting or inhibiting stability, the fragmentation of the party system, the level of polarization, and the degree of voter volatility (Bertelsmann Transformation Index 2014).

Party vote volatility (total_EV_vote). Change in share of votes received by each party from election to election according to the Pedersen (1979) index. *Source:* Authors.

Petroleum (e_mipetrol). Real value of petroleum produced per capita. *Source:* Haber & Menaldo (2011).

Political Corruption (v2x_corr). The index is arrived at by taking the average of (a) public sector corruption index (v2x_pubcorr); (b) executive corruption index (v2x_execorr); (c) the indicator for legislative corruption (v2lgcrrpt); and (d) the indicator for judicial corruption (v2jucorrdc). For additional information see McMann, Kelly et al. (2015).

Polyarchy (v2x_polyarchy). The index is formed by taking the average of, on the one hand, the sum of the indices measuring freedom of association (thick) (v2x_frassoc_thick), suffrage (v2x_suffr), clean elections (v2xel_frefair), elected executive (de jure) (v2x_accex) and freedom of expression (v2x_freexp_thick); and, on the other, the five-way interaction between those indices. Source: V-Dem (Coppedge et al. 2015a).

Protestant (lp_protmg80). Protestants as percentage of population in 1980. *Source:* La Porta et al. (1999).

Public administration (PublicAdmin_JG). The first component derived from a principal components analysis of five variables designed to measure the effectiveness of public administration: respect for the constitution by members of the executive (v2exrescon), extent to which public officials are rigorous and impartial in the performance of their duties (v2clrspct), extent to which the laws of the land are clear, well-publicized, coherent (consistent with each other), relatively stable from year to year, and enforced in a predictable manner (v2cltrnslw), the extent to which men can bring cases before the courts without risk to their personal safety, trials are fair, and men have effective ability to seek redress if public authorities violate their rights, including the rights to counsel, defense, and appeal (v2clacjstm), and the extent to which women can bring cases before the courts without risk to their personal safety, trials are fair, and women have effective ability to seek redress if public authorities violate their rights, including the rights to counsel, defense, and appeal (v2clacjstw). Constructed by the authors. *Source:* V-Dem (Coppedge et al. 2015a).

Regime type (Geddes) (gwf_regimetype_num). Classification of autocratic regimes into ten categories. *Source:* Geddes, Wright & Frantz (2014).

Regime type (Hadenius, Teorell) (ht_regtype). Classification of regimes into eighteen categories. *Source:* Hadenius & Teorell (2007).

Rule of Law (v2xcl_rol). The index is formed by taking the point estimates from a Bayesian factor analysis model of the indicators for rigorous and impartial public administration (v2clrspct), transparent laws with predictable enforcement (v2cltrnslw), access to justice for men/women (v2clacjstm, v2clacjstw), property rights for men/women (v2clprptym,
v2clprptyw), freedom from torture (v2cltort), freedom from political killings (v2clkill), from forced labor for men/women (v2clslavem v2clslavef), freedom of religion (v2clrelig), freedom of foreign movement (v2clfmove), and freedom of domestic
movement for men/women (v2cldmovem, v2cldmovew). *Source*: V-Dem (Coppedge et al. 2015)

State ownership of economy (v2clstown). This question gauges the degree to which the state owns and controls capital (including land) in the industrial, agricultural, and service sectors. Reverse scale (high values=less state ownership). *Source*: V-Dem (Coppedge et al. 2015a).

Urbanization (e_miurbani). Ratio of urban population to total population. *Source:* V-Dem (Coppedge et al. 2015), constructed from data from CLIO Infra (clio-infra.eu).

Table A2: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Party Strength	16229	0.00	0.53	-1.68	1.42
Party Strength (Stock)	16218	62.09	39.55	0.01	191.24
Party Strength (Ordinal)	16229	2.17	0.90	0	4
Party Strength (PCA)	16229	0.00	1.00	-2.47	2.45
Party Strength (Multiplicative)	16229	0.00	1.00	-0.79	6.83
Party System Institutionalization	16290	0.45	0.32	0.01	0.99
Party organizations	16408	0.01	1.65	-3.26	3.28
Party branches	16415	-0.05	1.61	-3.09	3.56
Candidate selection (national)	16281	-0.36	1.37	-2.71	4.21
Legislative cohesion	16245	0.24	1.44	-4.20	2.49
Party switching	16252	8.95	9.28	0	58.75
Party linkages	16292	0.06	1.39	-3.13	3.20
GDP growth	10694	1.93	6.45	-61.49	86.95
GDP per capita (logged)	10907	7.84	1.04	5.32	10.67
Regional GDP Growth (mean)	10491	1.92	2.81	-26.36	20.88
Global GDP Growth (mean)	10694	1.93	1.92	-5.52	7.95
Urbanization	20764	0.35	0.25	0.01	1.00
Life expectancy	16610	55.43	14.80	11.60	83.91
Petroleum	10752	469.87	3087.01	0.00	78588.80
External Conflict	12932	0.10	0.30	0	1
Internal Conflict	16612	0.08	0.26	0	1
Ethnic Fractionalization	9416	0.44	0.26	0.00	0.93
Latitude (ln)	9810	-1.57	0.93	-4.50	-0.33
Muslim	9863	21.33	34.92	0	99.9
Protestant	9863	13.26	21.72	0	97.8
Land area	7904	716523	1755591	2	16389950
Legal Origin	9863	2.01	0.98	1	5
Geddes et al. Regimes	7952	4.83	3.83	1	11
Hadenius and Teorell Regimes	6587	44.36	45.90	1	100
Boix et al. Regimes	10577	0.36	0.48	0	1
Polyarchy (V-Dem)	15828	0.34	0.28	0.01	0.96
Rule of Law (V-Dem)	16491	0.49	0.31	0.00	0.99
Judicial Constraints (V-Dem)	16313	0.52	0.29	0.01	0.99
Legislative Constraints (V-Dem)	13201	0.47	0.30	0.02	0.99
Corruption (V-Dem)	16380	0.44	0.26	0.01	0.94
State Own. of the Economy (V-Dem)	16491	0.12	1.40	-3.88	3.36
Core Civil Society Index (V-Dem)	16511	0.47	0.31	0.01	0.98
Polity Score	11796	0.46	7.31	-10	10
Average Party Age	5736	30.45	26.44	1.50	153.55
Electoral Volatility	719	28.92	28.30	0	100
Party linkages index (BTI)	629	4.79	2.31	1	10
Control of Corruption	2437	-0.06	1.00	-2.06	2.59
Government Effectiveness	2437	-0.06	1.00	-2.45	2.41
Political Stability	2452	-0.06	1.00	-3.32	1.67
Rule of Law	2492	-0.07	0.99	-2.67	2.00
Regulatory Quality	2438	-0.07	0.99	-2.68	2.25
Voice and Accountability	2492	-0.05	1.01	-2.28	1.83

Appendix B: Measuring Party Strength

The Party Strength Index

We defined strong parties along four dimensions – unity, centralization, organizational complexity, and a mass constituency. Chosen indicators, listed in Table A1, are intended to map onto this definition, as discussed below.

Party organizations measures the extent to which political parties in a country have permanent organizations, understood as personnel responsible for carrying out party activities in between elections. This speaks most clearly to the organizational complexity of a party, but also presumably to the strength of its ties to a mass constituency.

Party branches measures the existence of permanent local party branches. This, again, speaks to organizational complexity and connections to constituencies.

Legislative party cohesion measures party voting in parliament, i.e., the extent to which a party's representatives vote together on important bills. This provides a direct measure of unity and an indirect measure of centralization (and perhaps also of organizational complexity).

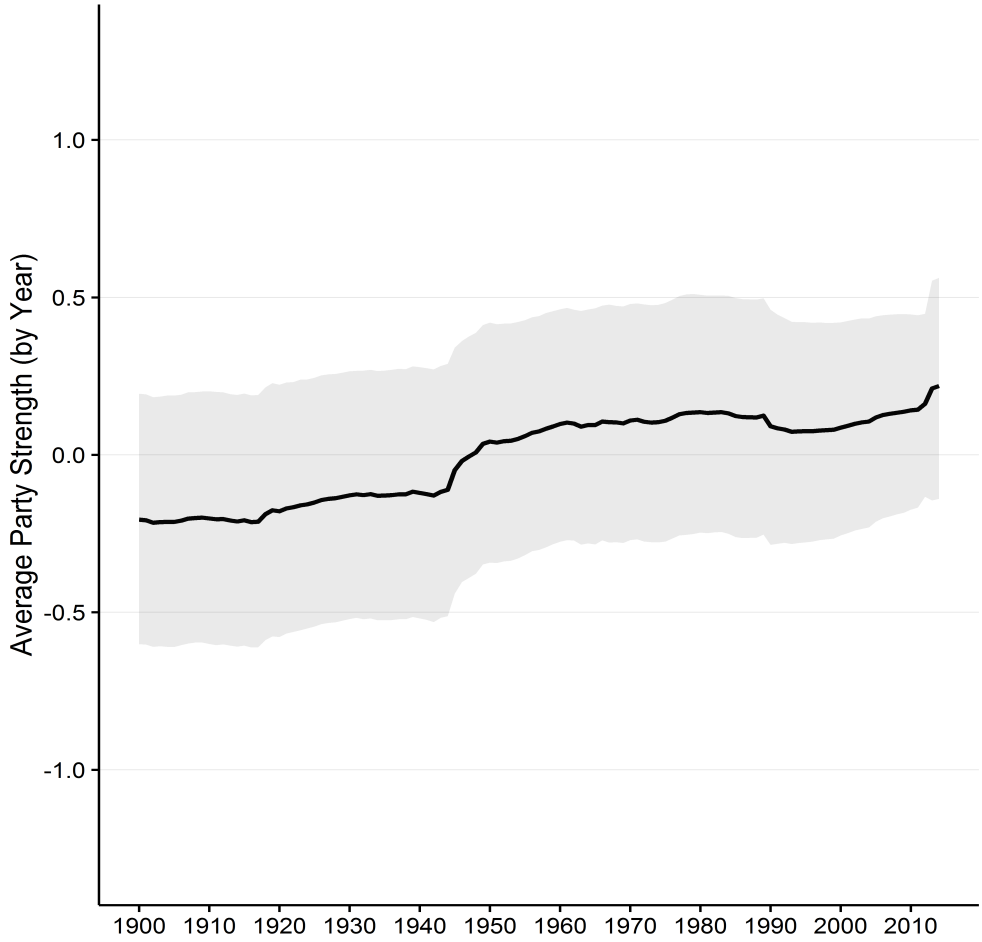
Party linkages measures the predominant relationship between parties and constituents in a country, understood along a spectrum from clientelistic (constituents are rewarded with goods, cash, or jobs), to localistic (constituents are rewarded with spending targeted on their district), to programmatic (constituents' relationship to a party is based on the party's policies and overall ideology). We regard clientelistic and localistic ties as a measure of decentralization; parties with these characteristics are likely to contain strong local leaders who can resist pressures from the leadership, perhaps egged on by their constituents. These characteristics are also likely to impair party unity, especially if payoffs are discontinued (e.g., by a loss of power or by a fiscal crisis). At this point, party members may look around for alternatives, and perhaps even bolt to another party that can offer more attractive material incentives. By contrast, if a party is defined by its programmatic appeals conflict among its members, or between leaders at the apex and the periphery, is likely to be muted, as they agree on most issue-positions and on over-arching goals, and have strong incentives to stick together to pursue those goals and may accept leadership cues in the service of achieving those goals. Leninist parties are strong, in part, because of their clear ideological orientation.

Candidate selection measures the degree of centralization in the process of nominating candidates for the national legislature. At one extreme, all candidates are chosen by national party leaders. At the other extreme, candidates are chosen by constituency groups or direct primaries

and party leaders play a peripheral role. This provides a direct measure of party centralization and presumably serves as an important ingredient of party unity.

Party switching measures the share of MPs who desert their party – either joining another party or becoming an independent – in between elections. This serves as a direct measure of party unity and an indirect measure of party centralization.

Figure B1: Party Strength Through Time



Party Strength, averaged over all countries in the sample, for each year from 1900-2014. 70% High Posterior Density Intervals.

Table B1: Party Strength in 2011

Country	Score	Interval		Country	Score	Interval		Country	Score	Interval	
Sweden	1.09	0.65	1.52	Croatia	0.34	0.13	0.53	Zimbabwe	-0.01	-0.26	0.26
Germany	1.03	0.75	1.29	Armenia	0.33	0.03	0.63	Gabon	-0.02	-0.44	0.38
Netherlands	0.96	0.64	1.25	Cyprus	0.33	-0.15	0.80	Egypt	-0.03	-0.26	0.19
Spain	0.95	0.70	1.19	Lebanon	0.32	0.00	0.61	Tanzania	-0.04	-0.30	0.22
Belgium	0.87	0.52	1.18	Israel	0.32	-0.04	0.66	Honduras	-0.05	-0.33	0.26
Denmark	0.76	0.36	1.14	Syria	0.31	-0.01	0.64	Maldives	-0.05	-0.40	0.28
Vietnam DR	0.74	0.44	1.02	Azerbaijan	0.30	-0.08	0.65	Ghana	-0.06	-0.28	0.16
China	0.74	0.49	0.94	Iceland	0.30	-0.10	0.68	DR	-0.06	-0.33	0.21
Austria	0.72	0.32	1.06	Sudan	0.30	-0.02	0.60	Ivory Coast	-0.06	-0.28	0.15
Uzbekistan	0.71	0.42	0.95	Kosovo	0.30	0.09	0.51	Comoros	-0.06	-0.47	0.32
New Zealand	0.71	0.40	1.01	Jamaica	0.30	-0.09	0.65	Sao Tome	-0.06	-0.29	0.18
Norway	0.69	0.35	0.99	Romania	0.30	0.01	0.60	Zambia	-0.08	-0.35	0.18
Portugal	0.66	0.40	0.87	Albania	0.29	0.07	0.48	Yemen	-0.08	-0.37	0.20
France	0.64	0.42	0.86	USA	0.28	0.09	0.48	Paraguay	-0.08	-0.29	0.14
Turkmenistan	0.64	0.34	0.92	Burma	0.28	0.07	0.46	Fiji	-0.09	-0.40	0.22
Finland	0.64	0.31	0.94	Venezuela	0.28	0.00	0.54	Tunisia	-0.11	-0.41	0.19
Tajikistan	0.63	0.33	0.90	Guyana	0.27	-0.08	0.66	Mongolia	-0.12	-0.45	0.22
Uruguay	0.63	0.36	0.90	Ethiopia	0.27	0.02	0.52	Iraq	-0.12	-0.47	0.21
Australia	0.62	0.33	0.91	Bulgaria	0.27	0.03	0.50	Senegal	-0.14	-0.40	0.13
Estonia	0.62	0.33	0.88	Indonesia	0.26	-0.01	0.50	Algeria	-0.15	-0.41	0.12
Czech R.	0.61	0.33	0.86	Bhutan	0.26	0.03	0.47	Uganda	-0.15	-0.45	0.14
Switzerland	0.60	0.30	0.92	Malaysia	0.26	-0.06	0.54	Mali	-0.16	-0.38	0.06
UK	0.58	0.37	0.79	S. Sudan	0.25	-0.08	0.56	Congo, DR	-0.19	-0.48	0.11
India	0.58	0.31	0.85	Serbia	0.25	0.02	0.47	Guinea	-0.19	-0.51	0.11
Poland	0.57	0.31	0.81	Belarus	0.24	0.05	0.44	Congo, Rep	-0.23	-0.61	0.18
Montenegro	0.57	0.32	0.80	Namibia	0.22	-0.03	0.44	Nigeria	-0.23	-0.46	0.01
Greece	0.56	0.23	0.88	Russia	0.22	-0.10	0.52	Jordan	-0.24	-0.57	0.10
Mauritius	0.55	0.18	0.87	Laos	0.21	-0.39	0.79	Cambodia	-0.25	-0.55	0.05
Chile	0.55	0.33	0.73	Georgia	0.20	-0.11	0.45	Guinea-B	-0.27	-0.66	0.07
Mexico	0.54	0.33	0.74	Thailand	0.19	-0.10	0.46	CAR	-0.28	-0.55	-0.01
Turkey	0.54	0.23	0.81	Latvia	0.18	-0.09	0.44	Iran	-0.29	-0.59	0.02
Bangladesh	0.54	0.22	0.85	Costa Rica	0.18	-0.04	0.39	Colombia	-0.30	-0.56	-0.02
Seychelles	0.53	0.22	0.86	Zanzibar	0.17	-0.18	0.52	Eritrea	-0.33	-0.72	0.08
Macedonia	0.51	0.28	0.72	Nepal	0.16	-0.16	0.46	Sierra Leone	-0.36	-0.69	-0.03
Japan	0.50	0.27	0.71	Botswana	0.15	-0.14	0.43	Djibouti	-0.37	-0.82	0.08
Canada	0.50	0.17	0.77	Mozambique	0.15	-0.04	0.35	Mauritania	-0.37	-0.81	0.07
Palestine WB	0.48	0.15	0.82	Lesotho	0.15	-0.13	0.39	Malawi	-0.37	-0.73	0.00
Slovenia	0.47	0.18	0.73	Cuba	0.15	-0.24	0.51	Kenya	-0.38	-0.74	-0.04
Slovakia	0.46	0.16	0.76	Italy	0.14	-0.17	0.45	Solomon Isl.	-0.41	-0.76	-0.05
Trinidad	0.46	0.15	0.75	East Timor	0.13	-0.36	0.56	Peru	-0.43	-0.70	-0.13
Kazakhstan	0.44	0.21	0.66	Gambia	0.12	-0.24	0.48	Benin	-0.44	-0.76	-0.11
Niger	0.44	0.02	0.83	Taiwan	0.12	-0.14	0.40	Swaziland	-0.50	-0.85	-0.09
Suriname	0.44	-0.02	0.85	Ecuador	0.11	-0.09	0.31	Kyrgyzstan	-0.50	-0.86	-0.12
Bosnia	0.43	0.19	0.65	Nicaragua	0.11	-0.17	0.35	Somalia	-0.50	-0.96	-0.02
Barbados	0.42	0.05	0.80	Burkina F.	0.11	-0.12	0.31	Vanuatu	-0.54	-1.06	-0.05
South Korea	0.42	0.11	0.66	Bolivia	0.10	-0.14	0.33	Philippines	-0.54	-0.86	-0.25
Lithuania	0.42	0.14	0.65	Panama	0.09	-0.31	0.49	Afghanistan	-0.66	-0.96	-0.34
Pakistan	0.39	0.14	0.62	Ukraine	0.08	-0.18	0.30	Chad	-0.67	-1.01	-0.32
North Korea	0.39	0.02	0.72	Moldova	0.06	-0.17	0.29	Guatemala	-0.71	-1.01	-0.41
Cape Verde	0.38	0.13	0.62	Somaliland	0.05	-0.32	0.43	Madagascar	-0.76	-1.13	-0.37
Ireland	0.37	0.08	0.67	Angola	0.05	-0.25	0.31	Libya	-0.79	-1.40	-0.17
Palestine Gaza	0.37	0.08	0.64	Morocco	0.05	-0.24	0.32	Liberia	-0.79	-1.13	-0.46
Sri Lanka	0.37	-0.01	0.72	Burundi	0.04	-0.46	0.56	Qatar	-1.02	-1.38	-0.62
El Salvador	0.36	0.10	0.62	Cameroon	0.03	-0.25	0.28	Haiti	-1.05	-1.51	-0.58
Rwanda	0.36	0.01	0.68	Argentina	0.01	-0.23	0.23	Saudi Arabia	-1.11	-1.72	-0.46
South Africa	0.35	0.17	0.51	Brazil	0.00	-0.18	0.20	PNG	-1.22	-1.65	-0.73
Hungary	0.35	0.02	0.67	Togo	0.00	-0.21	0.22				

Point estimates for Party Strength for all countries in 2011 along with 70% high-posterior density intervals.

Alternative Measures of Party Strength

Questions can always be raised about the composition and aggregation of an index. Methods of indexing involve many choices and readers may be concerned about the extent to which these choices color the findings reported here. In Table B2, we systematically test alternate indices in the benchmark model to gauge their performance.

Model 1 shows the benchmark model, in which growth is regressed on our additive index of Party Strength, for purposes of comparison. Model 2 tests the first component drawn from a principal components analysis of the same six indicators. Model 3 tests an index aggregated by multiplying the six indicators together. The next set of tests (Models 4-9) remove indicators from the Party Strength index, seriatim. In Model 10, we construct a party strength index (using our usual additive method of aggregation) that includes an additional attribute, Party nationalization, as measured by the V-Dem dataset.

Table B2: Alternate Indices Tested in the Benchmark Model

	Aggregation techniques			Subtracting(-) or adding(+) Indicators to the original index							Party System Institution -alization Index
	Additive (original)	Principal components	Multip-licative	– Switching	– Cohesion	– Candidate selection	– Linkages	– Organizations	– Branches	+ National ization	
	1	2	3	4	5	6	7	8	9	10	11
Estimate	1.509***	0.604**	0.429***	1.343***	1.382***	1.173***	1.377***	1.473***	1.408***	1.414***	1.297*
	(0.368)	(0.276)	(0.154)	(0.391)	(0.375)	(0.333)	(0.357)	(0.349)	(0.359)	(0.367)	(0.763)
GDPpc (ln)	-1.990***	-1.921***	-1.948***	-1.953***	-2.005***	-1.977***	-1.949***	-1.990 ***	-1.982***	-1.929***	-1.889***
	(0.347)	(0.332)	(0.342)	(0.341)	(0.352)	(0.340)	(0.348)	(0.349)	(0.350)	(0.348)	(0.332)
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Countries	153	153	153	153	153	153	153	153	153	153	153
Years (Max)	110	110	110	110	110	110	110	110	110	110	110
Obs	10141	10141	10141	10141	10141	10141	10141	10141	10141	10141	10141
R2 within	0.111	0.109	0.109	0.110	0.110	0.110	0.111	0.111	0.110	0.110	0.106

Alternate indices of party strength, along with an index of party system institutionalization, tested in the benchmark model. Estimator: ordinary least squares, standard errors clustered by country. *** p<.01 **p<.05 *p<.10

Appendix C: Convergent Validity Tests

Table C1: Regime-types (Geddes et al. 2014)

	1
REFERENCE	
Democracy	-
MISC	
Monarchy	-0.798***
	(-0.022)
Oligarchy	-0.142**
	(-0.055)
MILITARY	
Military	-0.287***
	(-0.028)
Military / Personal	-0.430***
	(-0.030)
Indirect Military	-0.133*
	(-0.074)
Party / Military	-0.274***
	(-0.039)
Party / Military / Personal	-0.049
	(-0.034)
PARTY/PERSONAL	
Personal	-0.480***
	(-0.015)
Party / Personal	-0.194***
	(-0.023)
Party	0.031**
	(0.014)
Countries	148
Years	65
Obs	7653
R^2	0.229

Party Strength index regressed against nominal categories representing regime-types, as defined and coded by Geddes et al. (2014). Estimator: ordinary least squares, standard errors in parentheses. ***p<.01 **p<.05 *p<.10

Table C2: Regime-types (Hadenius & Teorell 2007)

	1
REFERENCE	
Limited Multiparty	-
MISC	
Rebel regime	-0.189***
	(0.056)
Civil war	-0.319***
	(0.052)
Occupation	-0.250***
	(0.079)
Transitional regimes	-0.123**
	(0.062)
Theocracy	-0.493***
	(0.072)
Other	-0.694***
	(0.056)
MILITARY	
Military no-party	-0.350***
	(0.060)
Military	-0.105***
	(0.024)
Military one-party	0.064**
	(0.032)
Military multiparty	0.195***
	(0.032)
MONARCHY	
Monarchy	-0.870***
	(0.043)
No-party monarchy	-0.451***
	(0.045)
One-party monarchy	-0.227
	(0.216)
Multiparty monarchy	-0.140***
	(0.059)
PARTY	
No Party	-1.132***
	(0.073)
One-party	0.323***
	(0.019)
Democracy	0.360***
	(0.015)
Countries	166
Years	39
Obs	5801
Adj. R²	0.309

Party Strength index regressed against nominal categories representing diverse regime-types as defined and coded by Hadenius & Teorell (2007). *Estimator:* ordinary least squares, standard errors in parentheses. *** p<.01 **p<.05 *p<.10

Table C3: Other Indicators of Party Performance

	Correlation (Party Strength)	Countries	Years (max)	Obs
Party age	0.368	154	35	4942
Party vote volatility	-0.240	99	31	719
Party linkage index (BTI)	0.359	123	5	520

Pearson's r correlation between Party Strength and other measures.

Table C4: Correlation with Democracy and Governance Indicators

	Correlation (Party Strength)	Countries	Years	Obs
Polyarchy	0.511	172	115	10873
Polity	0.319	163	114	11072
WB Governance Indicators				
Control of Corruption	0.503	164	13	2112
Government Effectiveness	0.545	164	13	2112
Political Stability	0.400	164	13	2115
Rule of Law	0.533	164	13	2115
Regulatory Quality	0.477	164	13	2113
Voice and Accountability	0.470	164	13	2115

Pearson's r correlation between Party Strength and Democracy and Governance Indicators.

Appendix D: Data Collection

The Party Strength index, along with several of the covariates tested in Table 2 (Public administration, Rule of law, Corruption control. Property rights, Judicial power, Judicial threats, and Civil society freedom), are based on six indicators drawn from the Varieties of Democracy (V-Dem) project. It is important, therefore, to understand a bit about how the data was collected and aggregated across coders. (For further information see Coppedge et al. (2015) and Pemstein et al. (2015).)

Each indicator in the V-Dem dataset that is not factual in nature is coded by multiple Country Experts, generally about five (5). Most experts do not possess the requisite expertise to code the entire V-Dem questionnaire, which means that a single country will generally be coded by a dozen or more experts, each working on different facets of the questionnaire. To date, V-Dem has engaged in collaboration with over 2,500 Country Experts.

Recruitment

The following procedure is used to recruit Country Experts. First, we identify a list of potential coders for a country (typically 100-200 names per country). This bulk of names on the list are provided by Regional Managers (members of the V-Dem project located in universities and think-tanks throughout the world) in consultation with other members of the V-Dem team. Assistant Researchers (located at V-Dem Institute, University of Gothenburg) also contribute to this list, using information about potential country experts gathered from the web. Other members of the project team provide additional names if they have country-specific expertise. At present, V-Dem has accrued a roster of 15,000+ potential Country Experts.

For each potential Country Expert on the resulting list, we compile basic information – country of origin, current location, highest educational degree, current position, and area of expertise in terms of the surveys the expert could code as evidenced by a short biographical sketch and/or list of publications, website information and the like. We also take note of any possible biases that might affect their ability to code questions in a dispassionate manner.

In selecting whom to recruit from this list five criteria come into play:

The most important selection criterion, naturally, is expertise in the country(ies) and the section of the survey they are assigned to code. This is usually signified by an advanced degree in the social sciences, law, or history; a record of publications; and positions in civil society that establish their expertise in the chosen area (e.g. a well-known and respected journalist). Naturally, potential coders are drawn to areas of the survey that they are most familiar with, and are

unlikely to agree to code topics they know little about. So, self-selection also works to achieve our primary goal of matching questions in the survey with country-specific expertise.

The second criterion is origin in the country to be coded. V-Dem's goal is that a minimum of three out of five (60%) Country Experts should be nationals or permanent residents of the country they code (preferably both). Exceptions are required for a few countries where it is difficult to find in-country coders who are both qualified and independent of the governing regime. This criterion should help avoid potential Western/Northern biases in the coding.

The third criterion is the prospective coder's seriousness of purpose. By this, we mean a person's willingness to devote time to the project, to deliberate carefully over the questions asked in the survey, and to report their honest judgment. Sometimes, personal acquaintanceship is enough to convince a Regional Manager that a person is fit, or unfit, for the job. Sometimes, this feature becomes apparent in communications with Project Coordinators that precede the offer to work on V-Dem.

The fourth criterion is impartiality. V-Dem aims to recruit coders who will answer survey questions in an impartial manner. This means avoiding those who might be beholden to powerful actors – by reason of coercive threats or material incentives – or who serve as spokespersons for a political party or ideological tendency (in some instances, such as North Korea, this may entail avoiding all in-country coders). Where this is difficult, or where the reality is difficult to determine, we aim to include a variety of coders who, collectively, represent an array of views and political perspectives on the country in question.

The final criterion is obtaining diversity in professional background among the coders chosen for a particular country. For certain areas (e.g the media, judiciary, and civil society surveys) this entails a mixture of highly recognized professionals from the sector along with academics who study these topics. Generally, it also means finding experts who are located at a variety of institutions, universities and research institutes.

After weighing these five criteria, the 100-200 potential experts on the list are given a rank from "1" to "3" indicating order of priority.

The two Project Coordinators at the V-Dem Institute, University of Gothenburg, then handle the enrolment of Country Experts from the list of potential country experts. In handling the recruitment, the continuously review the resulting mix of actual country experts in light of the five criteria to ensure that V-Dem ends up with a set of experts for each country that fulfill our standards.

If the quota of five Country Experts per section of the survey for each country is not met, we work down the list of potential Country Experts until the quota is obtained. Others, following the same procedure, replace those who fail to complete the survey in a reasonable time. Coders receive a modest honorarium for their work that is proportional to the number of surveys they have completed.

A number of steps are taken to assure informed consent and confidentiality among participants. The on-line survey provides full information about the project (including this document) and the use of the data, so that coders are fully informed. It also requires that prospective coders certify that they accept the terms of the agreement. They can access the surveys only with a randomized username that we assign and a secret password that they create themselves. The data they supply is stored on a firewall-protected server. Any data released to the public excludes information that might be used to identify coders. All personal identifying information is kept in a separate database in order to ensure the protected identities of coders.

In order to ensure that we are able to recruit widely among potential experts, and in order to minimize confusion due to unfamiliarity with English, questions are translated from English into five additional languages: Arabic, French, Portuguese, Russian, and Spanish. Approximately 15 percent of the experts code in a non-English version of the questionnaire.

About 35 percent of the Country Experts are women, and over 80 percent have PhDs or MAs and are affiliated with research institutions, think tanks, or similar organizations.

Coding

Coding is carried out using the V-Dem online survey tool. The web-based coding interfaces are directly connected with a postgres database where the original coder-level data is kept, maintaining coder confidentiality.

In addition to country-specific ratings, Country Experts are requested to code several additional countries that they are familiar with for a shorter time-slice. This «bridge» or «lateral» coding assures cross-country equivalence by forcing coders to make explicit comparisons across countries, and provides critical information for the measurement model (described below).

For each question, and for each country-year, experts are required to report a self-assessed level of certainty. This is an indicator of their subjective level of uncertainty for the data point they provide. This is scored on a scale from 0 to 100 with substantive anchor points for each 10-percent interval.

Measurement

Having discussed the process of data collection, we proceed to the task of measurement. Under this rubric, we include (a) the questionnaire, (b) our measurement model, (c) methods of identifying error in measurement, (d) studies of measurement error, and (e) methods of correcting error. In principle, the discussions are relevant for different types of data (A, B, and C in the V-Dem scheme) but most if not all of them are much more acute when it comes to expert-based coding of evaluative, non-factual yet critical indicators. Hence, most of the following is focused on the C-type indicators.

The most important feature of a survey is the construction of the questionnaire itself. In crafting indicators we have sought to construct questions whose meaning is clear and specific and not open to a wide variety of interpretations. They should mean the same thing (more or less) in each context and not suffer from temporal or spatial non-equivalence. Our methodology involves enlisting some of the leading scholars in the world on different aspects of democracy and democratization – known as Project Managers.

Each Project Manager was enrolled because of his/her specific and evidenced expertise in a particular area (e.g. legislatures, executives, elections, civil society, and so on) and with a view to generate a group that also had substantive experiences and expertise on all regions of the world. Starting in 2009, Project Managers designed survey-questions in their area to measure democraticness in relation to the different traditions of democratic theory. All suggestions were reviewed and refined collectively over the course of two years. The V-Dem pilot test carried out in 2011 served as an initial test of our questionnaire, prompting quite a few revisions in the next round of surveys. Another round of collective deliberation followed that also involved a number of consultations with scholars outside of the project team. The revised questions for C-coding thus went through several rounds of review with the Project Managers and outside experts over the course of two years before emerging in their final form, depicted in the Codebook.

Even with careful question design, a project of this nature cannot help but encounter error. This may be the product of linguistic misunderstandings (recall that most of our coders do not speak English as their first language and some take the survey in a translated form), misunderstandings about the way in which a question applies to a particular context, factual errors, errors due to the scarcity or ambiguity of the historical record, differing interpretations about the reality of a situation, variation in standards, coder inattention, errors introduced by the coder interface or the handling of data once it has been entered into the database, or random mistakes.

Some of these errors are stochastic in the sense of affecting the precision of our estimates but not their validity. Other errors are systematic, potentially introducing bias into the estimates that we produce.

Having five coders for each question is immensely useful, as it allows us to identify wayward coders as well as to conduct inter-coder reliability tests. These sorts of tests – standard in most social science studies – are rarely if ever employed in extant democracy indices.

While we select experts carefully, they clearly exhibit varying levels of reliability and bias, and may not interpret questions consistently. In such circumstances, the literature recommends that researchers use measurement models to aggregate diverse measures where possible, incorporating information characterized by a wide variety of perspectives, biases, and levels of reliability (Bollen & Paxton 2000, Clinton & Lapinski 2006, Clinton & Lewis 2008, Jackman 2004, Treier & Jackman 2008, Pemstein, Meserve & Melton 2010). To combine expert ratings for a particular country/indicator/year to generate a single "best estimate" for each question, we employ methods inspired by the psychometric and educational testing literature (see e.g. Lord & Novick 1968, Jonson & Albert 1999, Junker 1999, Patz & Junker 1999).

The underpinnings of these measurement models are straightforward: they use patterns of cross-rater (dis)agreement to estimate variations in reliability and systematic bias. In turn, these techniques make use of the bias and reliability estimates to adjust estimates of the latent—that is, only indirectly observed—concept (e.g. executive respect for the constitution, judicial independence, or property rights) in question. These statistical tools allow us to leverage our multi-coder approach to both identify and correct for measurement error, and to quantify confidence in the reliability of our estimates. Variation in these confidence estimates reflect situations where experts disagree, or where little information is available because few raters have coded a case. These confidence estimates are tremendously useful. Indeed, the tendency of most researchers to treat the quality of measures of complex, unobservable concepts as equal across space and time, ignoring dramatic differences in ease of access and measurement across cases, is fundamentally misguided, and constitutes a key threat to inference.

The majority of expert-coded questions are ordinal: they require raters to rank cases on a discrete scale, generally with four or five response categories. To achieve scale consistency, we fit ordinal IRT models to each question (see Johnson & Albert 1999 for a technical description of these models). These models achieve three goals. First, they work by treating coders' ordinal ratings as imperfect reflections of interval-level latent concepts. Therefore, while an IRT model takes ordinal values as input, its output is an interval-level estimate of the given latent trait (e.g. election violence). Interval-valued estimates are valuable for a variety of reasons; in particular,

they are especially amenable to statistical analysis. Second, IRT models allow for the possibility that coders have different thresholds for their ratings (e.g. one coder's somewhat might fall above another coder's almost on the latent scale), estimate those thresholds from patterns in the data, and adjust latent trait estimates accordingly. Therefore, they allow us to correct for this potentially serious source of bias. This is very important in a multi-rater project like V-Dem, where coders from different geographic or cultural backgrounds may apply differing standards to their ratings. Finally, IRT models assume that coder reliability varies, produce estimates of rater precision, and use these estimates—in combination with the amount of available data and the extent to which coders agree—to quantify confidence in reported scores.

With lateral and bridge coding we are able to mitigate the incomparability of coders' thresholds and the problem of cross-national estimates' calibration. While helpful in this regard, our tests indicate that given the sparsity of our data, even this extensive bridge-coding is not sufficient in solving cross-national comparability issues. We therefore also employ a data-collapsing procedure. At its core, this procedure relies on the assumption that as long as none of the experts change their ratings for a given time period, we can treat the country-years in this period as one year. The results of our statistical models indicate that this technique is extremely helpful in increasing the weight given to lateral/bridge coders, and thus further mitigates cross-national comparability problems.

Appendix E: Instrumental Variable Analysis

Table E1: 2SLS Results for Model 8, Table 1 (first stage)

	1
GDPpc (ln)	0.030***
	(0.013)
Regional growth	0.0006***
	(0.0002)
Global growth	0.002
	(0.004)
Regional Party Strength	0.017***
	(0.00020)
Global Party Strength	-137.96***
	(0.241)
Year FE	✓
Country FE	✓
Countries	151
Years (Max)	109
Obs	9846
Sargan test p-value	0.183
Cragg-Donald Wald F-statistic	1.7*10^5

Outcome: Party Strength. Independent variables lagged by one time-period. *FE:* fixed effects. *Estimator:* 2SLS (two-stage least squares); first-stage regression. *** p<.01 **p<.05 *p<.10

Note that the implausibly large (and negative) value on the global party strength instrument in this particular specification is due to the very high correlation with the year dummies (they are not perfectly correlated because global growth is always calculated exempting country in question). This is not important to the interpretation of the main result, since it is robust, for instance, to substituting the year dummies with a time trend, and to omitting the global instrument and only using the regional, as shown in Table E2. Furthermore, the instrument(s) in the first-stage regressions of these alternative specifications are also always very strong, as indicated by the Cragg-Donald Wald F-statistics shown in Table E2.

Table E2: Alternative 2SLS specifications (second stage)

	1	**2**	**3**	**4**	**5**	**6**	**7**
Estimator	FE	FE	FE	FE	RE	RE	RE
Party Strength	4.313*	7.018***	4.468***	8.107 ***	0.864***	1.857***	1.873***
	(2.299)	(0.946)	(0.914)	(0.931)	(0.128)	(0.487)	(0.482)
GDPpc (ln)	-2.249***	-1.720***	-2.469***	-2.869***	-0.078	-0.402***	-0.449***
	(0.290)	(0.193)	(0.227)	(0.233)	(0.065)	(0.117)	(0.125)
Regional growth	0.331***	0.333***	0.352***		0.364***	0.385***	0.386***
	(0.032)	(0.031)	(0.030)		(0.028)	(0.029)	(0.029)
Global growth		0.137***	0.139***		-5.695 ***	0.105**	0.107**
		(0.043)	(0.042)		(0.661)	(0.042)	(0.042)
Time trend			✓	✓		✓	✓
Year FE	✓				✓		
Country FE	✓	✓	✓	✓			
Instruments							
Regional party strength	✓	✓	✓	✓	✓	✓	✓
Global party strength		✓	✓	✓	✓	✓	✓
Countries	151	151	151	153	151	151	151
Years (Max)	109	109	109	110	109	109	109
Obs	9846	9846	9846	10085	9846	9846	9846
Sargan test p-value	0.000	0.000	0.146	0.138	-	-	-
Cragg-Donald Wald F	113.85	374.78	387.01	412.81	-	-	-

Outcome: per capita GDP growth. *Units of analysis:* country-year. Independent variables lagged by one time-period. *Estimator:* two-stage least squares with FE (fixed effects) or RE (random effects), second-stage results only. Test statistics not calculated for random effects models due to software limitations. *** p<.01 **p<.05 *p<.10.

Appendix F: Growth Stability

In this appendix we probe more deeply into the relationship between Party Strength and growth stability, elaborating on discussion presented in Section VI and Table 4.

First, we examine whether Party Strength reduces the likelihood of economic crisis, understood as an episode of negative per capita GDP growth. This is variously coded as less than 0, less than -3%, or less than -5%, to generate three dependent (dummy) variables. We find that Party Strength is negatively associated with each of these outcomes when tested in our benchmark model with ordinary least squares or logistic regression estimators, as shown in Table F1. The OLS point estimate suggests that a 1-point increase in Party Strength reduces the probability of observing negative growth in the following year by 8 percentage points (29 percent of observations have negative growth).

Second, we examine whether Party Strength enhances the likelihood of periods of sustained growth, understood as consecutive years of positive growth sustained across five- or ten-year periods. Party Strength is associated with sustained growth episodes when tested in our benchmark model using both outcome intervals, and employing either ordinary least squares or logistic regression estimators, as shown in Table F2.

Finally, we examine whether Party Strength reduces growth volatility, understood as the standard deviation of growth performance over 10- and 15-year periods. Point estimates from these models, shown in Table F3, suggest that Party Strength reduces growth volatility, though these estimates are statistically significant only when country fixed-effects are removed. Note that when growth volatility is analyzed in a cross-country format the analysis typically does not include country fixed-effects (e.g., Easterly et al. 2001). It seems fair to conclude that countries with stronger parties not only have higher growth, on average, they also have less volatile growth rates.

Table F1: Party Strength and Economic Crises

	1	2	3	4	5	6
Coding of outcome	Growth<0		Growth<-3		Growth<-5	
Estimator	OLS	Logit	OLS	Logit	OLS	Logit
Party Strength	-0.078***	-0.450***	-0.052**	-0.471**	-0.040**	-0.463*
	(0.026)	(0.150)	(0.020)	(0.217)	(0.015)	(0.251)
GDPpc (ln)	0.043**	0.225**	0.045***	0.441***	0.031***	0.462***
	(0.018)	(0.106)	(0.015)	(0.147)	(0.011)	(0.159)
Year FE	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓
Countries	153	152	153	149	153	146
Years (Max)	110	110	110	110	110	110
Obs	10141	10127	10121	10030	10141	9360

Outcome (Y): economic crisis, coded 1 if per capita GDP growth is below a designated value. *Units of analysis:* country-year. Independent variables lagged by one time-period. *FE:* fixed effects. *Estimator:* OLS (ordinary least squares), Logit (logistic regression), standard errors clustered by country. *** p<.01 **p<.05 *p<.10

Table F2: Party Strength and Sustained Growth Episodes

	1	2	3	4
Y measured across…	5 years		10 years	
Estimator	OLS	Logit	OLS	Logit
Party Strength	0.106***	0.658***	0.061**	0.872**
	(0.033)	(0.223)	(0.030)	(0.380)
GDPpc (ln)	-0.107***	-0.715***	-0.135***	-1.795***
	(0.032)	(0.223)	(0.030)	(0.413)
Year FE	✓	✓	✓	✓
Country FE	✓	✓	✓	✓
Countries	153	152	153	118
Years (Max)	106	106	101	101
Obs	9444	9255	8579	6448

Outcome (Y): a prolonged growth period, coded 1 if per capita GDP growth is positive (>0) in consecutive years for a 5- or 10-year period. Independent variables lagged by this same time interval. *FE:* fixed effects. *Estimator:* OLS (ordinary least squares), Logit (logistic regression), standard errors clustered by country. *** p<.01 **p<.05 *p<.10

Table F3: Party Strength and Growth Volatility

	1	2	3	4	5	6	7	8
Y measured across	10 years	15 years	10 years	15 years	10 years	15 years	10 years	15 years
Estimator	OLS	OLS	OLS	OLS	PCSE	PCSE	PCSE	PCSE
Party Strength	-0.458	-0.401	-0.392	-0.391	-0.576***	-0.574***	-0.578***	-0.418**
	(0.378)	(0.428)	(0.386)	(0.430)	(0.153)	(0.119)	(0.170)	(0.177)
GDPpc (ln)	-0.397	-0.427	-0.499	-0.471	-0.090	0.248**	-0.170	-0.249
	(0.314)	(0.318)	(0.363)	(0.373)	(0.155)	(0.129)	(0.159)	(0.348)
Average growth			-0.059	-0.019			-0.061**	-0.061
			(0.060)	(0.082)			(0.026)	(0.060)
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓				
Countries	153	152	153	152	153	152	153	152
Years (Max)	101	96	100	95	101	96	100	95
Obs	8579	7732	8427	7582	8579	7732	8427	7582

Outcome (Y): standard deviation of per capita GDP growth rate over specified time interval. *Average growth:* per capita GDP growth over this interval. Independent variables lagged by one year prior to this interval. *FE:* fixed effects. *Estimators:* OLS (ordinary least squares with standard errors clustered by country), PCSE (ordinary least squares with standard errors corrected for panel-specific heteroscedasticity and panel-specific AR(1) autocorrelation). *** p<.01 **p<.05 *p<.10

Appendix G: Multiple Imputation

This appendix provides additional information about the multiply imputed datasets we use in Table 1 (Model 9), Table 5, and Table H2. We employ the Amelia II package in *R* (Honaker, King, and Blackwell 2012) to impute 10 datasets with data on Party Strength, Economic Growth, the mediators we employ in the mediation section, and a group of additional variables that could enhance the imputation of the missing data in the variables of interest, following recommendations provided by the software's developers. Table G1 lists the variables included in the imputation and compares descriptive statistics of the original dataset and the imputed datasets.

Results show that there are no substantial differences between the two datasets. Over-imputation graphs (not shown) also suggest acceptable accuracy of the imputation model. The imputation model accounted for the time-series cross sectional nature of the data, as well as it included a linear time trend (polytime = 1) to account for secular changes. In order to increase numerical stability, we included a ridge prior of 5%. Imputed values were bounded to their possible logical values in order to provide more accurate estimates. Table G2 shows the bounds adopted. All those specifications are in line with Honaker and his co-authors' suggested specification for this kind of analysis (Honaker, King & Blackwell 2012).

Table G1. Descriptive Information about the Original and Imputed Datasets

Variable	Obs	Missingness (%)	Mean		SD		Min.		Max.		Skewness	
			Original	Imputed	Original	Imputed	Original	Imputed	Original	Imputed	Original	Imputed
Polyarchy	15827	5.46	0.34	0.33	0.28	0.28	0.01	0.00	0.96	0.98	0.74	0.76
Party organizations	16382	2.14	0.01	0.00	1.65	1.64	-3.26	-3.26	3.28	3.28	-0.27	-0.27
Party branches	16383	2.14	-0.05	-0.05	1.62	1.61	-3.09	-3.09	3.56	3.56	-0.09	-0.09
Party linkages	16260	2.87	0.06	0.05	1.39	1.39	-3.13	-3.13	3.20	3.20	0.22	0.22
Centralized Candidate Selection	16255	2.90	-0.36	-0.36	1.37	1.37	-2.71	-2.71	4.21	4.21	0.79	0.78
Legislative Cohesion	16218	3.12	0.25	0.23	1.44	1.46	-4.20	-4.20	2.49	2.49	-0.81	-0.83
Party switching	16240	2.99	0.00	0.09	0.00	0.09	0.00	0.00	0.01	0.83	1.72	1.79
Inflation (logged)	9214	44.96	5.38	5.81	0.26	0.53	4.92	4.92	10.11	10.11	8.87	0.63
Infant Mortality	11235	32.89	77.38	127.90	57.26	141.55	1.00	1.00	420.00	2452.76	0.80	3.66
Life Expectancy	12946	22.67	55.23	52.13	14.75	15.47	11.60	11.12	83.42	83.42	-0.19	-0.04
Internal Conflict	11525	31.16	0.10	0.12	0.30	0.32	0	0	1	1	2.60	2.36
GDP per capita (logged)	10457	37.54	7.81	7.94	1.02	0.99	5.32	5.32	10.67	12.25	0.32	0.35
GDP Growth	10253	38.76	1.89	2.19	6.25	6.49	-61.49	-61.49	86.95	86.95	0.16	0.24
Investiment	7237	56.77	0.00	0.20	0.00	0.10	0.00	0.01	0.01	0.83	1.01	0.99
Conflict (UCDP)	7212	56.92	0.27	0.41	0.75	0.89	0	0	3	3	2.72	2.04
Primary Education	5174	69.09	94.88	82.02	24.95	22.62	8.01	8.01	253.81	253.81	-0.87	-0.47
Tax Ratio	1924	88.51	0.17	0.13	0.07	0.06	0.02	0.02	0.47	0.49	0.66	1.10
Burocratic Quality	1651	90.14	2.56	1.93	1.18	0.94	0	0	4	4	-0.36	0.24
Irregular Executive Exit (Archigos)	10997	34.31	0.21	0.27	0.41	0.45	0	0	1	1	1.42	1.02

Descriptive statistics comparing the original dataset used for the imputation and the results from similar analysis of the ten imputed datasets. Imputation done using Amelia II (Honaker, King & Blackwell 2012). "Imputed" results are the mean of the descriptive statistics in the 10 imputed datasets.

Table G2. Imputation Specification

Variable	Bounds	Min	Max	Set as
Polyarchy	Yes	0	1	
Party organizations	Yes	-3.2	3.2	
Party branches	Yes	-3	3.5	
Party linkages	Yes	-3.2	3.2	
Centralized Candidate Selection	Yes	-2.7	4.2	
Legislative Cohesion	Yes	-4.2	2.5	
Infant Mortality	Yes	1	400	
Life Expectancy	Yes	11	83	
Primary Education	Yes	8	100	
Burocratic Quality	Yes	0	4	
Party switching	No			Ratio
Inflation (logged)	No			Log
Internal Conflict	No			Nominal
GDP per capita (logged)	No			Log
GDP Growth	No			Log
Investiment	No			Ratio
Conflict (UCDP)	No			Nominal
Tax Ratio	No			Ratio
Irregular Executive Exit (Archigos)	No			Nominal

Imputation specifications for Amelia. Bounds were estimated based on the minimum and maximum values existing in the original dataset. "Ratio" estimates variables bounded between 0 and 1, "Log" uses logarithmic transformations for better imputation of skewed variables, "Nominal" estimates categorical variables.

Appendix H: Mediation Analysis

This appendix provides further detail about the mediation analyses summarized in section VI. To test potential pathways from Party Strength to growth we employ the mediation package developed by Tingley et al. (2014), which estimates direct and indirect effects by jointly analyzing results of a model predicting the mediator and a model predicting the outcome. The relationships of interest are diagramed at the bottom of Table 4.

All analyses follow the specification of the benchmark model which includes per capita GDP (logged) along with country and year fixed-effects. Party Strength and per capita GDP are set at *t*, the mediator at *t*+1, and growth at *t*+2. Statistical significance for direct and indirect effects in Table 4 are estimated using quasi-Bayesian confidence intervals produced after 1000 (one thousand) simulations.

In the first stage of the analysis, a mediator – variously, Investment, Inflation, Infant Mortality, Internal Conflict, and Irregular Exit – is regressed on Party Strength and per capita GDP. Models predicting Investment, Inflation, and Infant Mortality) are linear mixed models. Models for Internal Conflict and Irregular Exit are logistic mixed models with identical specifications. In the second stage, growth is regressed on the mediator, Party Strength and GDP per capita in a linear model.

Table H1 replicates Table 4 without imputed data, i.e., with all available data from the original variables. Results across these tables are fairly close, despite the differing samples.

Table H2 presents the results for the analysis of simultaneous multiple mediators, as discussed in the text. Here we test for indirect effects of all mediators simultaneously using a structural equations approach with the *gsem* Stata command. Specifications are otherwise identical to those presented above.

Table H1: Regression Results for the Mediation Analysis (without imputed data)

Direct Effect (c)	Mediator (M) *(policy outcome)*	Indirect Effect (a)(b)	Total Effect (a)(b) + (c)	Proportion mediated	Observations
0.775*** (0.604)	Investment *(Macroeconomic management)*	-0.014 (0.075)	0.760*** (0.617)	-1.8	8928
0.863*** (0.579)	Inflation (logged) *(Macroeconomic management)*	-0.016 (0.053)	0.880*** (0.585)	-1.9	7804
1.053*** (0.524)	Infant Mortality (logged) *(Public goods)*	0.096*** (0.054)	1.149*** (0.527)	8.4	6427
0.747*** (0.498)	Internal Conflict *(Stability)*	0.106*** (0.045)	0.853*** (0.505)	12.4	8074
1.264*** (0.586)	Irregular Exit *(Stability)*	0.054 (0.069)	1.318*** (0.565)	4.1	8556

Outcome: per capita GDP growth. *Independent variable of interest*: Party Strength. *Unit of analysis:* country-year. Country and year fixed effects. Standard errors clustered by country. *** p<.01 **p<.05 *p<.10.

Table H2: Regression Results for the Simultaneous Mediation Analysis (imputed data)

Direct effect (c)	Mediator (M) *(policy outcome)*	Indirect Effect (a)(b)	Total Effect (a)(b) + (c)
0.083*** (0.029)	Investment *(Macroeconomic management)*	0.004 (0.004)	0.159** (0.068)
	Inflation (logged) *(Macroeconomic management)*	0.001 (0.005)	
	Infant Mortality (logged) *(Public goods)*	0.009* (0.005)	
	Internal Conflict *(Stability)*	0.038 (0.028)	
	Irregular Exit *(Stability)*	0.041 (0.027)	

Outcome: per capita GDP growth. *Independent variable of interest*: Party Strength. *Unit of analysis:* country-year. Country and year fixed effects. Standard errors clustered by country. Data for 173 countries, for 110 years (max). 9947 observations total. *Time periods*: Party Strength measured in t, mediators measured at t+1, and GDP per capita measured at t+2. ***p<.01 **p<.05 *p<.10

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