DISCUSSION PAPER SERIES

DP11460

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DEVELOPMENT ECONOMICS and PUBLIC ECONOMICS

ISSN 0265-8003

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Discussion Paper DP11460
Published 24 August 2016
Submitted 24 August 2016

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Abstract

Why are some governments popular with their citizens while others get low approval ratings? International surveys show enormous variation both across countries and over time. In what we believe to be the first systematic, global, comparative study of political approval, we examine a panel of government ratings from 128 countries including both democracies and authoritarian states, over the years 2005-2014. We find that good economic performance is robustly correlated with higher approval in both democracies and non-democracies. Approval is also higher in the year of a presidential election in both types of regimes. In non-democracies, information matters: greater press freedom and internet penetration result in lower approval while internet censorship is associated with higher approval; these variables have no impact on approval in democracies. We did not find any clear relationship with repression, suggesting that if fear inflates ratings in non-democracies this may be offset by the dissatisfaction that repression also causes.

JEL Classification: P16

Keywords: N/A

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Acknowledgements
We thank Ruben Durante, Tim Frye, Scott Gehlbach, Viola Lucas, Luke Sonnet, Ekaterina Zhuravskaya, and participants at the SIOE Annual Conference (Paris) 2016 and the 2016 Annual Research Conference of the Higher School of Economics, Moscow for comments.

What makes governments popular?[1]

Sergei Guriev[2] Daniel Treisman[3]

August 2016

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1 Introduction

Why are some governments popular with their citizens while others get low ratings? International surveys show enormous variation. In Bhutan, for example, 89 percent of respondents said their national authorities were doing a good job in 2014. In Bosnia and Herzegovina that year, only 5 percent said the same. Ratings vary not just across countries but also over time. Between 2008 and 2014, approval of top leaders fell by 42 percentage points in Armenia, but rose by 40 points in Zimbabwe.

Understanding the causes of such variation is important for several reasons. Approval ratings play a major role both in democracies and—as scholars increasingly recognize—in many authoritarian states as well. In democracies, citizens must be able to gauge the effectiveness of their government if they are to hold it to account. If voters can accurately assess whether their leaders are doing a good job, they can use elections to discipline incumbents and select candidates with a record of past achievement. However, if voters are swayed by superficial images or state propaganda, such accountability mechanisms will not work. In that case, officials will focus on manipulating perceptions rather than on satisfying constituent demands.

The popularity of incumbents also affects what they can achieve in office. In democracies, high poll numbers constitute a form of political capital that can be "spent" on enacting policies. Popular US presidents can set the agenda and enlist congressional backing for their priorities (Rivers and Rose 1985; Canes-Wrone and de Marchi 2002; Barrett and Eshbaugh-Soha 2007). They can also get their co-partisans elected to other government bodies (Campbell and Sumners 1990). In some authoritarian and hybrid systems, as well, leaders have exploited their popularity to impose policies and empower their protégés. Peru's autocrat Alberto Fujimori, lacking an organized political party, "used public opinion polls to fight his opponents in Congress and gain political momentum" (Carrión 2006, p.128).

That polls and approval ratings matter in dictatorships might seem surprising. Such regimes are often thought to rely on repression rather than consent. Yet, for two reasons, popularity may actually be more important for the leader of a non-democracy than for a democratic incumbent. First, whereas in democracies the battles concern relatively circumscribed policy issues, in non-democracies the nature of the political system is also in play. A politician who wins public acclaim can use it not just to shape budgets and laws, but to reshape institutions in his interest. Fujimori, for instance, when riding high in the polls, could stage an *autogolpe* (or "self coup"), eliminating constraints on his authority.

Second, leaders who lack the legitimacy conferred by democratic elections are for that reason more vulnerable to changes in their ratings. At good times, high approval numbers can serve as a substitute for procedural legitimacy. Mexico's President Carlos Salinas used his popularity to distract citizens from the electoral fraud that had brought him to power in 1988. Dictators can even "cash in" high ratings to win back respectability after undemocratic acts. Fresh from his *autogolpe*, Fujimori could wash away the stigma by calling elections, confident of victory (Carrión 2006, pp.146-7). When they hold elections, authoritarian leaders are said to feel the need to win with not just a majority but a "supermajority" in order to intimidate potential rivals or deter coups (Geddes 2005, Magaloni 2006). Similarly, such leaders can use overwhelming support in opinion polls to demoralize the opposition.

Conversely, at bad times, when their ratings dive, dictators may see their repressive power also evaporate. Police and security personnel hesitate to follow orders when they think the regime is in danger of overthrow; falling ratings can prompt splits within the ruling circle and even coups. An unpopular leader in a democracy must worry about replacement at the next election; an unpopular dictator has to worry about it every day.

For these reasons, authoritarian leaders sometimes seem even more pre-occupied with polls than their democratic counterparts. Some invest heavily in their own surveys. President Salinas of Mexico set up three separate polling agencies to serve the ruling PRI party, the president's office, and the government newspaper, while also appointing fulltime pollsters to his staff

(Moreno 1996, p.152). General Pinochet hired Gallup in the late 1970s to question the Chilean masses (Singer and Scotto 2004, p.478). Poland's Communist leaders in the 1980s commissioned multiple surveys to test the effectiveness of martial law (Nalepa and Pop-Eleches 2014). In Russia, Kremlin spin doctors insist on weekly updates from their favored pollsters (Barry 2011).

In this paper, we seek to understand what factors influence the popularity of governments in democracies, autocracies, and all the regimes in between. We are not the first to study politicians' ratings. Various scholars have examined presidential approval in the US (Mueller 1973, Stimson 1976, Brody 1991, Erikson, MacKuen and Stimson 2002, Eichenberg et al. 2006). A smaller set of works has analyzed the ratings of leaders in certain other developed democracies such as the UK (Clarke and Stewart 1995, Clarke and Lebo 2003, Sanders 2000) and France (Conley 2006), and in several developing democracies or soft authoritarian regimes such as postcommunist Russia (Mishler and Willerton 2003, Rose, Mishler, and Munrow 2011, Treisman 2011, 2014), Peru (Stokes 1996, Weyland 2000, Kelly 2003, Arce 2003, Carrión 2006), Mexico (Buendía 1996, Villareal 1999), and a few other Latin American countries (Remmer 2012).

We believe that our paper is the first systematic, global, comparative study of political approval. We examine a panel of 128 countries, spanning all continents, over the years 2006-2014. Our source, the Gallup World Poll, uses a standard question to assess government approval and includes a variety of other useful measures of opinion and attitudes. The availability of data for up to nine years makes it possible to control for unobserved country-specific heterogeneity and to explore the dynamics of approval in a global setting. Although we cannot make strong causal claims, the broad coverage and panel structure allow for the most comprehensive and detailed picture of this phenomenon to date.

Interpreting poll results from non-free societies poses particular challenges, given the likelihood that respondents may fear to answer frankly.[4] The already noted 40-point rise in the rating of Zimbabwe's Robert Mugabe raises obvious questions. Rather than viewing this issue as merely a nuisance that interferes with the measurement of preferences, we incorporate the influence of fear and insincerity into the analysis. We hypothesize that approval ratings will be artificially inflated by fear in countries where the regime uses violent methods, and we seek evidence for

[4] One study that used a list experiment to elicit frank answers about approval of Russian president Vladimir Putin in early 2015 found that actual approval was about 10 percentage points below the level implied by direct responses (Frye et al. 2016).

or against this. Exploiting the panel structure of the data, we can check whether leaders become more "popular" in periods of increased repression.

Our results are as follows. First, we find that in both democracies and non-democracies good economic performance correlates positively with approval of the government. Second, approval is higher in the year of a presidential election in both types of regime. Third, in non-democracies control of information matters: in such regimes, approval decreases with internet use and media freedom and increases with internet censorship. There is no such relationship in democracies. Fourth, although we looked using the best available data, we found no evidence that repression boosts reported approval.

We also show that good actual economic performance, as captured by objective indicators such as GDP growth, affects government approval in large part by improving respondents' subjective perceptions of the state of the economy. This is consistent with the intuitive theory that citizens accurately assess economic conditions and reward the government for good performance. People are not systematically misled by government economic propaganda, and nor do they simply assume that the government they favor must be managing the economy well. This is not the case with regard to media freedom: we show that greater perceived media freedom results in higher approval (in both democratic and non-democratic regimes) even though greater *actual* media freedom, as captured by an objective indicator, reduces the government's popularity in non-democracies.

Using the results of our estimations, we carry out counterfactual analysis to demonstrate the size of key effects. For instance, we project the popularity the government would have enjoyed in several countries if growth had not fallen during the global financial crisis or if the authorities had not censored the internet. We show that for some countries our in-sample, dynamic simulations are very similar to the actual data.

The rest of the paper is structured as follows. Section 2 discusses existing research on political approval and identifies testable hypotheses. Section 3 describes the data. In Section 4, we introduce our empirical methodology. Section 5 reports the main results. Section 6 presents robustness checks and additional explorations. In Section 7 we use our empirical results to estimate counterfactual scenarios, simulating the evolution of government approval under different assumptions about economic performance and censorship. Section 8 concludes.

2 Hypotheses and previous research

What determines how highly citizens rate their political leaders? We postulate that poll respondents answer the question about approval of the government in the following manner. First, respondents form a belief about the quality of government performance. This should depend upon both the objective quality of the government's performance and on any efforts the government makes to shape respondents' beliefs by means of propaganda or censorship of the media. Propaganda may aim to mislead the citizen into thinking either that performance is better than it actually is or that disappointing results were caused by unavoidable circumstances—for instance, external economic shocks, hostile measures by the country's enemies, domestic saboteurs—rather than by a lack of competence or effort on the part of the incumbent.

Second, respondents decide how to answer the poll question. This, in turn, will depend both on their belief about the quality of government performance and on how free they feel to answer sincerely. If they believe the authorities may detect and punish disloyal evaluations, they may say they approve even when they do not.

Of course, this scheme ignores many other possible influences—the professionalism and interests of the private media, psychological biases, framing effects, to name just a few. We focus on what we consider to be particularly important determinants and, of course, on those that can be measured or captured by plausible proxies. While the answers of individuals are likely to contain a significant random element caused by subtle differences of context (Zaller 1992), such noise will mostly disappear when one focuses on the average answers of large numbers of respondents. We also do not exclude the possibility that causality runs in both directions between the variables we study, producing complicated interactions. Where possible, we explore such feedbacks. We now discuss possible determinants in more detail.

2.1 Objective quality of government performance

Other things equal, governments should be more popular when they are doing a good job. But what "job" are governments expected to do? Leaders in almost all states are expected to provide three key services.

2.1.1 Security

Since Hobbes, writers have taken the first responsibility of government to be to protect citizens against external and internal threats. Internationally, governments should deter and repel military attacks. Domestically, they should prevent crime and ensure public order.

One might, therefore, expect higher approval ratings when countries are at peace. However, some attacks cannot be deterred, so governments may be judged—at least initially—on whether in such cases they organize an effective defense. Leaders who rally the troops to fight will also rally the population behind them. Over time, citizens are likely to get more information about the conflict's progress and its cost. So the early rally may dissipate. In domestic affairs, citizens are likely to approve of governments that avoid civil war and keep the crime rate low.

Studies of presidential approval in the US have often found war to be significant. Public opinion tends to back the commander-in-chief early on but such support falls as the costs of conflict—as measured by casualties, bombing missions, or other variables—mount (Kernell 1978; Voeten and Brewer 2006). Feaver and Gelpi (2004) argue that what matters in war is success, and that high casualties are tolerated by the public so long as they do not seem to indicate failure. Results on civil wars have been mixed. For instance, scholars disagree about whether the battle against the guerrillas of *Sendero Luminoso* in Peru helped or hurt President Fujimori's popularity in the 1990s (Weyland 2000, Kelly 2003, Arce 2003). Treisman (2011) finds that the second Russian war in Chechnya may have boosted Putin's rating initially, but that the positive effect declined as support for his military strategy diminished. The first Chechen war seems only to have depressed Yeltsin's popularity.

In short, we hypothesize that approval of government will be higher when:

H1: The country is not in an interstate war.

H2: The country is in the first year of an interstate war, when the rally effect dominates.

H3: The country is not in a civil war.

H4: The rate of violent crime is lower.

2.1.2 Prosperity

A second widely recognized function of government is to promote economic performance. How government should do this is debated. Still, we expect leaders to have higher ratings when the economy is doing well. Previous studies have found economic performance to influence government approval in the US (e.g. Mueller 1973, Erikson, MacKuen and Stimson 2002), the UK (Clarke and Stewart 1995, Clarke and Lebo 2003, and Sanders 2000), France (Conley 2006), and a number of Latin American countries (Stokes 1996, Buendía 1996, Villareal 1999, Arce 2003, Kelly 2003, Carrión 2006, Remmer 2012). As these studies confirm, several measures of performance may be relevant—the rates of growth, inflation, and unemployment, and the level of national income.[5] We hypothesize that approval will be higher when:

H5: The growth rate of GDP per capita is higher.

H6: The level of GDP per capita is higher.

H7: Inflation is lower.

H8: Unemployment is lower.

2.1.3 Redistribution

Governments may redistribute income from rich to poor, poor to rich, or among groups defined in some other way. Those who gain will usually approve of such policies; those harmed will not. The effect on the government's aggregate popularity will depend on the relative number of beneficiaries and victims, so no general prediction is possible. However, there is one exception: transfers to current citizens at the expense of future generations. If citizens discount the utility of their heirs, they may approve of governments that borrow more in order to fund current public goods and services. On the other hand, if they dislike being taxed to pay interest to the government's creditors, they may disapprove of such governments. This yields opposite hypotheses that approval will be higher when:

H9a: Public spending and deficits are higher.

H9b: Public spending and deficits are lower.

2.2 Perceptions and misperceptions

However good or bad the government's actual performance, it is the performance *perceived* by respondents that influences their evaluations. While perceptions are likely to correlate with reality, various factors could introduce distortions, affecting approval.

2.2.1 Media freedom and information manipulation

Most of the information citizens receive about their leaders is filtered through the media. Governments in authoritarian states often censor private media outlets and pressure them to

[5] Although previous literature has contrasted effects of performance nationwide with those of the respondent's personal economic situation, we lack data to do so here.

broadcast messages exaggerating the leader's accomplishments (Guriev and Treisman 2015). They also use state-owned publications and television channels for propaganda purposes. Across the board, we might expect media manipulation in authoritarian regimes to result in higher ratings. However, if citizens are aware of such manipulation, it could alienate them, lowering approval. Finally, one might expect more concentrated propaganda efforts in some years than in others; in both democracies and electoral autocracies, the leader is likely to step up such efforts during election campaigns.

A few papers have attempted to measure the impact of information manipulation and unfree media on leader popularity in non-democracies. Scholars have detected effects of censorship and state propaganda on election outcomes in post-communist Russia and Nazi Germany (Enikolopov, Petrova, and Zhuravskaya 2011, Adena et al. 2014). Treisman (2011) found that in Russia, controlling for actual economic performance, public evaluations of the economy improved during the months of presidential election campaigns, perhaps because of unusually positive media coverage. However, in Zimbabwe under President Mugabe, those who read newspapers regularly—even those controlled by the state—tended to disapprove of the president more (Bratton, Chikwana, and Sithole 2005, p.102). Although establishing causality is difficult, what seemed to matter was whether people believed the propaganda: approval of Mugabe correlated strongly with trust in the government media.

An additional question concerns the role of the internet. In democratic states with relatively free media, information available on the internet is unlikely to differ radically from that provided in the press and on television. But in authoritarian states, where the media are often heavily censored, the internet may provide alternative sources of information and factually-grounded criticism of the government. Thus, we might expect internet penetration to correlate with lower approval of government in authoritarian states. However, some authoritarian states censor the internet to deny citizens even this source of alternative information. Such censorship might be expected to offset the effect of internet penetration, increasing government approval.

This suggests additional hypotheses that approval is higher when:

H10: Levels of security and/or economic performance are *perceived* to be higher:

a) because performance is objectively better;

b) because of influences other than objective performance.

H11: The media are less free.

H12: The media are *perceived* to be more free.

H13: Internet penetration is lower in non-democracies.

H14: Censorship of the internet is greater in non-democracies.

H15: It is an election year.

2.2.2 Dissemination of information over time

In the US, the ratings of presidents tend to start high but then decline, at least until they reach an "equilibrium" level, estimated at about 50 percent approval (Erikson, MacKuen, and Stimson 2002). This has been interpreted in several ways. One possibility is that the president's supporters have mutually incompatible goals and this only becomes clear to all over time (Mueller 1973). The losers in this competition lower their assessment of the incumbent's

performance. This is known as the "coalition of minorities" hypothesis. Or it could be just that voters start out with unrealistically high expectations and gradually become disillusioned (Stimson 1976). Ratings might also fall because the media and elites grow increasingly critical of incumbents throughout their tenure (Brody 1991). In each case, ratings decline not because government performance itself deteriorates, but because misperceptions and unrealistic expectations dissipate as time passes.[6] Based on this, we might predict higher approval when:

H16: The top leader is new in office.

2.3 Repression and fear

In authoritarian states, even if the pollster promises anonymity survey respondents might fear that expressing critical opinions about the incumbent could result in punishment of some kind. One might expect anxiety to be more intense and widespread, the greater the actual repressiveness of the regime.

Exploring the impact of repression and fear on stated approval is difficult. One might expect intimidation to have two opposite effects—to make citizens dislike their government, but also to make them reluctant to reveal this. The net effect is hard to predict. In Zimbabwe in the early 2000s, disillusion with the regime seemed to dominate. Respondents who said they felt afraid were "twice as likely to give a *negative* rating to the president" (Bratton, Chikwana, and Sithole 2005, p.99).

This is surprising given the strong reasons to expect preference falsification in such settings (Kuran 1997). Such preference falsification is thought to explain why polls failed to reveal the unpopularity of the Sandinista government in Nicaragua shortly before it was swept from power in the election of 1990, as well as the surprise that greeted the sudden collapse of communism in Eastern Europe (Bischoping and Schuman 1992; Kuran 1991). Poland's last communist government had been convinced by opinion polls that it remained sufficiently popular to win elections (Kaminski 1999, p.85).

Since our study compares the correlates of approval in a large number of countries and years, we can explicitly model such possible effects of fear. Our final hypotheses are that approval is higher when:

H17a: The regime is more repressive (fear).

H17b: The regime is *less* repressive (alienation from more violent governments).

A supplementary hypothesis is that where repression and fear are greater, this will induce some people who would have said they disapproved of the government to reply that they "don't know" when asked about this. We examine this in the appendix.

Including measures of repression in our regressions reduces the danger that other results are biased by the omitted variable of fear. Besides controlling for repression, we also use techniques that control for unobserved unit heterogeneity, thus focusing on changes in variables over time rather than cross-national differences per se. As Singer and Scotto (2004,

[6] Another possible argument is that the impact of government propaganda on incumbent ratings will vary with the respondent's political awareness (Zaller 1991, Geddes and Zaller 1989). Having only country level data, we could not examine this.

p.479) argue, even if one believes that "the expressed *levels* of regime support are untrustworthy, *trends* in the data reflect changes in societal support." Government plebiscites in Latin America have been found to inflate support for the government position; yet one study found that changes in support systematically tracked changes in plausible determinants of opinion (Smith and Turner 1984). To the extent that the intensity of repression does not change much from year to year, its effect on approval will be filtered out by country fixed effects.

3 Data

3.1 Political Approval

Our measure of political approval comes from the Gallup World Poll (GWP), a major cross-national survey conducted annually by Gallup in more than 140 countries. Our dependent variable consists of the percentage of respondents answering "yes" to the question: "Do you approve or disapprove of the job performance of the leadership of this country?" Respondents could answer "yes," "no," or "don't know." We use data as available from 2005-2014. Since some years are missing for some countries, this yields a total of 936 country-years for which we have approval data (we drop observations for the non-state territories Nagorno-Karabakh, Northern Cyprus, Somaliland, and Puerto Rico). (When an observation's year, as given by Gallup, does not match the year in which the polling actually took place—for instance, if polling occurred in December 2005 but the results were listed for 2006—we go by the polling year.)

The sample size in most country-years was around 1,000 respondents, but it was occasionally larger or smaller on this question, ranging from 496 (Georgia 2007) to 12,620 (India 2012). In most cases, the interviews were conducted face-to-face, but in highly developed countries where more than 80 percent of the population had telephones, a random-digit-dial telephone method was used instead (Tortora, Srinivasan, and Esipova 2010, p.536).

The GWP has been used in a number of previous studies, mostly focused on subjective wellbeing and quality of life around the world, a few related to religion. Stevenson and Wolfers (2011) use it to study trust in public institutions (but not government approval). Although no survey is perfect, it has withstood considerable scrutiny.

Across all countries and years, the average approval level was 45 percent of respondents. Using the traditional cutoff for democracy of a score of +6 on the Polity2 scale, average approval was 43 percent in democracies and 54 percent in non-democracies.[7] The worldwide average changed slightly from year to year, with the lowest level—41 percent—recorded in 2005 and the highest—48 percent—in 2010. Within countries, substantial variation occurred in approval levels over time. Among those countries for which data were available in all nine years, the average gap between the government's highest and lowest rating was 31 percentage points.

[7] The set of countries included a significant number of non-democracies as well as democracies. For instance, in 2010 there were 25 non-democracies with approval data, including two Latin American, five Asian, 10 African, three Middle Eastern, and five post-Soviet states. In the whole 2005-14 dataset, 653 country-years are in democracies and 232 country-years are in non-democracies; the other 51 are in countries that Polity IV does not classify because the country was under foreign occupation (e.g. Afghanistan), in an interregnum period of anarchy that lasted through 2014 (e.g. Haiti) or too small to be in the dataset (e.g. Malta). The maximum number of observations for which approval and lagged approval are both available, as well as the Polity2 score, is 674.

Among democracies, the average range was 30 points, while among non-democracies it was 39 points.

3.2 Explanatory variables

3.2.1 Objective indicators

Our measures of economic performance are the level of GDP per capita at purchasing power parity in 2011 dollars (in natural log form and lagged one year), the growth rate of GDP per capita, the inflation rate (in natural log form), and the unemployment rate. Data on the first two are from the World Bank's *World Development Indicators (WDI).* Those on unemployment and inflation are from *WDI* when available, supplemented by the IMF's *World Economic Outlook* database when not. The occurrence of wars and civil wars comes from the *Major Episodes of Political Violence* database, constructed by the Center for Systemic Peace. The rate of intentional homicide per 100,000 population is from the UN's Office on Drugs and Crime. Finally, consolidated budget expenditures as a percent of GDP come from the IMF.

3.2.2 Perceptions

Our main measure of economic perceptions is the percentage of respondents to the GWP who said that they would rate economic conditions in their country as "excellent" or "good." For perceived security, we use the percentage of GWP respondents who said that they felt safe walking at night near where they lived. To capture beliefs about media freedom, we use the percentage of GWP respondents who agreed that the media in their country had a lot of freedom. As a measure of actual censorship and other media controls, we use Freedom House's index of media freedom, adjusted so that a higher score indicates greater freedom of the press. Our proxy for internet censorship is the natural log of the number of requests that the country's government or courts made to Twitter during the year, asking it to block tweets. The data come from Twitter; the series begins only in 2012—we set this variable to zero in previous years, assuming there were then no such requests, or almost none. We treat this as a proxy for the intensity of internet censorship in general, rather than a measure of the effect of Twitter's actions per se. Our measure of internet usage comes from *WDI*.

To pick up intensified public relations during election campaigns, we include separate dummies for whether a national executive election or legislative election was held in the given year, using data from the World Bank's *Database of Political Indicators (DPI)*. To capture the effect of gradual dissemination of information about the country's leader over time, we use, first, a dummy for the leader's first year in office, and, second, the number of years that the leader had been in office, again from DPI, updated in places. If one modeled the effect of tenure as linear, then any effect of the number of years in office would eventually drive the leader's approval beyond the bounds of 0 and 100 percent—an absurdity. We therefore enter the leader's tenure transformed so that the variable starts at 0 and approaches 1 asymptotically. (Specifically, our variable $yeartrans = 1 - \exp(-(years - 1))$.)

3.2.3 Repression and fear

To capture the effect of repression and fear on the expressed support for the government, we include the country's score on the *Political Terror Scale*, constructed by a team at the University of North Carolina (Gibney et al. 2015). This is a 5-point scale, based on annual reports on human rights practices—we use the version based on reports of Amnesty International rather

than that based on reports of the US State Department because the latter excludes the US. Scores range from 1—"*Countries under a secure rule of law, people are not imprisoned for their views, and torture is rare or exceptional. Political murders are extremely rare*"—to 5—"*Terror has expanded to the whole population. The leaders of these societies place no limits on the means or thoroughness with which they pursue personal or ideological goals.*" We also tried including a measure of the number of fatalities caused by state violence against unarmed citizens (cases with more than 25 deaths) from the Uppsala Conflict Database Program and the number of journalists imprisoned in the country (from various reports), but neither of these was significant. This could be because state violence was rare in these years.

4 Methodology

The nature of the data raises a number of issues. As noted, the question about government approval was asked in a total of 936 country-years. However, data are missing in some cases for some of the explanatory variables. Since listwise deletion is likely to generate biased estimates and to underestimate standard errors, we employ multiple imputation for certain variables (King et al. 2001). This involves taking random draws from a multivariate normal posterior distribution for the missing variables, conditional on the observed data. We use the program Amelia II to impute 10 datasets (see Honaker, King, and Blackwell 2011), and then estimate regressions on all 10 datasets, combining the results using Rubin's rules to obtain the appropriate standard errors (Rubin 1987).[8]

Fisher tests using both the Augmented Dickey Fuller and Phillips-Perron options strongly reject the null hypothesis of a unit root, so we treat the panels as stationary. However, one might expect approval ratings to be quite highly autocorrelated for various reasons. (For instance, Bayesian updating would lead citizens to change their evaluations of incumbents gradually rather than constructing these from scratch whenever new information surfaced.) At the same time, numerous hard-to-measure country characteristics may influence ratings, potentially causing omitted variable bias in estimates of those explanatory variables that are included.

These features of the data suggest the need for a dynamic model that controls for unobserved unit heterogeneity and that is appropriate for "small T, large N" data, since the number of countries far exceeds the number of years. We therefore use the Arellano-Bover/Blundell-Bond "systems" GMM estimator (Arellano and Bover 1995, Blundell and Bond 1998). This estimates the model instrumenting for the lagged dependent variable and other endogenous explanatory variables and transforming the data to expunge unit fixed effects. (The systems estimator instruments both for levels of the variables with deviations and for deviations of the variables with levels; we use the forward orthogonal deviations transformation, rather than differencing, to eliminate fixed effects.) The systems model is preferable to the "difference" GMM estimator here, since the former can accommodate slowly-changing or time-invariant regressors (Roodman 2009, p.114). Besides the lagged dependent variable, we instrument for various

[8] Specifically, we use the "mi estimate" command in STATA. The variables for which we impute missing data are: perceived economic conditions, perceived safety walking at night, perceived freedom of the country's media, unemployment, log inflation, the homicide rate, and political repression.

other explanatory variables that could be influenced by the popularity of the government. Our model is:

$$r_{i,t} = \alpha r_{i,t-1} + \boldsymbol{X}'_{i,t}\boldsymbol{\beta} + \gamma_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

where $r_{i,t}$ is the average rating of the government of country *i* in year *t*, $\boldsymbol{X}_{i,t}$ is a vector of explanatory variables in country *i* in year *t*, γ_i is the country fixed effect (which is removed by the transformation), δ_t captures year fixed effects (we include these in all regressions), and $\varepsilon_{i,t}$ is an error term with zero mean. In the first set of regressions we include only objective indicators among the right-hand side variables. In the second set of specifications, we add variables to pick up the influence of—possibly distorted—perceptions of the national economy, domestic safety, and the freedom of the media.

5 Results

As expected, there is considerable continuity in approval ratings across years—the coefficients on lagged approval range from 0.29 to 0.55—but they are still far short of one, consistent with the notion that the data are stationary.

Let us first consider security. The regressions suggest that, in non-democraices, citizens do "rally behind the flag" in the first year of an interstate war. The estimated boost in the government's approval is 9 percentage points (model 6). We find no general effect in non-democracies, either in the first year of a war or in subsequent years. However, these results should be viewed with caution because they are based on the very small number of interstate wars that occurred in the 2006-14 period. The countries that experienced war were the USA (2006-14), Iraq (2006-10), Russia (2008), Georgia (2008), Lebanon (2006), and Israel (2006). Indeed, the effect for "non-democracies" is entirely based on the experience of Russia in its 2008 war with Georgia.[9] (There were no cases of wars in non-democracies that lasted longer than one year, so the dummy for subsequent years drops out in models 3 and 6.) Russia's 2014 occupation and annexation of Crimea does not qualify as a war in the MEPV data since casualties were minimal, but this almost certainly explains the 27-point jump in approval of the Russian government that year.

The direction of causation is also open to question: it might be low popularity that causes incumbents to seek to boost their ratings by means of a "short, victorious war." This could explain the absence of a finding for the democracies. But it does not seem to fit Russia in 2008, since its intervention occurred at a time when President Putin's approval level was at 80 percent, near its all time high, and it was provoked by the shelling by Georgian troops of the capital of South Ossetia, Tskhinvali, which killed two Russian peacekeepers (EU 2009).[10] It

[9] To capture the effect of the first year of a war, we adjusted so that, in each case, the war was coded as in the same year as the first subsequent GWP round. For instance, the 2008 round of polling in Russia and Georgia was completed *before* the outbreak of the war between them. Coding 2008 as the first year of this war would produce a spurious correlation between the war and the poll (which in fact preceded it). We therefore coded the outbreak of war as 2009, the year of the next GWP. Note also that the positive effect of war on approval of the Russian government in 2009 shows up only once we control for the (extremely negative) perception of economic performance among Russians that year: only 10 percent said economic conditions were good or excellent.

[10] Information from the Levada Center, at www.levada.ru.

might, nevetheless, fit for the democracies. However, in Georgia, the government's approval was already trending up, having risen from 29 percent in 2007 to 39 percent in June 2008. Israel's leader, Ehud Olmert, might have thought that the 2006 war in Lebanon would improve his popularity; if so, he was wrong—two weeks after the war ended, 63 percent of Israelis wanted him to resign (Kalman 2006).

Civil war had a negative coefficient in all regressions that include perceptions, but was not significant. (And, unlike for interstate wars, there were plenty of cases in the data). One concern might be that particularly violent civil wars make it impossible for Gallup to poll, causing observations to be missing from the data. This could, in theory, bias the results. In fact, this does not appear to be a problem. Among those countries where Gallup polled at least once between 2005 and 2014, Gallup was almost exactly as likely to poll in years when a civil war was occurring as in years of domestic peace (the proportion of civil war years missed, was 34 percent, compared to 33 percent of non-civil-war years missed).

Higher homicide rates did not systematically reduce government popularity in either type of regime. We suppose that this may be because citizens do not generally *know* the level of and trend in such statistics.[11] (We return to the question of perceptions of safety below.)

In short, international war in a non-democracy can prompt a boost in the government's popularity, although we cannot tell given available data how long this boost would last. We did not find other systematic effects of the objective level of insecurity.

Evidence for a link between economic performance and approval is strong in both types of regimes (we focus first on models 1-3, before adding the intervening variable of economic perceptions in models 4-6). Higher growth is positively related to approval in both democracies and non-democracies—and the effect is even somewhat larger in the non-democracies. Democracies with higher unemployment also tend to have lower approval.

Figure 2 shows the pattern of economic growth and approval in three democracies and three non-democracies. We also indicate the timing of presidential elections, which coincide with some upticks in approval that growth cannot explain (for instance, in Turkey 2014, Venezuela 2007, and Russia 2008; the GWP survey was conducted in Russia in May 2008, before that year's war with Georgia), as well as the Russian annexation of Crimea. In the UK, Brazil, Turkey, Zimbabwe, and Venezuela, the relationship between growth and approval is clear, especially once one takes into account the effect of presidential elections. It is less obvious in Russia, but if one attributes the large rise in 2008 to the presidential election that year, and the jump in 2014 to the annexation of Crimea, the link between the two trends becomes clearer (although the fall in 2009 is less than one would have expected given the economic crisis of that year).

[11] There is no significant relationship even for the countries with relatively high homicide rates. We ran specifications with homicide rate squared and for the subsample with high homicide rates, but found no effect.

Table 1: Determinants of government approval

	(I) Objective indicators			(II) Adding perceptions		
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Dem.	Non-dem.	All	Dem.	Non-dem.
Approval, t-1	0.55***	0.53***	0.53***	0.39***	0.36***	0.29***
	(0.064)	(0.068)	(0.11)	(0.054)	(0.060)	(0.071)
Security						
First year of international war, t	-10.6**	-9.62	-5.07	-3.54	-3.45	9.12**
	(5.23)	(6.28)	(4.23)	(8.52)	(11.0)	(4.40)
Subsequent year of int. war, t	19.5	32.9	n.a.	10.3	17.3	n.a.
	(17.7)	(53.1)		(15.1)	(30.2)	
Civil war, t	0.36	0.94	-4.73	-3.63	-4.87	-3.67
	(3.68)	(4.17)	(5.12)	(2.78)	(4.24)	(4.03)
Homicide rate, t	0.072	0.018	-0.11	0.046	-0.0095	0.021
	(0.087)	(0.11)	(0.11)	(0.067)	(0.087)	(0.10)
Economic performance						
Growth rate of GDP per capita, t	0.45***	0.42*	0.68***	0.23	0.32	0.45**
	(0.17)	(0.24)	(0.26)	(0.14)	(0.23)	(0.19)
Log GDP per capita ,t-1	2.30	-2.56	5.24	1.76	-3.74	4.35
	(2.99)	(3.93)	(4.69)	(1.79)	(2.74)	(2.87)
Log inflation rate, t	-1.71	-1.17	-5.67	-1.01	-1.20	-5.61**
	(2.11)	(3.09)	(3.52)	(1.89)	(2.62)	(2.38)
Unemployment rate, t	-0.31	-0.54**	-0.029	-0.0044	0.025	-0.14
	(0.26)	(0.25)	(0.28)	(0.20)	(0.25)	(0.27)
Redistribution						
Government surplus	0.37	0.55*	-0.19	0.31	0.60**	-0.34
as share of GDP, t	(0.23)	(0.32)	(0.50)	(0.22)	(0.27)	(0.36)
Information						
Press freedom, t	0.12	0.10	-0.72**	-0.21*	-0.12	-0.55***
	(0.14)	(0.12)	(0.31)	(0.11)	(0.12)	(0.19)
Internet users per 100 people, t	-0.21*	0.047	-0.48**	-0.17**	0.056	-0.41**
	(0.11)	(0.15)	(0.22)	(0.075)	(0.11)	(0.16)
Log requests to Twitter	1.56	0.54	5.49***	1.17	1.07	5.39***
to withhold tweets, t	(1.17)	(1.28)	(1.53)	(0.96)	(1.15)	(1.16)
Leader first year in office, t	7.91**	8.56**	0.067	2.72	3.51	-1.35
	(3.47)	(3.54)	(9.43)	(3.08)	(3.17)	(8.70)
Leader's years	4.55	4.67	-5.82	-1.22	-0.45	-3.80
in office (transformed), t	(3.97)	(4.16)	(9.93)	(3.64)	(3.97)	(9.40)
Legislative election year, t	0.0021	1.03	2.04	0.54	0.61	1.87
	(1.00)	(1.12)	(1.87)	(0.90)	(0.99)	(1.67)
Executive election year, t	6.35***	7.00***	4.73**	5.77***	6.37***	4.06*
	(1.34)	(1.71)	(1.93)	(1.22)	(1.52)	(2.08)
Repression						
Political Terror Score	-0.58	-0.33	-1.55	-0.12	0.32	-1.21
(Amnesty International), t	(0.87)	(1.15)	(2.64)	(0.71)	(0.92)	(1.79)
Perceptions						
Economic conditions				0.33***	0.32***	0.34***
"good" or "excellent"t				(0.054)	(0.068)	(0.11)
Percent who felt safe				0.27**	-0.014	0.25
walking alone at night, t				(0.11)	(0.12)	(0.16)
Percent who think media				0.25***	0.32***	0.22**
have a lot of freedom, t				(0.065)	(0.081)	(0.11)
Observations	672	483	172	672	483	172
Countries	118	85	41	118	85	41
Arellano-Bond AR(2), p	0.29	0.19	0.62	0.34	0.35	0.81
Hansen test, p	0.67	0.51	0.53	0.47	0.32	0.26
No. of instruments	63	61	37	72	70	43

Robust standard errors, clustered by country, in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Estimated with xtabond2, collapse option to economize on instruments. All models include year dummies. Models 1, 2, 4, 5: all explanatory variables except year dummies instrumented with first and second lags. Models 3, 6: lagged approval, growth, Log inflation, unemployment, government surplus, Log requests to Twitter instrumented with first lags; press freedom, internet usage, political terror score instrumented with first and second lags; others treated as exogenous. Difference-in-Hansen tests for almost all models cannot reject the null that instruments are exogenous.

Contrary to the naïve view that populism thrives in democracies, greater deficit spending did not buy support in such states. In fact, in democracies larger government deficits (smaller surpluses) were associated with *lower* approval. There was no systematic relationship in the non-democracies. We also checked whether there were stronger relationships with other fiscal variables—the level of government spending and the level of public debt as a share of GDP (Appendix Table A2). Public debt is never significant. In non-democracies, higher government spending is associated with higher approval, but the effect is not robust.

Do the information environment and governments' attempts to manipulate it affect their ratings? We found evidence consistent with this. First, among the non-democracies, a more restricted press, as captured by Freedom House's media freedom rating, was associated with higher government approval. A one standard deviation decrease in press freedom among non-democracies (-13.5 points on the 100-point scale) translated into a 7 point higher approval rating (model 6). For example, the 23 point decline in press freedom recorded in Ecuador between 2007 and 2014 implies an increase of 12.7 points in the government's rating. In fact, it rose 9 points.

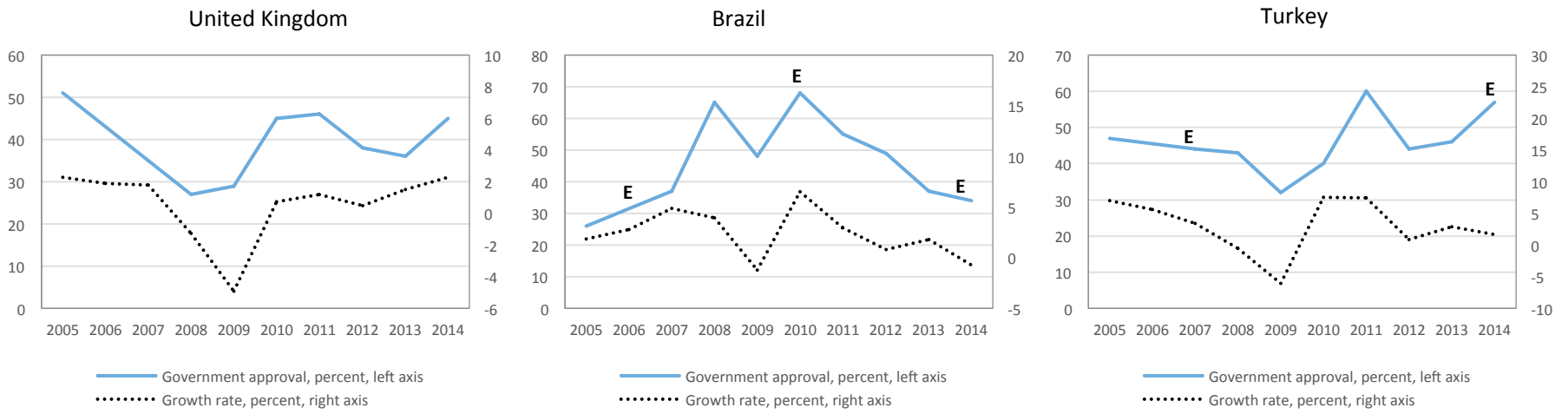
More recently, controlling information has come to include managing online communications. We hypothesized that authoritarian states with lower internet penetration—and, for a given level of penetration, those that more actively censored the web—would have higher ratings. As conjectured, non-democracies with greater internet penetration tended to have lower government approval (models 3 and 6). This is consistent with the view that, where the media and political opposition are controlled, the internet provides alternative sources of information and enables citizens to evaluate their governments more critically.[12] Other things equal, a one standard deviation increase in internet penetration among the non-democracies (20 percentage points) translated into an approval rating about 8 percentage points lower (model 6). For instance, had Thailand had the internet penetration of neighboring Malaysia in 2014, its predicted government approval rating would have been 13 points lower.

However, censoring online communications may offset this effect. Among non-democracies, those that made more requests to Twitter to block tweets had higher ratings. A one standard deviation increase in such requests—nine additional requests—was associated with an increase in the government's rating of about 12 percentage points (model 6). We interpret this as an effect not of Twitter's actions per se but of the full range of the government's efforts to censor the internet, for which requests to Twitter serve as a proxy. The non-democracies with the highest number of requests to Twitter were Russia, Kuwait, United Arab Emirates, Venezuela, and Ecuador.

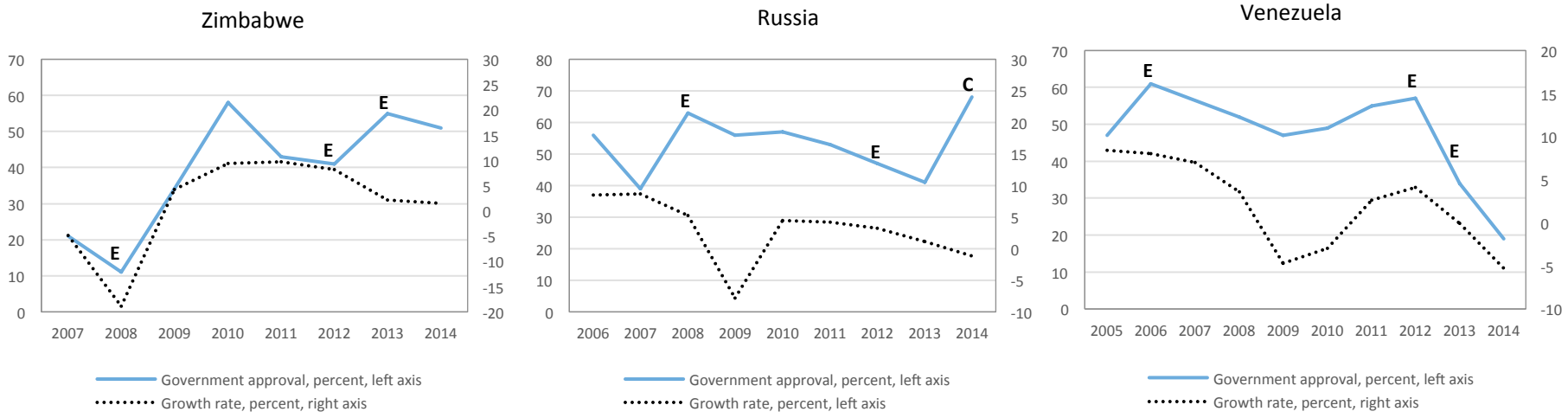
[12] Note that internet penetration is not just picking up the effect of economic development since the regressions control for the log of GDP per capita. And since the models expunge country fixed effects, the focus is on change rather than levels. The change in internet penetration did not correlate at all in the sample with the change in income.

Figure 1: Economic growth and government approval, democracies and non-democracies

Democracies (Polity2 ≥ 6)



Non-democracies (Polity2 < 6)



Since the measure of internet censorship is somewhat crude, and such censorship is itself quite recent, the result is somewhat fragile and dependent on the case of Russia, which, with 1,776 requests in 2014, had the highest number of any non-democracy (Turkey came highest among the democracies, with 2,568 in 2013). Dropping Russia from the estimation in model 6, the coefficient on the logged number of requests to Twitter is still about the same (8.74 instead of 5.39), but it is no longer statistically significant ($p = .15$).

Model 2 suggests there is a strong honeymoon effect in the democracies, but this falls to insignificance once we include respondents' perceptions of economic performance—perhaps because the enthusiasm respondents feel for a new leader bleeds over into a more positive assessment of the economy (we find evidence consistent with this in section 6.3.1). There was no honeymoon for leaders in authoritarian states.

As hypothesized, election years are special. In both democracies and non-democracies, ratings tend to be 4-7 points higher in years in which an election for the head of the national executive is held. Legislative elections had no such effect. In the case of parliamentary democracies, this is tricky to interpret since—unless the system includes a weak president as well as the prime minister—there are no elections for the national executive separate from the election of the parliament. We therefore re-ran the regressions, separating the democracies into parliamentary and presidential systems (and excluding the few semi-presidential systems).[13] Legislative elections had no effect on government ratings even in parliamentary democracies. Presidential elections continued to have a strong effect in the presidential democracies (Table A3). (We also find that the negative effect of budget deficits on government popularity occurs only in the parliamentary democracies; there is no effect in the presidential ones. And leaders in presidential democracies do experience a honeymoon.)

Does it matter when, with regard to the election, the approval polling occurred? We explored this, distinguishing cases in which polling occurred before, after, and in the same month as the election (Table A4). For both democracies and non-democracies, the effect was strongest when polling occurred after the election. Breaking down the cases more finely, there were very large and significant positive jumps in approval if polling occurred in the first (and sometimes the second) month after the election.[14]

Does the positive effect of the election on government approval depend on whether the incumbent is replaced? For both democracies and non-democracies, a presidential election brought a stronger boost to the government's rating if it resulted in leader turnover (Table A5). However, among democracies, the effect was still sizeable and significant even if the incumbent

[13] There were too few changes from one system to another within our data to identify the effect of such regime type changes. This is why we choose to compare the size of the effects within the two types of regimes.

[14] To study this, we had to focus on the 72 out of 264 executive election years in which the GWP polling was completed in a single month. In other cases, the polling lasted multiple months or occurred in several bursts, making it difficult to examine such relationships. We found a negative effect on popularity in democracies if the GWP was conducted in the month before the election, but this reflects just the outcome in the 2010 Philippines election, the only case that fit this description. In this case, the incumbent was barred by the constitution from running for reelection, and so the campaign not surprisingly did not produce a bump in approval for the incumbent.

was reelected: this was not just a honeymoon effect for a new leader. In non-democracies, more of the effect seems to depend on the election actually dislodging the incumbent.

Somewhat surprisingly, we found voters in both non-democracies and democracies no more likely to say they approved of the government's performance when that government was more repressive. It could be that, as hypothesized, repression both alienates respondents and makes them afraid to express that alienation, resulting in no clear effect. Regardless, controlling for the level of repression enhances confidence that the other results are not distorted by fear on the part of respondents.

In specifications 4-6 (Table 1) we add voters' perceptions of economic performance, domestic security, and the freedom of the media. The proportion of voters in the country with a favorable evaluation of economic conditions is very significantly related to government approval in both types of regime, and the size of the effects is quite similar. A one standard deviation increase in the proportion of respondents that think the economy is doing well (19 percentage points) is associated with a roughly 6 percentage point increase in approval in both types of regime. Since the actual growth rate should influence popular perceptions of economic performance, we expected the coefficient on growth to fall as these perceptions enter the regressions—and it does, becoming insignificant in two of the three regressions.

Where more people felt safe walking at night, approval was somewhat higher in the full sample, but there were no significant results for democracies and non-democracies taken separately (although the result appears to be driven by the non-democracies). Finally, in both types of regime, the government was more popular, the more people believed the media to have a lot of freedom—whether or not it actually did. Clearly, censorship is not popular. The most effective type of censorship, therefore, should be the one that goes unnoticed.

To sum up the main results, people are happier with their governments when the economy is doing well—and, even more important, when they *believe* it is doing well. This is true not just among certain democracies, as past studies have shown, but among a broad range of both democracies and authoritarian states. Although the relative peacefulness of the last 10 years makes it difficult to judge, citizens in non-democracies may rally behind a leader who goes to war. Populist over-spending does not pay in general; higher deficits coincide with lower approval in parliamentary democracies and nowhere with higher approval (although there is a non-robust positive effect of greater spending in non-democracies). Presidential election years see a surge in support for the government in both democracies and authoritarian states—in the latter only if the election results in a change of leaders.

Citizens like their governments more if they believe the media to be free. But they like them less—in authoritarian countries—if the media actually *are* more free. They also tend to approve less of non-democratic governments if they have access to unfiltered information via the internet. In non-democracies, higher internet penetration correlates with lower approval, but greater state censorship of the internet is associated with higher governments ratings. While a one standard deviation increase in internet penetration saw approval ratings fall 8 percentage points, this could be more than offset by a one standard deviation increase in internet censorship, which was associated with a 12 point increase in approval.

6 Robustness, extensions, and further exploration

6.1 Robustness

The Arellano-Bover, Blundell-Bond "systems" GMM estimator (AB/BB) is our preferred model given the structure of the data. But in Table A6 we rerun the same regressions using OLS with country and year fixed effects and standard errors clustered by both country and year in place of the GMM method. We show versions of the model both with and without the lagged dependent variable. Both are problematic. Including the lagged dependent variable risks bias since the lag of the dependent variable is automatically correlated with the errors. However, to exclude the lagged dependent variable is to assume that all the effect of explanatory variables is absorbed in a single period, which is implausible. Another advantage of the AB/BB GMM estimator is that one can use it to instrument for endogenous variables with lagged levels and differences, whereas the simple fixed effects regressions do not do so.

Given these differences between the methods, we should not expect the results to be exactly the same, and in case of deviations we place greater faith in the AB/BB results. Table A6 shows that results are similar although not identical. Particularly in the case of the perceptions variables, we suspect that the OLS results are biased by the endogenous feedback from government popularity to perceptions of the economy and public safety that the AB/BB GMM model at least partly eliminates through instrumentation.

We also experimented with various alternative specifications of the AB/BB GMM regressions. There is a tradeoff in the execution of this model between instrumenting for explanatory variables that may be endogenous, on the one hand, and over-fitting by including too many instruments, on the other hand (see Roodman 2009). Although there is no clear answer to the question how many is "too many" instruments, a rule of thumb is to include fewer instruments than there are units in the data. This condition is easily satisfied for the full subsample and democracy sub-sample in Table 1, but in model 6 (for non-democracies) the number of instruments exceeds the number of units. Therefore, we show results in Table A7 reducing the number of variables treated as endogenous in order to reduce the number of instruments. The results remain very similar.

Finally, if countries were transitioning into or out of democracy on the basis of some of the explanatory variables we study, such selection might interfere with our ability to detect the effect of these variables. We therefore re-ran the regressions excluding the 21 country-years in which such a transition occurred in our data (that is, we dropped those country years, *t,* in which the country was a democracy in year *t* but had been a non-democracy in year *t-1* as well as those in which the country was a non-democracy in year *t* but had been a democracy in year *t-1*). The results, shown in Table A8, resemble those in Table 1.

6.2 Extensions

Approval ratings might be inflated when opposition candidates or parties are banned, as citizens then have no concrete alternative to compare to the incumbent. In Table A9, we check whether ratings are higher in non-democracies when: (a) there are no opposition parties in the legislature, and (b) no opposition party has more than 10 percent of the seats. In neither case

was there any significant effect. Plausible as it sounds, the absence of an opposition in the legislature to articulate alternative positions had no detectable general effect on the government's popularity.

A number of papers have found that voters' support for incumbents can be affected by natural disasters (e.g. Gasper and Reeves 2011). This might reflect judgments of how adequately the government had prepared for and responded to such events, or it might represent an emotional reaction not based on any logic. We explored whether the number of people killed in natural disasters during the given year correlated with the government's rating (Table A10). Similarly, one might expect terrorist attacks to affect assessments of the incumbent regime (Ladd 2007). On the one hand, an attack might prompt a rally behind the authorities, as at the outbreak of a war. On the other hand, respondents might fault the government for failing to prevent the attack, or they might simply react to bad news by downgrading approval. We therefore tried including the number killed by terrorists in the given year. We found no significant effects for terrorist attacks. For natural disasters, we found a non-linear effect in democracies: natural disasters that resulted in fewer than about 2,600 deaths were associated with higher ratings, but those that resulted in more deaths were accompanied by lower ratings.

Finally, it could be that people tend to feel more positive about the government in particular months or seasons. We checked for effects related to the season in which the poll was conducted, but found no significant ones (Table A11).

6.3 Further exploration

6.3.1 Economic performance

One can think of respondents' perceptions of economic performance as consisting of two parts: one that is based on accurate information about the economy's true state and another that is based upon misperception. We can use regression to isolate the two types of variation and see how each relates to approval.

In Table A12, columns 1-3, we regress the percentage of respondents who rated the economy as excellent or good on the four objective economic indicators—growth, GDP per capita, inflation, and unemployment. The economic indicators have the expected signs and growth and income are highly significant in both regime types; unemployment is also significant in democracies. So average perceptions of the state of the economy are not purely idiosyncratic or distorted by propaganda: they track its actual performance.

Models 4-6 add, as additional controls, other explanatory variables that could plausibly influence economic perceptions. The objective indicators remain significant and have even larger coefficients. So the apparent link between objective performance and perceived performance is unlikely to be spurious.

Some of the other variables also correlate with economic perceptions. In democracies, respondents appear to have rosier views of the economy when the media are less free and when a new leader has just taken office. Also in democracies—but not authoritarian states—greater repression was associated with more negative views of the economy. Of course, it could be that economic malaise prompts governments to become more repressive rather than the reverse. In any case, there was no evidence that respondents were systematically intimidated

into giving insincerely positive views to pollsters. In non-democracies, presidential election years saw a jump in economic perceptions, consistent with the notion that authoritarian leaders use election campaigns to disseminate propaganda on their achievements. More internet censorship had a weak positive effect on approval.

Table 2 returns to the analysis of approval and replaces the objective economic indicators in the approval regressions with (a) the predicted values from the regressions in columns 1-3 of Table A12, which we call "objective economic perceptions"—i.e., the part of the variation in perceptions that correlated with objective indicators, and (b) the residuals from these regressions, which we call "economic misperceptions"—i.e., the part of the variation in perceptions that is *not* related to major objective economic indicators.

It turns out that both the "objective perceptions" and the "misperceptions" are statistically significant in all three models (supporting Hypothesis H10), but the effect of the first is larger than that of the second. This is consistent with the idea that people do, at least in part, accurately perceive how the economy is doing and adjust their evaluations of their government on this basis. Such a link from objective economic conditions to government popularity is as evident among authoritarian states as among their democratic counterparts. That said, perceptions of the economy are also apparently swayed by the state's controls over information flows.

6.3.2 Repression

So far, we have found no evidence that greater government repression leads on average to higher approval ratings. As noted, this could be because the effects of fear—although real—are offset by the greater antipathy felt towards a government that resorts to violence against its citizens. We also hypothesized that greater repression might lead some with negative evaluations of the authorities to answer "don't know" rather than "don't approve." In Table A13 in the appendix, we show regressions identical to those in Table 1, columns 4-6, but with the dependent variable replaced by the proportion of respondents who said "don't know" in answer to the approval question.

Again, we found no evidence that greater repression increases the reluctance to answer frankly. In fact, in both types of regime, greater repression was associated with a *lower* propensity to answer "don't know" to the approval question, although this was not statistically significant.

Table 2: Determinants of government approval: objective and subjective economic perceptions

	(1)	(2)	(3)
	All	Dem.	Non-dem.
Approval, t-1	0.37***	0.35***	0.36***
	(0.055)	(0.058)	(0.080)
Security			
First year of international war, t	-6.14	-10.1	8.42*
	(7.78)	(8.95)	(5.10)
Subsequent year of international war, t	7.91	-13.9	n.a.
	(11.7)	(36.4)	
Civil war, t	-2.75	-4.34	-0.21
	(2.33)	(3.34)	(4.33)
Homicide rate, t	0.035	-0.086	0.044
	(0.070)	(0.083)	(0.12)
Redistribution			
Government surplus as share of GDP, t	0.13	0.36	-0.021
	(0.30)	(0.34)	(0.43)
Information			
Internet users, t	-0.33***	-0.25*	-0.52***
	(0.11)	(0.14)	(0.19)
Press freedom, t	-0.10*	-0.12*	-0.24***
	(0.057)	(0.069)	(0.080)
Log requests to Twitter to block tweets, t	1.20	1.41	5.03***
	(0.91)	(1.16)	(1.19)
Leader first year in office, t	3.85	4.51	2.28
	(3.14)	(3.09)	(8.87)
Leader's years in office (transformed), t	0.027	0.83	0.95
	(3.81)	(3.83)	(9.73)
Executive election year, t	5.67***	6.20***	4.45**
	(1.26)	(1.58)	(2.02)
Perceptions			
Percent who felt safe walking	0.38***	0.17	0.38**
alone at night, t	(0.11)	(0.16)	(0.17)
Percent who think media	0.26***	0.32***	0.19
have a lot of freedom, t	(0.072)	(0.083)	(0.13)
Objective economic perceptions, t	0.37***	0.36***	0.33***
	(0.077)	(0.080)	(0.11)
Economic misperceptions, t	0.25***	0.27***	0.23*
	(0.055)	(0.057)	(0.14)
Repression			
Political repression	-0.30	0.47	-2.02
(Amnesty International), t	(0.73)	(0.86)	(2.11)
Observations	672	483	172
Countries	118	85	41
Arellano-Bond AR2, p	0.45	0.17	0.20
Hansen test, p	0.75	0.53	0.13
No. of instruments	61	59	40

Arellano-Bover, Blundell-Bond systems GMM model; robust standard errors, clustered by country, in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. Estimated with xtabond2; collapse option used to economize on instruments. All models include year dummies. Models 7 and 8: year dummies and objective economic perceptions treated as exogenous; all others instrumented with first and second lags. Model 9: year dummies, objective economic perceptions, first year of war, civil war, homicide, internet users, first year in office, tenure, legislative and executive elections treated as exogenous; all others instrumented with first and second lags.

We do not mean to suggest that respondents are never intimidated. But there are numerous cases in the data of countries that got the worst possible score for abusing human rights but where a majority of respondents nevertheless told Gallup that they disapproved of the government's performance. This was the case in: Mexico (2011), Chad (2009), Democratic Republic of Congo (2009, 2011), Iraq (2008, 2011), Israel (2008), Afghanistan (2010, 2011), and Pakistan (2009, 2010, 2011, 2012). The only country that got approval ratings above 70 percent along with a 5 on the political terror scale was Sri Lanka (2007, 2009, 2010, 2011). The average government approval level in countries with 5's on the political terror scale—46.2 percent—was close to that among those with a perfect 1 on the terror scale—44.5 percent. And the share of "don't knows" among countries with 5's for political terror—8.1 percent—was actually slightly lower than among those with 1's—10.5 percent. In country-years in which the government had killed a large number of unarmed civilians—the Democratic Republic of Congo in 2009 (best estimate of fatalities: 887) and Zimbabwe in 2008 (best estimate of fatalities: 253), the government approval ratings were, respectively, 40 percent and 11 percent—and fewer than 3 percent of respondents chose to hide behind the answer "don't know" in these two cases.

7 Simulations

To demonstrate the size of some of the estimated effects, we run simulations for a few countries in Figure 3. We use the models in columns 2 and 3 of Table 1, excluding the subjective perceptions measures that are added in columns 4-6. The simplest way to simulate would be to generate the predictions of each model. Forecasts calculated in this way are shown in Figure A1 in the appendix.

However, the predictions calculated in the standard way include in each period the actual value of the lagged dependent variable. They are thus anchored to the actual series. A stronger test is to proceed iteratively, using the prediction as of year $t - 1$ as the lagged dependent variable when calculating the predicted value for year t. In this method, errors will cumulate over time, allowing the simulated values to stray far from the correct values—and outside the range of 0-100 that bounds the actual values.

Predictions formed in this more demanding way are shown in Figure 2 as the blue dashed line. They are more accurate for some countries than for others. For Brazil, the simulation gets the upward trend from 2006-2010, and the reversal after that, at least until 2013. But it underestimates the rise and fall and misses the local trough in 2009. The underestimation could in part relate to the differences in charisma and political skill between President Lula da Silva, who served as president until the end of 2010, and his successor Dilma Rousseff. For Turkey, the simulations are again too low, but the interyear changes correlate closely with the actual changes. It is tempting to attribute the very large jump in 2011, which the model does not pick up, to the legislative election held that year in which Erdogan's Justice and Development Party triumphed. The election and Gallup's polling both occurred in June. (Our regressions did not find a general effect for legislative elections.)

For the non-democracies pictured, Russia and Venezuela, the predictions are more accurate. In fact, that for Russia is very close to correct in 2008-12. The simulated rating begins its climb in

2013 rather than 2014. Venezuela's is roughly correct, but misses the recovery that Chavez enjoyed in 2009-12 and underestimates the collapse that coincided with the replacement of Chavez by Maduro in April 2013. As with Lula and Rousseff in Brazil, the timing of the sharp change in trend points to the importance of individual leaders. Turnover of leaders has been shown to have various other consequences—from institutional change (Jones and Olken 2009, Treisman 2015) to economic growth (Jones and Olken 2005).

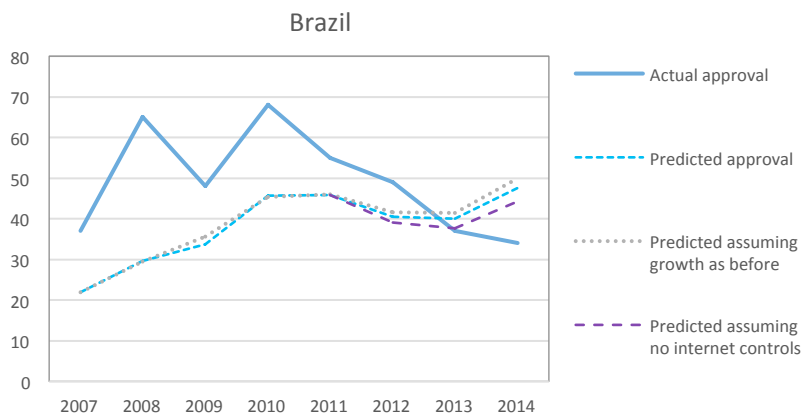
The grey dotted lines show simulated values for the rating recalculated supposing that the economic growth rate in 2008-14 had remained at the country's average rate for 2004-07. In other words, we imagine away the effects of the global economic crisis that broke out in 2008-9. This casts light on the influence of economic factors on government popularity in the countries depicted. For the non-democracies, Russia and Venezuela, the models suggest that the government would have been substantially more popular in the post-crisis years had economic growth remained strong. The difference is much smaller in Turkey and Brazil, in both of which the initial impact of the crisis was relatively mild and was followed by a brisk rebound. In Brazil, for instance, growth averaged 3.0 percent in the four years from 2008-11, compared to 3.4 percent in the preceding four years.

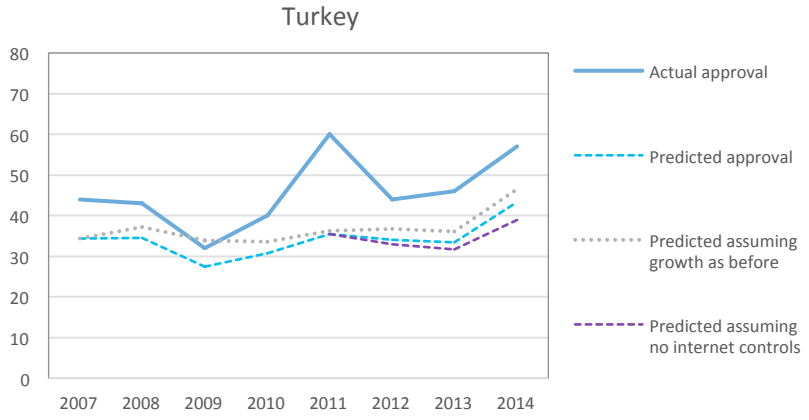
Finally, the purple dashed line, which starts—along with the relevant data—only in the last few years, simulates the predicted rating after subtracting out the effect of internet censorship, as proxied by the number of tweets that the country's authorities requested Twitter to block. For Russia, the predicted rating without internet controls was far below that predicted with such controls—and also below the actual rating. This is consistent with a view in which control over the internet in 2012-14 helped to boost Putin's approval. In Venezuela, which blocked somewhat fewer tweets, censorship is also predicted to have boosted government approval somewhat in 2013—but the effect was dwarfed by the collapse in popularity associated with the replacement of Chavez by Maduro.

In Turkey and Brazil, the estimated impact of internet censorship is lower (the tweets variable was not significant in the regression). Taking into account such censorship in Turkey leads to a prediction closer to the actual rating than the prediction assuming no censorship (the blue dashed line is closer to the solid line than the purple dashed line). However, the simulation for Brazil tells a different story. There, the prediction is more accurate if one ignores the censorship effect—although the difference is not great. One interpretation might be that the ways in which the Brazilian authorities censored the internet were not aimed at protecting the government's image—or at least were not effective in doing so.

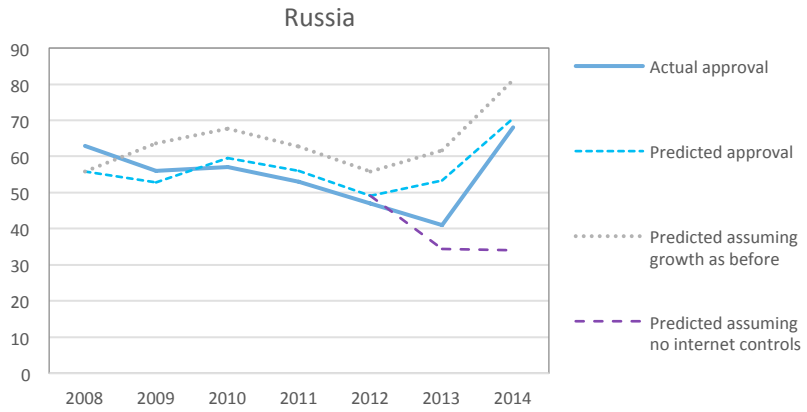
Figure 2: Simulating government approval ratings

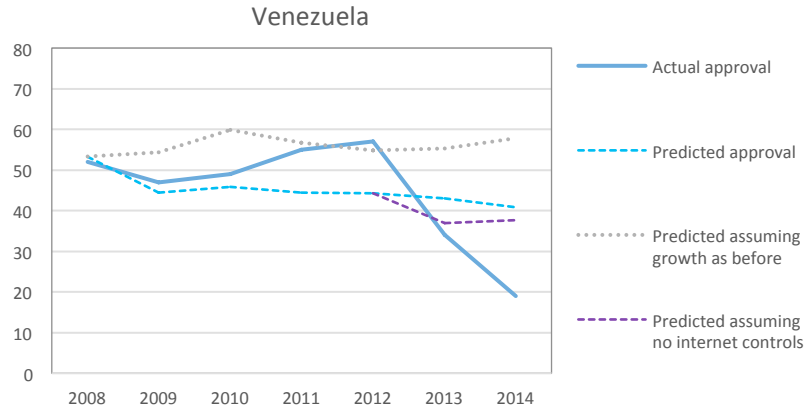
Democracies (Polity2 ≥ 6)





Non-democracies (Polity2 < 6)





Sources: Gallup World Poll, World Bank, Twitter, authors' calculations. **Notes**: "Predicted assuming growth as before": simulated assuming the growth rate in each year after 2007 was the country average for 2004-07. "Predicted assumig no internet controls": simulated subtracting out the estimated effect of blocked tweets.

8 Conclusions

How citizens evaluate their governments is central to understanding the process of politics in democracies and—as is becoming increasingly clear—in many authoritarian states as well. While many studies have identified determinants of government approval in particular countries, it has been unknown how far those results would generalize. In this paper, we analyze the correlates of approval in a dynamic panel of 128 countries—both democracies and non-democracies—over the years 2005-2014.

We find that better economic performance predicts higher approval in both types of political regime. Decomposing respondents' perceptions of economic performance into an objective part (which correlates with the growth rate and other observable economic indicators) and a subjective part (which does not), we show that both influence the government's popularity, but that the objective perceptions have a stronger impact in both types of regime. At least in our data, authoritarian governments could not completely escape the consequences of poor economic performance by misleading the public about it.

But misleading the public does pay off to some extent. In both democracies and non-democracies, citizens like their governments more if they believe the press to be free. Yet citizens of non-democracies like their governments less if the media actually *were* free. More internet censorship in such regimes also correlates with higher approval. To make sure respondents are not rating their governments highly because they are afraid of them, we control for the extent of political repression. But we do not find any relationship between repression and approval. We conjecture that two countervailing effects might cancel each other out: on the one hand, repression may make respondents afraid to answer honestly, but, on the other hand, it may increase disapproval of the government among those who overcome their fear.

Presidential election years see a bump in approval for the government in both presidential democracies and authoritarian states. The effect is greater if the leader is replaced. But in democracies even a reelected incumbent enjoys a (smaller) boost in popularity, whereas in non-democracies it is only new leaders that derive higher approval from the recent election.

Using simulations, we show that the incumbent's rating would likely have been substantially higher in recent years in both Russia and Venezuela if their growth rates had not fallen in the global financial crisis. Although the limited span of the data dictates caution, our estimates also imply that approval would have been considerably lower in Russia had the regime not censored the internet. Finally, the simulations point to the importance of leaders' personal characteristics. The sharp drop in approval in Venezuela after Chavez's death and the similar drop in Brazil after Lula stepped down are hard to explain except in terms of the particular individuals involved.

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Appendix

Table A1. Data sources

Approval	Percent of respondents who said they "approve of the job performance of leadership of country."	Gallup World Poll
International war	Dummy for state involved in episode of international warfare	Major Episodes of Political Violence and Conflict Regions, 1946-2012 (Monty Marshall, Center for Systemic Peace) www.systemicpeace.org/warlist.htm
First year of international war	Dummy for first year of state's involvement in episode of international warfare; for Georgia and Russia, war coded as occurring in 2009, because GWP polling had already occurred by August 2008.	Major Episodes of Political Violence and Conflict Regions, 1946-2012 (Monty Marshall, Center for Systemic Peace) www.systemicpeace.org/warlist.htm
Civil war	State involved in episode of civil war	Major Episodes of Political Violence and Conflict Regions, 1946-2012 (Monty Marshall, Center for Systemic Peace) www.systemicpeace.org/warlist.htm
Homicide rate	Intentional homicides per 100,000 people	United Nations Office on Drugs and Crime
Growth rate of GDP per capita	Growth rate of real GDP per capita	World Bank, World Development Indicators.
Log GDP per capita	Natural log of GDP per capita at PPP in 2011 dollars	World Bank, World Development Indicators.
Log inflation rate	Natural log of (5 + inflation rate). (5 added to prevent exclusion of cases with negative inflation.)	World Bank, World Development Indicators, when available, supplemented by IMF, World Economic Outlook database.
Unemployment	Unemployment rate	World Bank, World Development Indicators, when available, supplemented by IMF, World Economic Outlook database.
Government spending as share of GDP	Consolidated budget expenditures as percent of GDP	IMF, World Economic Outlook database.
Economic conditions good or excellent	Percent of respondents who said that they would rate economic conditions in the country good or excellent	Gallup World Poll
Percent who felt safe walking alone at night	Percent of respondents who said they felt safe walking alone at night near where they live	Gallup World Poll
Percent who thought media had a lot of freedom	Percent who said that media in their country had a lot of freedom	Gallup World Poll
Press freedom	Press freedom index; adjusted so 0 = completely unfree, 100 = completely free.	Freedom House
Requests by governments or courts to Twitter to block tweets	Note that data begin in 2012.	Twitter
Leader's years in office	Number of years the head of	DPI, see: Cruz, Cesi, Philip Keefer and Carlos Scartascini (2016). "Database of Political Institutions Codebook, 2015 Update (DPI2015)."

	executive had been in office	Inter-American Development Bank. Updated version of Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer, and Patrick Walsh, 2001. "New tools in comparative political economy: The Database of Political Institutions."15:1, 165-176 (September), World Bank Economic Review.; our updates.
Leader first year in office.	Head of executive in his first year in office	DPI, see: Cruz, Cesi, Philip Keefer and Carlos Scartascini (2016). "Database of Political Institutions Codebook, 2015 Update (DPI2015)." Inter-American Development Bank. Updated version of Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer, and Patrick Walsh, 2001. "New tools in comparative political economy: The Database of Political Institutions."15:1, 165-176 (September), World Bank Economic Review.; our updates.
Legislative or executive election year	Either legislative or execuutive election held this year	DPI, see: Cruz, Cesi, Philip Keefer and Carlos Scartascini (2016). "Database of Political Institutions Codebook, 2015 Update (DPI2015)." Inter-American Development Bank. Updated version of Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer, and Patrick Walsh, 2001. "New tools in comparative political economy: The Database of Political Institutions."15:1, 165-176 (September), World Bank Economic Review.
Amnesty	Political terror score, based on Amnesty International Reports	Amnesty International, from Political Terror Score database Gibney, Mark, Linda Cornett, Reed Wood, Peter Haschke, and Daniel Arnon. 2015. The Political Terror Scale 1976-2015. Date Retrieved, from the Political Terror Scale website: http://www.politicalterrorscale.org.
Polity2 score	Score. -10 = “pure autocracy,” +10 = “pure democracy”	Polity IV dataset, Monty Marshall, Center for Systemic Peace, http://www.systemicpeace.org/polityproject.html
Deaths from natural disasters		EM-DAT Database, D. Guha-Sapir, R. Below, Ph. Hoyois – “EM-DAT: The CRED/OFDA International Disaster Database” – www.emdat.be – Université Catholique de Louvain – Brussels – Belgium.
Deaths from terrorist attacks		Global Terrorism Database, https://www.start.umd.edu/gtd/.
Share of seats of opposition parties	At least one seat in parliament held by opposition party. More than 10 percent of seats in parliament held by opposition parties.	DPI, see: Cruz, Cesi, Philip Keefer and Carlos Scartascini (2016). "Database of Political Institutions Codebook, 2015 Update (DPI2015)." Inter-American Development Bank. Updated version of Thorsten Beck, George Clarke, Alberto Groff, Philip Keefer, and Patrick Walsh, 2001. "New tools in comparative political economy: The Database of Political Institutions."15:1, 165-176 (September), World Bank Economic Review.

Table A2: Alternative fiscal variables

	(1) All	(2) Dem	(3) Non-dem	(4) All	(5) Dem	(6) Non-dem
Approval (t-1)	0.39***	0.36***	0.29***	0.40***	0.36***	0.21***
	(0.051)	(0.060)	(0.076)	(0.054)	(0.058)	(0.076)
First year of international war (t)	-4.37	-5.31	3.74	-4.26	-5.52	4.90
	(8.63)	(9.66)	(4.49)	(8.87)	(9.94)	(4.75)
Subsequent year of international war (t)	3.41	7.00	n.a.	12.7	-8.57	n.a.
	(11.6)	(27.0)		(15.3)	(28.3)	
Civil war (t)	-2.80	-3.74	-4.12	-2.28	-2.06	-7.07*
	(2.80)	(4.48)	(4.61)	(2.79)	(5.08)	(3.70)
Homicide rate (t)	0.033	0.0073	-0.052	0.055	0.016	0.036
	(0.070)	(0.088)	(0.11)	(0.068)	(0.087)	(0.12)
Growth rate of GDP per capita (t)	0.25*	0.27	0.22	0.20	0.45*	0.22
	(0.14)	(0.21)	(0.26)	(0.15)	(0.23)	(0.22)
Log GDP per capita (t-1)	1.41	-4.22	2.36	-0.23	-2.85	7.90**
	(1.84)	(2.88)	(4.63)	(1.56)	(2.72)	(3.20)
Log inflation rate (t)	-1.36	-1.58	-5.13**	-1.09	-2.45	-6.41**
	(1.92)	(2.74)	(2.52)	(1.93)	(2.74)	(2.72)
Unemployment rate (t)	-0.0078	0.094	0.055	0.051	-0.18	-0.17
	(0.22)	(0.30)	(0.28)	(0.22)	(0.27)	(0.32)
Govt. spending as share of GDP (t)	-0.0034	-0.26	0.50*			
	(0.11)	(0.17)	(0.27)			
Government debt as percent of GDP (t)				-0.022	0.034	-0.23
				(0.041)	(0.026)	(0.17)
Press freedom (t)	-0.21*	-0.095	-0.44**	-0.23*	-0.062	-0.27
	(0.11)	(0.13)	(0.20)	(0.12)	(0.13)	(0.24)
Internet users per 100 people (t)	-0.16**	0.14	-0.39**	-0.11	0.019	-0.56***
	(0.074)	(0.12)	(0.19)	(0.075)	(0.12)	(0.19)
Log requests to Twitter to block Tweets (t)	1.33	1.16	4.76***	1.52	1.03	5.65***
	(0.84)	(1.13)	(1.44)	(0.95)	(1.11)	(1.12)
Leaders's first year in office (t)	3.12	3.48	-4.68	2.44	4.09	-4.21
	(3.02)	(3.17)	(9.17)	(3.11)	(3.13)	(8.95)
Leaders's years in office (transformed) (t)	-0.61	-0.38	-8.02	-1.48	0.33	-8.97
	(3.55)	(3.97)	(10.3)	(3.75)	(3.93)	(11.1)
Legislative election year (t)	0.52	0.84	2.37	0.59	0.43	1.67
	(0.91)	(0.99)	(1.73)	(0.92)	(1.03)	(1.76)
Executive election year (t)	5.71***	6.04***	3.69*	5.80***	5.76***	5.47**
	(1.22)	(1.53)	(1.95)	(1.23)	(1.56)	(2.32)
Economic conditions "good" or "excellent" (t)	0.35***	0.36***	0.38***	0.33***	0.35***	0.38***
	(0.057)	(0.070)	(0.12)	(0.054)	(0.074)	(0.14)
Percent felt safe walking at night (t)	0.25**	0.0053	0.19	0.29***	-0.017	0.32*
	(0.10)	(0.12)	(0.19)	(0.10)	(0.12)	(0.18)
Percent think media have lot of freedom (t)	0.24***	0.30***	0.17	0.20***	0.28***	0.060
	(0.065)	(0.079)	(0.12)	(0.070)	(0.086)	(0.097)
Political Terror Score (AI) (t)	-0.16	0.24	-1.28	-0.22	0.60	-0.57
	(0.70)	(0.95)	(1.69)	(0.73)	(0.97)	(1.87)
N	672	483	172	666	478	171
Countries	118	85	41	117	84	41
Arellano-Bond AR(2), p	0.33	0.27	0.92	0.26	0.25	0.61
Hansen test, p	0.26	0.19	0.42	0.15	0.31	0.79
No. of instruments	72	70	43	72	70	43

Standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A3: Effect of elections in parliamentary and presidential democracies

	(1) All democratic	(2) Parliamentary	(3) Presidential
Approval (t-1)	0.36***	0.38***	0.41***
	(0.060)	(0.10)	(0.072)
First year of international war (t)	-3.45	n.a.	-15.8**
	(11.0)		(6.14)
Subsequent year of	17.3	n.a.	-11.9*
international war (t)	(30.2)		(6.50)
Civil war (t)	-4.87	5.64	1.10
	(4.24)	(7.38)	(3.94)
Homicide rate (t)	-0.0095	0.029	0.051
	(0.087)	(0.14)	(0.083)
Growth rate of	0.32	0.76	0.29
GDP per capita (t)	(0.23)	(0.47)	(0.30)
Log GDP per	-3.74	-2.50	-4.34
capita (t-1)	(2.74)	(8.14)	(4.11)
Log inflation rate (t)	-1.20	5.26	-4.09
	(2.62)	(3.59)	(3.08)
Unemployment rate (t)	0.025	0.16	0.16
	(0.25)	(0.52)	(0.49)
Govt. surplus as share of GDP (t)	0.60**	0.62*	-0.32
	(0.27)	(0.35)	(0.48)
Press freedom (t)	-0.12	-0.051	-0.056
	(0.12)	(0.15)	(0.25)
Internet users per 100 people (t)	0.056	0.061	0.13
	(0.11)	(0.26)	(0.23)
Log requests to Twitter to block tweets (t)	1.07	1.55*	-1.28
	(1.15)	(0.88)	(1.54)
Leaders's first year in office (t)	3.51	3.94	9.47**
	(3.17)	(5.24)	(4.75)
Leaders's years in office (transformed) (t)	-0.45	0.18	6.26
	(3.97)	(5.89)	(5.88)
Legislative election year (t)	0.61	1.68	1.01
	(0.99)	(1.35)	(1.54)
Executive election year (t)	6.37***		4.03**
	(1.52)		(1.62)
Ec. conditions "good" or "excellent" (t)	0.32***	0.25**	0.50***
	(0.068)	(0.11)	(0.14)
Percent felt safe walking at night (t)	-0.014	-0.077	0.18
	(0.12)	(0.17)	(0.19)
Percent think media have lot of freedom (t)	0.32***	0.32**	0.47***
	(0.081)	(0.13)	(0.15)
Political Terror Score (AI) (t)	0.32	-1.94	1.07
	(0.92)	(1.71)	(1.22)
N	483	204	244
Countries	85	37	41
Arellano-Bond AR(2), p	0.35	0.53	0.84
Hansen test, p	0.32	0.47	0.55
No. of instruments	70	42	45

Standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A4: Exploring effect of timing of elections

	(1) All	(2) Dem	(3) Non-dem	(4) All	(5) Dem	(6) Non-dem
Approval (t-1)	0.38***	0.38***	0.28***	0.42***	0.38***	0.30***
	(0.056)	(0.060)	(0.076)	(0.052)	(0.061)	(0.067)
First year of international war (t)	-1.91	-4.89	10.7**	-6.91	-8.20	13.4***
	(8.69)	(11.4)	(4.40)	(7.94)	(10.2)	(4.43)
Subsequent year of international war (t)	6.69	17.4	n.a.	17.0	13.6	n.a.
	(14.3)	(31.3)		(19.1)	(33.8)	
Civil war (t)	-2.85	-7.02	-3.22	-3.94	-5.52	-4.27
	(2.75)	(4.79)	(3.83)	(2.55)	(4.09)	(3.66)
Homicide rate (t)	0.055	-0.018	0.048	0.10	0.053	0.095
	(0.070)	(0.079)	(0.094)	(0.068)	(0.083)	(0.082)
Growth rate of GDP per capita (t)	0.32**	0.33	0.42**	0.26*	0.26	0.34
	(0.14)	(0.23)	(0.20)	(0.15)	(0.24)	(0.24)
Log GDP per capita (t-1)	1.02	-3.25	3.97	0.87	-2.63	2.53
	(1.79)	(2.71)	(2.65)	(1.79)	(3.02)	(2.40)
Log inflation rate (t)	-0.98	0.028	-5.62**	0.57	0.95	-5.65**
	(1.98)	(2.52)	(2.41)	(2.04)	(2.52)	(2.41)
Unemployment rate (t)	0.045	0.079	-0.083	-0.013	-0.16	-0.11
	(0.22)	(0.27)	(0.29)	(0.20)	(0.24)	(0.23)
Govt. surplus as share of GDP (t)	0.26	0.57**	-0.40	0.25	0.31	-0.051
	(0.22)	(0.26)	(0.37)	(0.22)	(0.30)	(0.36)
Press freedom (t)	-0.11	-0.14	-0.49***	-0.24**	-0.22*	-0.36**
	(0.11)	(0.12)	(0.18)	(0.097)	(0.13)	(0.14)
Internet users per 100 people (t)	-0.16**	0.064	-0.39***	-0.096	0.11	-0.26*
	(0.075)	(0.11)	(0.15)	(0.073)	(0.14)	(0.14)
Log requests to Twitter to block tweets (t)	1.16	0.68	5.50***	0.61	0.13	5.26***
	(1.10)	(1.36)	(1.14)	(1.17)	(1.34)	(1.14)
Leaders's first year in office (t)	3.52	4.41	-0.14	7.81***	7.03**	1.36
	(3.00)	(3.24)	(8.48)	(2.98)	(3.20)	(8.34)
Leaders's years in office (transformed) (t)	0.084	0.78	-1.88	5.15	3.96	-0.57
	(3.57)	(4.10)	(9.13)	(3.43)	(4.02)	(7.79)
Polling before election (t)	1.64	1.79	3.03			
	(1.61)	(2.26)	(2.82)			
Polling same month as election (t)	4.50*	9.16**	3.25			
	(2.67)	(3.79)	(3.59)			
Polling after election (t)	9.92***	10.3***	7.22**			
	(1.94)	(2.21)	(3.49)			
Economic conditions "good" or "excellent" (t)	0.36***	0.37***	0.36***	0.31***	0.32***	0.32***
	(0.055)	(0.072)	(0.12)	(0.053)	(0.080)	(0.11)
Percent felt safe walking at night (t)	0.19*	-0.016	0.28*	0.25**	-0.022	0.21
	(0.10)	(0.11)	(0.15)	(0.10)	(0.13)	(0.14)
Percent think media have lot of freedom (t)	0.25***	0.31***	0.21*	0.26***	0.30***	0.26***
	(0.066)	(0.079)	(0.11)	(0.068)	(0.096)	(0.086)

Political Terror Score (AI) (t)	-0.20	0.15	-1.29	-0.10	0.064	-1.64
	(0.70)	(0.96)	(1.74)	(0.69)	(0.97)	(1.66)
Polling 2 months before election (t)				2.05	10.1	-4.34
				(7.44)	(7.64)	(5.06)
Polling 1 month before election (t)				-23.2***	-22.9***	n.a.
				(2.39)	(2.91)	
Polling same month as election (t)				-2.33	5.01	-2.39
				(6.11)	(7.60)	(8.59)
Polling 1 month after election (t)				23.1***	14.0***	37.7***
				(6.05)	(4.29)	(4.46)
Polling 2 months after election (t)				19.5***	-25.5	27.7***
				(3.27)	(140.1)	(4.36)
N	668	480	171	668	480	171
Countries	118	85	41	118	85	41
Arellano-Bond AR(2), p	0.36	0.40	0.86	0.17	0.27	0.59
Hansen test, p	0.36	0.20	0.27	0.24	0.51	0.37
No. of instruments	75	73	44	79	75	45

Standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A5: Effect of elections with and without leader turnover

	(1) All	(2) Dem	(3) Non-dem
Approval (t-1)	0.40***	0.35***	0.31***
	(0.054)	(0.057)	(0.069)
First year of international war (t)	-3.78	-3.21	11.0**
	(8.39)	(10.4)	(5.00)
Subsequent year of international war (t)	11.9	8.48	n.a.
	(16.3)	(28.6)	
Civil war (t)	-4.00	-2.85	-4.14
	(2.70)	(3.78)	(3.98)
Homicide rate (t)	0.055	-0.010	0.071
	(0.067)	(0.084)	(0.098)
Growth rate of	0.23	0.32	0.36*
GDP per capita (t)	(0.14)	(0.22)	(0.19)
Log GDP per capita (t-1)	1.83	-3.63	3.78
	(1.81)	(2.76)	(2.47)
Log inflation rate (t)	-1.05	-1.11	-5.64***
	(1.90)	(2.58)	(2.16)
Unemployment rate (t)	-0.028	-0.055	-0.26
	(0.20)	(0.25)	(0.26)
Govt. surplus as share of GDP (t)	0.30	0.53*	-0.18
	(0.22)	(0.28)	(0.37)
Press freedom (t)	-0.21*	-0.15	-0.49***
	(0.11)	(0.12)	(0.16)
Internet users per 100 people (t)	-0.17**	0.064	-0.37***
	(0.074)	(0.11)	(0.14)
Log requests to Twitter to block tweets (t)	1.23	1.13	5.22***
	(1.00)	(1.12)	(1.00)
Leaders's first year in office (t)	2.50	3.54	-0.46
	(3.08)	(3.14)	(9.00)
Leaders's years in office (transformed) (t)	-1.34	-0.32	-2.15
	(3.61)	(3.93)	(8.99)
Executive election with turnover (t)	8.64***	8.69***	11.6***
	(1.95)	(2.24)	(4.18)
Executive election without turnover (t)	3.93***	4.78**	1.79
	(1.39)	(1.87)	(2.08)
Economic conditions "good" or "excellent" (t)	0.33***	0.31***	0.34***
	(0.055)	(0.066)	(0.11)
Percent felt safe walking at night (t)	0.27***	0.031	0.24
	(0.10)	(0.11)	(0.15)
Percent think media have lot of freedom (t)	0.23***	0.31***	0.25**
	(0.067)	(0.078)	(0.099)
Political Terror Score (AI) (t)	-0.088	0.10	-0.93
	(0.71)	(0.98)	(1.81)
N	672	483	172
Countries	118	85	41
Arellano-Bond AR(2), p	0.41	0.42	0.48
Hansen test, p	0.53	0.28	0.12
No. of instruments	72	70	43

Standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A6: OLS with country and year fixed effects, standard errors clustered by country and year

	(1) All	(2) Dem	(3) Non-dem	(4) All	(5) Dem	(6) Non-dem
Approval (t-1)	0.18***	0.18***	0.17*			
	(0.044)	(0.052)	(0.094)			
First year of international war (t)	-5.17	-11.4**	5.55*	-1.68	-0.37	5.56
	(4.20)	(5.09)	(3.32)	(4.17)	(8.16)	(3.41)
Subsequent year of international war (t)	3.71**	-0.18		1.12	0.29	
	(1.81)	(3.25)		.	(5.97)	
Civil war (t)	1.57	-0.56	2.84	3.23	4.83***	1.79
	(2.81)	(3.76)	(7.05)	(1.97)	(1.15)	(5.56)
Homicide rate (t)	-0.071	-0.078	-0.15*	-0.032	-0.064	-0.067
	(0.054)	(0.063)	(0.084)	(0.046)	(0.054)	(0.090)
Growth rate of GDP per capita (t)	0.081	0.014	0.082	0.058	-0.061	0.16
	(0.11)	(0.16)	(0.19)	(0.095)	(0.15)	(0.11)
Log GDP per capita (t-1)	-11.2*	-19.7***	-16.9**	-9.18	-22.4***	9.23
	(6.67)	(6.26)	(8.38)	(6.80)	(8.40)	(11.8)
Log inflation rate (t)	-3.46**	-1.11	-8.66***	-4.31***	-3.23**	-7.45***
	(1.42)	(1.42)	(1.37)	(1.37)	(1.53)	(1.55)
Unemployment rate (t)	-0.13	-0.28	0.10	-0.27	-0.52**	0.048
	(0.11)	(0.21)	(0.11)	(0.17)	(0.26)	(0.14)
Govt. surplus as share of GDP (t)	0.23	0.24	0.30	0.078	0.36*	0.029
	(0.18)	(0.22)	(0.37)	(0.17)	(0.19)	(0.29)
Press freedom (t)	-0.18	-0.16	-0.92***	-0.25**	-0.078	-0.58***
	(0.14)	(0.18)	(0.24)	(0.10)	(0.16)	(0.13)
Internet users per 100 people (t)	-0.24**	0.010	-0.65***	-0.12	0.050	-0.45**
	(0.11)	(0.11)	(0.21)	(0.11)	(0.12)	(0.22)
Log requests to Twitter to block tweets (t)	0.24	0.15	1.87*	0.38	0.41	1.47
	(0.89)	(0.97)	(1.04)	(0.77)	(0.90)	(1.18)
Leaders's first year in office (t)	-0.38	0.51	-5.02	-3.82*	-2.12	-9.83*
	(2.06)	(1.97)	(8.45)	(2.27)	(1.73)	(5.38)
Leaders's years in office (transformed) (t)	-4.82**	-4.55*	-2.95	-9.11***	-7.87***	-12.1*
	(2.17)	(2.51)	(7.46)	(2.66)	(2.43)	(6.51)
Legislative election year (t)	1.10**	1.33**	2.01**	0.92*	0.92*	2.07**
	(0.48)	(0.57)	(0.92)	(0.52)	(0.53)	(0.80)
Executive election year (t)	4.66***	5.36***	3.70***	3.11***	4.07***	1.83
	(0.85)	(1.04)	(1.12)	(0.91)	(1.22)	(1.36)
Ec. conditions "good" or "excellent" (t)	0.25***	0.27***	0.16	0.34***	0.36***	0.17**
	(0.049)	(0.035)	(0.11)	(0.054)	(0.051)	(0.069)
Percent felt safe walking at night (t)	0.29***	0.16***	0.60***	0.31***	0.19***	0.58***
	(0.064)	(0.058)	(0.13)	(0.048)	(0.068)	(0.12)
Percent think media have lot of freedom (t)	0.31***	0.32***	0.28***	0.30***	0.28***	0.32***
	(0.050)	(0.065)	(0.062)	(0.050)	(0.066)	(0.073)
Political Terror Score (AI) (t)	-0.22	0.38	-1.62*	-0.18	0.0027	-0.36
	(0.46)	(0.55)	(0.89)	(0.41)	(0.57)	(0.70)
N	672	483	172	874	624	227

Standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A7: Reducing the number of instruments in model 6

	(1) Original model 6	(2) With fewer instruments
Approval (t-1)	0.29***	0.30***
	(0.071)	(0.076)
First year of international war (t)	9.12**	11.4***
	(4.40)	(4.38)
Subsequent year of international war (t)	n.a.	n.a.
Civil war (t)	-3.67	-0.22
	(4.03)	(3.61)
Homicide rate (t)	0.021	0.12
	(0.10)	(0.11)
Growth rate of GDP per capita (t)	0.45**	0.49**
	(0.19)	(0.20)
Log GDP per capita (t-1)	4.35	2.51*
	(2.87)	(1.41)
Log inflation rate (t)	-5.61**	-4.41**
	(2.38)	(1.85)
Unemployment rate (t)	-0.14	-0.16
	(0.27)	(0.22)
Govt. surplus as share of GDP (t)	-0.34	-0.27
	(0.36)	(0.38)
Press freedom (t)	-0.55***	-0.49***
	(0.19)	(0.18)
Internet users per 100 people (t)	-0.41**	-0.29***
	(0.16)	(0.083)
Log requests to Twitter to block tweets (t)	5.39***	3.33***
	(1.16)	(0.81)
Leaders's first year in office (t)	-1.35	1.79
	(8.70)	(9.27)
Leaders's years in office (transformed) (t)	-3.80	0.42
	(9.40)	(9.63)
Legislative election year (t)	1.87	1.59
	(1.67)	(1.56)
Executive election year (t)	4.06*	4.19**
	(2.08)	(2.04)
Ec. conditions "good" or "excellent" (t)	0.34***	0.33***
	(0.11)	(0.12)
Percent felt safe walking at night (t)	0.25	0.42***
	(0.16)	(0.16)
Percent think media have lot of freedom (t)	0.22**	0.18
	(0.11)	(0.12)
Political Terror Score (AI) (t)	-1.21	-2.07
	(1.79)	(1.74)
N	172	172
Countries	41	41
Arellano-Bond AR(2), p	0.81	0.93
Hansen test, p	0.26	0.11
No. of instruments	43	39

Standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01 .

Table A8: Excluding years in which regime transition occurred

	(1) All	(2) Dem	(3) Non-dem
Approval (t-1)	0.41***	0.38***	0.30***
	(0.054)	(0.062)	(0.075)
First year of international war (t)	-3.97	-7.32	11.5***
	(8.50)	(8.18)	(4.45)
Subsequent year of international war (t)	11.0	33.7	n.a.
	(15.7)	(40.8)	
Civil war (t)	-4.04	-6.61	-0.74
	(2.89)	(4.52)	(3.84)
Homicide rate (t)	0.050	0.0054	0.088
	(0.072)	(0.092)	(0.10)
Growth rate of GDP per capita (t)	0.28**	0.40*	0.46**
	(0.14)	(0.24)	(0.19)
Log GDP per capita (t-1)	2.15	-3.69	3.98*
	(1.82)	(2.99)	(2.26)
Log inflation rate (t)	-0.76	-0.30	-5.69***
	(1.81)	(2.31)	(2.14)
Unemployment rate (t)	0.0076	0.061	-0.29
	(0.20)	(0.23)	(0.27)
Govt. surplus as share of GDP (t)	0.34	0.70**	-0.44
	(0.22)	(0.27)	(0.41)
Press freedom (t)	-0.21*	-0.10	-0.40*
	(0.11)	(0.13)	(0.20)
Internet users per 100 people (t)	-0.16**	0.065	-0.35**
	(0.075)	(0.11)	(0.15)
Log requests to Twitter to block tweets (t)	1.12	0.83	5.38***
	(0.99)	(1.20)	(1.05)
Leaders's first year in office (t)	2.86	2.90	1.50
	(3.13)	(3.13)	(9.24)
Leaders's years in office (transformed) (t)	-1.23	-1.21	-0.11
	(3.71)	(3.91)	(9.31)
Legislative election year (t)	0.46	0.33	2.54
	(0.92)	(1.04)	(1.56)
Executive election year (t)	6.21***	6.81***	3.53
	(1.32)	(1.59)	(2.26)
Ec. conditions "good" or "excellent" (t)	0.31***	0.30***	0.36***
	(0.056)	(0.063)	(0.12)
Percent felt safe walking at night (t)	0.26***	-0.042	0.34**
	(0.099)	(0.11)	(0.16)
Percent think media have lot of freedom (t)	0.26***	0.33***	0.18**
	(0.068)	(0.079)	(0.093)
Political Terror Score (AI) (t)	-0.15	0.067	-1.62
	(0.72)	(1.00)	(1.78)
N	655	474	164
Countries	118	82	39
Arellano-Bond AR(2), p	0.34	0.23	0.22
Hansen test, p	0.63	0.39	0.16
No. of instruments	72	70	44

Standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A9: Opposition in legislature

	(1) Non-dem	(2) Non-dem
Approval (t-1)	0.29***	0.29***
	(0.071)	(0.068)
First year of international war (t)	9.83**	8.82*
	(4.71)	(4.71)
Subsequent year of international war (t)	n.a.	n.a.
Civil war (t)	-2.98	-4.25
	(4.57)	(4.98)
Homicide rate (t)	0.031	0.018
	(0.10)	(0.12)
Growth rate of GDP per capita (t)	0.47**	0.48***
	(0.21)	(0.19)
Log GDP per capita (t-1)	4.31**	4.48
	(2.18)	(3.03)
Log inflation rate (t)	-5.34**	-5.38**
	(2.23)	(2.38)
Unemployment rate (t)	-0.18	-0.14
	(0.29)	(0.28)
Govt. surplus as share of GDP (t)	-0.35	-0.34
	(0.38)	(0.43)
Opposition party in legislature (t)	-1.30	
	(8.73)	
Opposition in legislature > 10 percent (t)		1.53
		(6.12)
Press freedom (t)	-0.50**	-0.58**
	(0.24)	(0.25)
Internet users per 100 people (t)	-0.41***	-0.41**
	(0.12)	(0.16)
Log requests to Twitter to block tweets (t)	5.47***	5.22***
	(0.94)	(1.31)
Leaders's first year in office (t)	-0.26	-0.61
	(9.22)	(9.05)
Leaders's years in office (transformed) (t)	-2.81	-2.96
	(10.7)	(9.69)
Legislative election year (t)	1.78	2.17
	(1.81)	(1.84)
Executive election year (t)	4.26*	3.84*
	(2.50)	(2.01)
Ec. conditions "good" or "excellent" (t)	0.36***	0.34***
	(0.13)	(0.11)
Percent felt safe walking at night (t)	0.26	0.26
	(0.17)	(0.16)
Percent think media have lot of freedom (t)	0.21*	0.21*
	(0.11)	(0.11)
Political Terror Score (AI) (t)	-1.22	-1.05
	(1.78)	(1.80)
N	169	169
Countries	41	41
Arellano-Bond AR(2), p	0.81	0.82
Hansen test, p	0.28	0.39
No. of instruments	45	45

Standard errors in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A10: Natural disasters and terrorism

	(1) All	(2) Dem	(3) Non-dem	(4) All	(5) Dem	(6) Non-dem
Approval (t-1)	0.39***	0.35***	0.26***	0.42***	0.44***	0.31***
	(0.055)	(0.057)	(0.069)	(0.057)	(0.060)	(0.074)
First year of international war (t)	-2.95	-4.65	8.99**	7.91*	9.77	6.23
	(8.57)	(10.4)	(4.50)	(4.55)	(12.3)	(5.46)
Subsequent year of international war (t)	14.9	10.4	0	2.02	-5.75	0
	(15.2)	(27.6)	(0)	(11.0)	(24.0)	(0)
Civil war (t)	-3.42	-5.83	-3.44	-3.20	-4.16	-3.53
	(3.22)	(4.23)	(4.07)	(2.91)	(5.09)	(4.24)
Homicide rate (t)	0.053	0.0020	0.0077	0.046	0.037	-0.015
	(0.069)	(0.089)	(0.100)	(0.080)	(0.10)	(0.12)
Growth rate of GDP per capita (t)	0.26*	0.23	0.44**	0.38***	0.35*	0.39*
	(0.15)	(0.23)	(0.19)	(0.14)	(0.19)	(0.24)
Log GDP per capita (t-1)	0.77	-3.81	4.75	3.22*	-2.48	2.57
	(2.06)	(2.89)	(3.09)	(1.73)	(2.85)	(3.38)
Log inflation rate (t)	-0.79	-1.68	-5.62**	-1.92	-0.97	-5.86**
	(1.89)	(2.59)	(2.46)	(2.07)	(3.00)	(2.60)
Unemployment rate (t)	-0.010	-0.061	-0.085	0.086	0.32	-0.061
	(0.20)	(0.24)	(0.28)	(0.21)	(0.25)	(0.27)
Govt. surplus as share of GDP (t)	0.33	0.56*	-0.42	0.24	0.40	-0.34
	(0.23)	(0.29)	(0.37)	(0.23)	(0.25)	(0.36)
Deaths in natural disasters, ths	-0.57	27.0***	-1.52			
	(1.95)	(10.2)	(1.72)			
Deaths in natural disasters squared, ths	0.12	-10.5***	0.12			
	(0.14)	(3.42)	(0.12)			
Press freedom (t)	-0.20*	-0.19*	-0.54***	-0.14	-0.061	-0.69***
	(0.11)	(0.10)	(0.18)	(0.12)	(0.11)	(0.22)
Internet users per 100 people (t)	-0.13	0.088	-0.42**	-0.21***	0.011	-0.33*
	(0.094)	(0.11)	(0.17)	(0.081)	(0.11)	(0.17)
Log requests to Twitter to block tweets (t)	1.16	0.87	5.26***	0.97	0.94	4.27***
	(1.01)	(1.13)	(1.19)	(1.10)	(1.30)	(1.43)
Leaders's first year in office (t)	2.55	3.61	-1.52	4.15	5.91*	0.83
	(3.08)	(3.21)	(8.84)	(3.28)	(3.21)	(9.52)
Leaders's years in office (transformed) (t)	-1.45	-0.21	-3.31	0.32	1.92	-3.18
	(3.66)	(4.00)	(9.74)	(3.97)	(4.02)	(12.0)
Legislative election year (t)	0.39	0.74	1.81	0.12	1.41	2.24
	(0.92)	(0.96)	(1.66)	(1.00)	(1.09)	(2.19)
Executive election year (t)	5.86***	6.34***	3.97*	6.40***	6.07***	4.56*
	(1.22)	(1.52)	(2.05)	(1.29)	(1.47)	(2.38)
Ec. conditions "good" or "excellent" (t)	0.33***	0.32***	0.35***	0.32***	0.37***	0.38***
	(0.052)	(0.062)	(0.11)	(0.064)	(0.071)	(0.13)
Percent felt safe walking at night (t)	0.25**	0.044	0.25	0.26***	0.10	0.17
	(0.12)	(0.12)	(0.17)	(0.097)	(0.11)	(0.20)

Percent think media have lot of freedom (t)	0.24***	0.34***	0.22**	0.29***	0.30***	0.24**
	(0.065)	(0.076)	(0.11)	(0.067)	(0.070)	(0.11)
Political Terror Score (AI) (t)	-0.17	0.25	-0.92	0.25	1.31	-0.95
	(0.71)	(0.91)	(1.76)	(0.77)	(0.91)	(1.84)
Deaths in terror Attacks, ths, (t)				0.42	0.59	-0.69
				(0.75)	(1.13)	(1.92)
Deaths in terror Attacks squared, ths, (t)				-0.0055	-0.0073	0.012
				(0.014)	(0.043)	(0.034)
N	672	483	172	605	432	156
Countries	118	85	41	117	83	40
Arellano-Bond AR(2), p	0.36	0.20	0.69	0.44	0.64	0.20
Hansen test, p	0.45	0.49	0.30	0.26	0.25	0.25
No. of instruments	74	72	45	74	72	44

Standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A11: Seasons

	(1) All	(2) Dem	(3) Non-dem
Approval (t-1)	0.40***	0.36***	0.28***
	(0.054)	(0.058)	(0.079)
First year of international war (t)	-3.81	-3.53	7.31
	(8.79)	(11.5)	(5.02)
Subsequent year of international war (t)	9.84	6.15	0
	(14.9)	(26.3)	(0)
Civil war (t)	-3.37	-2.90	-3.82
	(2.77)	(4.08)	(3.96)
Homicide rate (t)	0.057	-0.0015	0.040
	(0.067)	(0.088)	(0.11)
Growth rate of GDP per capita (t)	0.25*	0.35	0.46**
	(0.15)	(0.23)	(0.18)
Log GDP per capita (t-1)	1.95	-3.74	4.71*
	(1.85)	(2.80)	(2.86)
Log inflation rate (t)	-1.15	-1.62	-5.69**
	(1.84)	(2.61)	(2.27)
Unemployment rate (t)	-0.019	-0.013	-0.25
	(0.20)	(0.24)	(0.30)
Govt. surplus as share of GDP (t)	0.30	0.55**	-0.28
	(0.23)	(0.27)	(0.36)
Spring (t)	0.19	1.32	1.38
	(1.09)	(1.31)	(2.02)
Summer (t)	-0.99	-0.084	-0.20
	(0.81)	(0.95)	(1.54)
Fall (t)	-0.46	-0.42	-1.29
	(1.06)	(1.25)	(1.96)
Press freedom (t)	-0.21*	-0.11	-0.56***
	(0.11)	(0.12)	(0.18)
Internet users per 100 people (t)	-0.17**	0.056	-0.43***
	(0.079)	(0.11)	(0.16)
Log requests to Twitter to block tweets (t)	1.18	1.11	5.25***
	(0.98)	(1.17)	(1.13)
Leaders's first year in office (t)	2.86	3.60	-1.49
	(3.10)	(3.13)	(9.03)
Leaders's years in office (transformed) (t)	-1.14	-0.29	-4.52
	(3.65)	(3.92)	(10.1)
Legislative election year (t)	0.55	0.65	1.63
	(0.90)	(1.01)	(1.74)
Executive election year (t)	5.72***	6.08***	4.31*
	(1.22)	(1.55)	(2.20)
Ec. conditions "good" or "excellent" (t)	0.33***	0.31***	0.33***
	(0.053)	(0.070)	(0.12)
Percent felt safe walking at night (t)	0.26**	-0.027	0.25
	(0.11)	(0.11)	(0.17)
Percent think media have lot of freedom (t)	0.25***	0.32***	0.21*
	(0.065)	(0.079)	(0.11)
Political Terror Score (AI) (t)	-0.17	0.29	-1.08
	(0.73)	(0.93)	(1.83)
N	672	483	172
Countries	118	85	41
Arellano-Bond AR(2), p	0.33	0.33	0.94
Hansen test, p	0.46	0.29	0.25
No. of instruments	75	73	46

Standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A12: Correlates of economic performance

Dependent variable: Percent who think economy is "excellent" or "good" (t)						
	(1) All	(2) Dem.	(3) Non-dem.	(4) All	(5) Dem.	(6) Non-dem.
Growth rate of GDP per capita (t)	0.71*** (0.16)	0.63*** (0.22)	0.73*** (0.19)	0.82*** (0.16)	0.70*** (0.20)	0.77*** (0.19)
Ln GDP per capita (t-1)	30.0*** (8.43)	27.4*** (9.97)	29.2** (13.9)	34.7*** (8.76)	28.7*** (11.0)	33.7** (14.3)
Ln inflation rate (t)	-2.09 (1.51)	-2.90 (2.01)	-1.07 (1.17)	-1.88 (1.74)	-2.36 (2.66)	-1.36 (1.62)
Unemployment rate (t)	-0.35 (0.25)	-0.68* (0.38)	-0.18 (0.15)	-0.31 (0.26)	-0.76** (0.39)	-0.085 (0.18)
Government surplus as share of GDP (t)				-0.024 (0.077)	-0.20 (0.21)	0.055 (0.11)
Perceptions						
Internet users (t)				0.12 (0.080)	0.13 (0.082)	0.0034 (0.13)
Press freedom (t)				-0.28* (0.14)	-0.44** (0.17)	-0.30 (0.33)
Ln requests to Twitter to block tweets (t)				1.10** (0.48)	0.78 (0.59)	2.29* (1.38)
Leader first year in office (t)				6.94** (2.74)	7.34*** (2.46)	5.00 (7.03)
Leader's years in office (transformed) (t)				8.29*** (3.10)	8.34*** (3.14)	6.84 (7.41)
Executive election year (t)				1.45 (0.99)	0.92 (1.55)	3.10*** (0.42)
Repression						
Political repression (Amnesty International) (t)				-1.23** (0.49)	-1.93*** (0.47)	-0.55 (1.25)
N	644	390	216	626	382	215
F ec. perf. vars. (p value)	24.8 (.000)	17.4 (.000)	5.4 (.000)			

OLS with country and year fixed effects, robust standard errors clustered by country and year. * p < 0.10, ** p < 0.05, *** p < 0.01.

Table A13: Dependent variable: percent "don't know" about approval

	(1) all	(2) Dem	(3) Non-dem
Approval (t-1)	0.52***	0.38***	0.71***
	(0.086)	(0.089)	(0.12)
First year of international war (t)	5.90**	5.78	5.16**
	(2.65)	(3.56)	(2.43)
Subsequent year of international war (t)	-5.54	-25.8	0
	(6.51)	(25.2)	(0)
Civil war (t)	2.38	3.30	1.73
	(1.48)	(2.68)	(1.75)
Homicide rate (t)	-0.0019	0.017	0.038
	(0.022)	(0.025)	(0.060)
Growth rate of GDP per capita (t)	0.080	0.075	-0.038
	(0.061)	(0.099)	(0.094)
Log GDP per capita (t-1)	2.05**	2.74*	-0.12
	(0.85)	(1.47)	(1.17)
Log inflation rate (t)	0.10	-0.23	-0.50
	(0.57)	(0.83)	(1.11)
Unemployment rate (t)	-0.11	-0.098	-0.033
	(0.075)	(0.12)	(0.15)
Govt. surplus as share of GDP (t)	0.081	-0.053	0.16
	(0.083)	(0.12)	(0.18)
Press freedom (t)	-0.041	0.064	0.027
	(0.047)	(0.058)	(0.11)
Internet users per 100 people (t)	0.0064	-0.046	0.094
	(0.037)	(0.058)	(0.075)
Log requests to Twitter to block tweets (t)	-0.91***	-0.28	-1.00*
	(0.27)	(0.41)	(0.59)
Leaders's first year in office (t)	-0.061	-0.078	0.49
	(1.62)	(1.76)	(4.25)
Leaders's years in office (transformed) (t)	0.52	0.47	-0.21
	(1.82)	(2.05)	(4.78)
Legislative election year (t)	0.21	0.52	-0.44
	(0.46)	(0.56)	(0.68)
Executive election year (t)	-0.52	-0.68	-0.15
	(0.47)	(0.65)	(0.81)
Ec. conditions "good" or "excellent" (t)	-0.028	-0.017	-0.067
	(0.025)	(0.031)	(0.050)
Percent felt safe walking at night (t)	-0.052	-0.078	0.026
	(0.036)	(0.062)	(0.056)
Percent think media have lot of freedom (t)	-0.046	-0.061	-0.060
	(0.030)	(0.045)	(0.040)
Political Terror Score (AI) (t)	-0.090	-0.020	-1.00
	(0.29)	(0.36)	(0.64)
N	672	483	172
Countries	118	85	41
Arellano-Bond AR(2), p	0.12	0.73	0.56
Hansen test, p	0.45	0.12	0.20
No. of instruments	72	70	43

Standard errors in parentheses; * p < 0.10, ** p < 0.05, *** p < 0.01.

Note on simulations

The model estimated is: $r_{i,t} = \alpha r_{i,t-1} + \boldsymbol{X}'_{i,t}\boldsymbol{\beta} + \gamma_i + \delta_t + \varepsilon_{i,t}$.

From this, predictions $\hat{r}_{it}$ can be generated in the standard way:

$$\hat{r}_{i,t} = \hat{\alpha} r_{i,t-1} + \boldsymbol{X}'_{i,t}\widehat{\boldsymbol{\beta}} + \hat{\gamma}_i + \hat{\delta}_t \ .$$

These are the predictions graphed in Figure A1. However, since the actual lagged value of the dependent variable, $r_{i,t-1}$, enters into the calculation in each period, the series of predictions is anchored to the actual values. Our second approach is to estimate "iterative predictions," $\tilde{r}_{i,t}$, where

$$\tilde{r}_{i,1} = \hat{r}_{i,1} \ ,$$

$$\tilde{r}_{i,2} = \hat{\alpha}\tilde{r}_{i,1} + \boldsymbol{X}'_{i,2}\widehat{\boldsymbol{\beta}} + \hat{\gamma}_i + \hat{\delta}_2 \ ,$$

$$\tilde{r}_{i,3} = \hat{\alpha}\tilde{r}_{i,2} + \boldsymbol{X}'_{i,3}\widehat{\boldsymbol{\beta}} + \hat{\gamma}_i + \hat{\delta}_3 \ ,$$

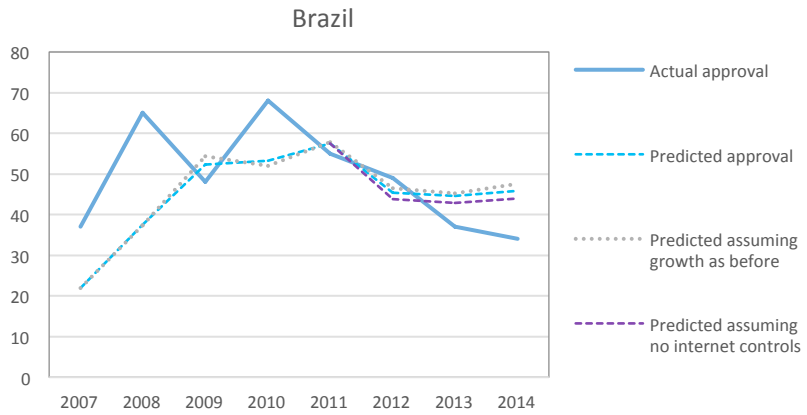
and so on. For convenience, in the calculations we use the fact that for all *t*>2

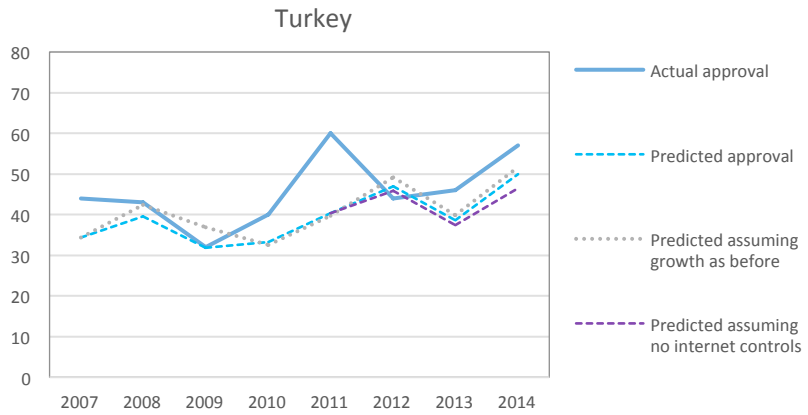
$$\tilde{r}_{i,t} = \hat{r}_{i,t} + \hat{\alpha}\left(\tilde{r}_{i,t-1} - r_{i,t-1}\right)$$

These are the predictions graphed in Figure 2. Because there are some gaps in the approval series, we interpolate linearly to fill internal gaps before calculating the predictions. (The regressions themselves do not involve any interpolations or imputations in the dependent variable).

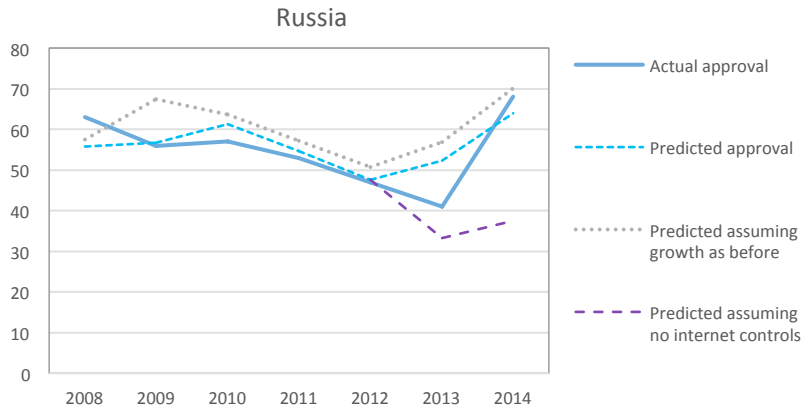
Figure A1: Simulating government approval ratings: predictions using actual lagged dependent variable

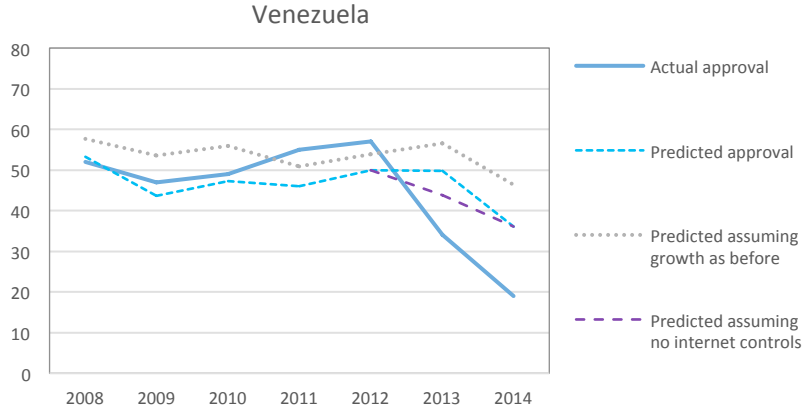
Democracies (Polity2 ≥ 6)





Non-democracies (Polity2 < 6)





Sources: Gallup World Poll, World Bank, Twitter, authors' calculations. **Notes**: "Predicted assuming growth as before": simulated assuming the growth rate in each year after 2007 was the country average for 2004-07. "Predicted assuming no internet controls": simulated subtracting out the estimated effect of blocked tweets (t).