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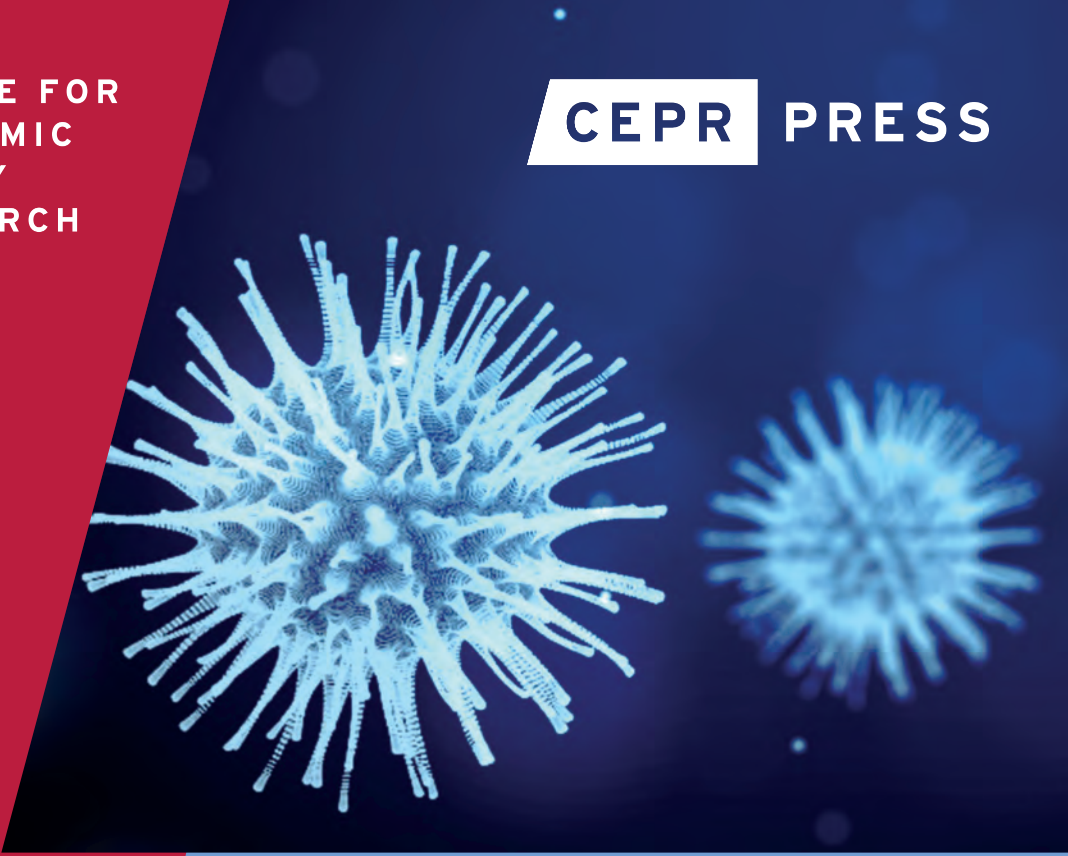

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Corona politics: The cost of mismanaging pandemics

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The Covid-19 pandemic is a major test for governments around the world. We study the political consequences of (mis-)managing the Covid crisis by constructing a highfrequency dataset of government approval for 35 countries. In the first weeks after the outbreak, approval rates for incumbents increase strongly, consistent with a global "rally around the flag" effect. Approval, however, drops again in countries where Covid cases continue to grow. This is especially true for governments that do not implement stringent policies to control the number of infections. Overall, the evidence suggests that loose pandemic policies are politically costly. Governments that placed more weight on health rather than short-term economic outcomes obtained higher approval.

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1 Introduction

The Covid-19 pandemic is a major, common test for leaders around the world. The challenges faced were similar for all leaders, but the political responses varied substantially. Some governments, like those of Australia or Argentina, enforced stringent measures early on, right after the virus broke out, while others, like those of Brazil, Sweden or the United States, opted for looser policies. Partly because of such different policy responses and their timing, there are considerable differences in the scale and dynamics of infection rates. Europe initially saw a rapid increase in Covid case numbers in March 2020, followed by a quick decline. In contrast, the United States and Brazil continued to witness high case numbers throughout the spring and summer of 2020, with further increases recently.

In this paper, we study the political consequences of (mis-)managing the Covid-19 crisis in a cross-country setting. We ask: How does a governments' handling of the pandemic affect its political approval, and, thus, its reelection chances? Do governments get punished politically if they fail to respond strongly/promptly or if they see infections and fatalities raise? And what does the public care more about: good or bad news about infection case numbers, or news on the economy? So far, the expanding literature on Covid-19 has paid only limited attention to these questions, even though they are of central importance for one of the most widely debated policy trade-offs of our time: public health vs economic health. From a political economy perspective, it is crucial to understand what type of news affects the public during the pandemic, namely how the public evaluates governments' pandemic policy over time.

This paper is the first broad-based study on how the Covid crisis affected government approval ratings around the world. We construct a new, high-frequency polling dataset, which consists of surveys on leaders' approval and voting intentions on a weekly basis for 35 countries. This includes 20 advanced economies and 15 emerging market economies for which frequent, high-quality polling data was available (the countries in our sample account for 65% of global GDP). We then investigate how Covid infection and fatality numbers affect approval rates over time, while controlling for government policies (using weekly Oxford "stringency index") as well as for economic activity (using weekly mobility and electricity data). The high-frequency panel structure of our dataset is key, as it allows to capture the dynamics of leaders' approval, as opposed to studies that rely on (one-time) election results, more standard survey data or dynamics in a single country.

Our core finding is that lLeaders are punished, in terms of political approval, when Covid infections accelerate. This result is intuitive at first glance, but has important caveats, as we explain below. In our baseline model, a one standard deviation increase in the growth rate of Covid cases in a week (that is, a 60% increase in the weekly growth rate) is associated with a 3.6 percent decline in approval rates compared to the pre-pandemic approval level, after controlling for economic activity and Covid fatalities as well as country and time fixed effects. For a leader, for instance, with a 50% approval rate before the start

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of the outbreak, this implies a weekly decline in approval by 1.8 percentage points.[1]

Over time, the differences become substantial. Three months after the virus breaks out, governments in countries with low case growth record changes in approval (or voting intentions) that are 20 percent higher, while those with high case growth see no gains, on average. Put differently, governments that manage to limit infection numbers, gain 7 percentage points in approval (i.e. they move from an average pre-pandemic approval level of 40% to 47%) compared to the group of high-case growth countries, which do not experience change in approval relative to pre-pandemics. This is a sizable difference, given that elections are typically decided by a few percentage points in voter support.[2]

Importantly, not all governments are punished by high case numbers. Only governments that fail to impose strict countermeasures when experiencing an increase in cases see a decline in approval. More specifically, we find that at high levels of policy stringency, growing case numbers are no longer associated with a decline in political support. In sum, the relationship between case growth and approval is only significant when rising infection numbers coincide with loose policies. This suggests that leaders are evaluated by their policy choices, and not only by the consequences of the pandemic.

In addition, the detrimental effect of infections and loose policies on political support does not set in immediately. We document a rally-around-the-flag effect at the start of the Covid crisis (following the language of Mueller (1970)). In the initial weeks of the outbreak, most governments see their approval increase significantly, regardless of the policies and their outcomes. Only after some time governments see their approval erode when cases grow and policies are loose. Indeed, as we show, approval rates revert most strongly in countries where the public assesses the government's response as "insufficient" (based on novel data from a cross-country survey on Covid-19 by Fetzer et al. (2020)). This is further support for our finding that mismanaging the Covid crisis comes at a high political cost, at least after an initial "grace period".

Somewhat surprisingly, we find that approval rates do not react to indicators of economic activity. High-frequency measures of economic activity are not a significant predictor of political support in this pandemic.[3] Why government approval reacts so strongly to changes in infections but not to changes in economic activity is not clear from our data. We do not have a direct way to test why the public assigns so much weight on infection cases. One interpretation is preference-based, meaning that during a pandemic the public cares most about health outcomes and less so about economic outcomes. This is also consistent with the finding that the public supports governments that take a tough policy stand.

[1] We report our main findings based on relative changes compared to the pre-pandemic approval levels. Our results also hold in absolute terms, based on the percentage point difference in approval: In a similar baseline model, at weekly frequency, a one standard deviation increase in the growth rate of Covid infections is associated with a 1.3 percentage point fall in approval rates.

[2] See, e.g., Snowberg, Wolfers, and Zitzewitz (2007). This is also a large difference across countries: in a worldwide survey by Gallup of 2019 Survey, leader approval rates differed by a maximum of 25 percentage points, ranging from 46% (for Angela Merkel) to 21% (for Jair Bolsonaro, Benjamin Netanyahu and Hassan Rouhani).

[3] As standard variables of economic activity, such as GDP, are not available at weekly frequency, we use proxies that have also been used in related work, such as workplace visits or electricity usage.

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Another interpretation is that the public expects that the economy will not fare well anyways until the pandemic is tamed. In this view, tough policies that bring down infections are a precondition for good economic outcomes in the medium and long-run (in line with the evidence from the Spanish flu from Correia, Luck, and Verner (2020)). Indeed, there is growing evidence that individuals react to high infection numbers by restricting their movements, so looser policies do not necessarily imply more economic activity (consistent with Farboodi, Jarosh, and Shimer (2020)). A quick "reopening" is thus far from guaranteed to result in a quick economic rebound.

Related Literature. The main distinguishing feature of this paper is establishing the dynamic relationship between infection numbers during a pandemic and political approval, using representative high-frequency panel data across countries worldwide. Our analysis ties into several strands of the literature. First, we contribute to the small body of work on the political consequences of the Covid-19 crisis. Bol et al. (2020) analyze an online survey for 15 European countries and find that public support for incumbents increases in response to lockdown policies. De Vries et al. (2020) show similar evidence using survey data from France, Germany, Poland and Spain, while Giommoni and Loumeau (2020) find that incumbents with stronger lockdowns retain a higher vote share in France's municipal election. These papers have in common that they study the cross-sectional variation in the data, typically in a limited set of countries. We provide a broader, international perspective and track approval over time, on a weekly basis, which allows us to study the political dynamics in different phases of the pandemic. Our panel dataset facilitates country comparisons and helps to exploit the unique feature of the Covid-19 crisis, namely that governments worldwide were affected by the pandemic in similar ways and often at the same time.

Our paper also relates to research on the policy trade-offs that leaders face in times of crises. It is well established that economic performance shapes election outcomes (e.g. Lewis-Beck and Stegmaier 2000; Duch and Stevenson 2008), and incumbent leaders have been shown to influence the economic cycle as elections near (e.g. Drazen (2000)). Boin and Hart (2003) were among the first to document that, during crises, politicians balance public safety concerns against economic and political concerns. Our result point to the dominant role of health outcomes in shaping public opinion during a global pandemic crisis.

In recent months, some leaders were particularly keen on re-opening the economy at the potential cost of public health. Most prominently, Donald Trump has pushed repeatedly for a rapid re-opening of the economy. Frieden (2020) points to political factors that led some leaders to follow the advice of public health experts and others to ignore them. Along this line, Pulejo and Querubín (2020) document that leaders with upcoming elections impose less strict policy measures. Taking a different direction, Besley and Dray (2020) point to the role of free media in holding policy makers accountable for their policy actions. We complement these papers, and provide more systematic evidence how policymakers are evaluated based on case numbers and policies imposed.

Lastly, our paper is related to the literature asking how crises and policy decisions shape the formation of public perceptions, and how the public evaluates policies in particularly distressing times. Earlier research on public health crises has focused on Ebola (e.g. Campante, Depetris-Chauvin, and Durante 2020) and HIV/Aids (Mansour, Rees, and Reeves 2020). Leaders are evaluated based on their policy decisions, as changes in approval are tied to whether voters perceive responses as adequate, and changes in sentiment can persist over time (Bechtel and Hainmueller 2011). This type of analysis is usually difficult given that crises affect only few countries at the same time, or because data are only available at annual frequency. Here we make use of a high-frequency cross-country dataset on political, policy and economic variables, and exploit the global commonality of distress. The Covid crisis provides a unique laboratory with a common shock to many leaders worldwide, then providing a "common exogenous shock" to study.

The remainder of the paper is organized as follows. We start by presenting the novel dataset on government approval and the main explanatory variables, before we outline the empirical strategy. Then, we establish an empirical link between the growth rate of Covid infections and changes in government approval, that further depends on the strictness of countries policy stances. We supplement our results with evidence from an international survey and then conclude.

2 Data and empirical strategy

This section presents the data and outlines the empirical strategy. We assemble a comprehensive cross-country dataset covering government approval, the strictness of government response measures, economic activity, as well as infection and fatality numbers at a daily or weekly frequency. The dataset covers the time span between January and July 2020, meaning that we start shortly before the Covid 19 crisis spread globally in February and March 2020. Summary statistics, sources and definitions of the main variables used for the empirical analysis are provided in Table 1.

2.1 Data: Approval, pandemic policies, and economic activity

We construct a new, high-frequency global dataset on government approval for 35 countries, including 20 advanced economies and 15 emerging market economies since January 2020. Conceptually, we follow the strategy of Herrera, Ordoñez, and Trebesch (2020), who compile similar data at annual frequency to study "political booms" (rapid increases in approval rates) and find that these predict financial crises. For the construction of the sample, we include all countries for which reliable polling data at high frequency are available. Our main source, Wikipedia, is both convenient and reliable, since it lists polling results from a broad range of organizations and firms in each country, most importantly by Gallup, Ipsos and their regional sub-branches.

We first collect available data across polling sources and then build a weekly average,

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which is the same approach used by Politico (formerly pollofpolls.eu), who aggregate data on voting intentions in Europe, as widely cited in the press.[4] Indeed, we find a high correlation between our data and Politico's data for those time series made available to the public. We further complement the data using polls from Morning Consult Political Intelligence.[5]

Where available, we use data on leader and/or government approval, focusing on executive approval, i.e. the approval of the prime minister in parliamentary systems or that of the president in presidential systems (we disregard approval for presidents that have no or limited executive power, e.g. in parliamentary democracies). If leader approval series were not available, we use voter support for the government by adding vote share intentions for all coalition parties that are in office. In the few cases where both series were available, we find leader approval and voter support to co-move strongly. For almost all countries in our sample we have data at weekly frequency and in some cases close to daily frequency (e.g. in the US, Italy or Germany). More details on our sample and sources are shown in Appendix Table A1.[6]

Table 1: Main variables

Variable	Definition	Source(s)	Mean	Median	Min.	Max.	St. Dev.
Δ *Approval*	% change relative to pre-pandemic level	Wikipedia, Morning Consult	10.3	4.6	-30	80	19.3
Δ *Cases*	New confirmed Covid infections log growth rate	ECDC	0.4	0.1	0	3.3	0.6
Δ *Deaths*	New confirmed Covid fatalities, per 100,000 Population	ECDC, United Nations	4.8	1.5	0	33	7.4
Δ *Activity*	% change in workplace visits, relative to 2020 median before February 7, 10-Day MA	Google Community Mobility Reports	-35.6	-35.3	-74	0	16.6
Δ *Activity* (alternative)	% change in electricity usage, relative to 2020 median before February 7, 10-Day MA	Entso-E, U.S. EIA	-20.4	-20.9	-37	14	8.2
Stringency	Stringency of Government Response, Index (0-100)	Blavatnik School of Government (Oxford)	67.2	72.2	0	100	18.5

Based on the constructed dataset, our main variable of interest is the percentage change in government approval over the course of the pandemic. More specifically, we focus on changes in approval relative to the pre-Covid outbreak, i.e. compared to country-specific pre-pandemic approval rate. Following standard practice in the literature, we define the

[4]Also the Executive approval project dataset (executiveapproval.org) averages across available sources, providing data at quarterly frequency and for leader approval only.

[5]Coronavirus Outbreak Tracker, Morning Consult (07.07.2020),https://morningconsult.com/form/coronavirus-outbreak-tracker/

[6]During the sample period some countries held national government elections that potentially alter power dynamics, Ireland (8 February 2020) and Slovakia (29 February 2020). Both elections led to turnover and new coalitions, but both took place in February, so that the new government was in power from the start of the pandemic. In both cases, we treat the new coalition parties as incumbents for the entire sample period (i.e. starting in January). The results are stable when including Ireland and Slovakia from March 2020 only.

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outbreak of the Covid pandemic in a given country as the day on which the 100th infection is reported. By focusing on changes relative to pre-pandemic levels, we capture those changes in approval that are linked to a governments' handling of the pandemic itself. In order to make absolute statements on effect sizes, we also provide results based on percentage point changes in approval relative to the pre-pandemic level.

Data on Covid infections and fatalities are taken from the European Centre for Disease Prevention and Control (ECDC), which gathers data from health authorities worldwide.[7]. To normalize the death rate by population we use data from the United Nations (2019 World Population Prospects).

To capture differences in government responses to the pandemic, we use data from the Oxford Government Response Tracker by Hale et al. (2020)[8]. The aggregate "Stringency Index" summarizes eight policy dimensions, including measures on school closing, restrictions on public gatherings or travel bans. The index varies between 0 (no stringent policies in place) to 100 (strictest possible policies) and has been used already in studies about the pandemic (e.g. Deb et al. 2020). Data start on January 21, 2020, at daily frequency, for all countries in our sample.

For a high-frequency measure of economic activity, we use data on workplace visits by Google's Covid-19 community mobility reports (Aktay et al. 2020).[9] The data are constructed from mobile phone apps such as Google Maps and measured in terms of average daily changes relative to the median value between January 3rd and February 7th 2020, for a given day of the week. Though likely imperfect at measuring economic activity (for instance due to shifts to working at home) it is the most frequently employed real-time activity proxy in recent studies about the pandemic (e.g. Alon et al. 2020). The data are available at daily frequency for all but two (Iceland and Russia) countries in our sample, starting February 8. We smooth the data using a 10-day moving averages. As an alternative proxy for economic activity we use electrical power consumption, for which we obtain data at daily frequency for 19 European countries and the United States.[10]

2.2 Empirical strategy

In this section, we describe the empirical strategy to investigate the relationship between Covid infections and government approval. In the main specifications we use weekly data

[7] Geographical distribution of Covid-19 Cases worldwide, ECDC, accessed 07.07.2020, https://www.ecdc.europa.eu/en/publications-data/download-todays-data-geographic-distribution-covid-19-cases-worldwide.

[8] Accessed 07.07.2020, https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-response-tracker.

[9] "Covid-19 Community Mobility Reports", Google, accessed 07.07.2020, https://www.google.com/covid19/mobility/

[10] "Transparency Platform",European Network of Transmission System Operators for Electricity, accessed 07.07.2020, https://www.entsoe.eu/; "Electric Grid Monitor", U.S. Energy Information Administration, accessed 07.07.2020, https://www.eia.gov/beta/electricity/gridmonitor/

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and estimate panel ordinary least squares (OLS) models of the following form:[11]

$$\Delta\, Approval_{it} = \beta_1\, \Delta Cases_{it} + \beta_2\, \Delta Deaths_{it} + \beta_3\, \Delta Activity_{it} + \theta_i + \delta_t + \epsilon_{it}\,,$$

where $\Delta Approval_{it}$ is the *percentage change* in approval of leader/government in country i as of week t relative to the approval at the start of the outbreak, $\Delta Cases_{it}$ is the weekly percentage change in new Covid infections, $\Delta Deaths_{it}$ is the weekly percentage change of Covid fatalities per 100,000 Population, $\Delta Activity_{it}$ is the weekly percentage change in workplace visits, θ_i and δ_t are country and time fixed effects, and ϵ_{it} is an error term. As an alternative dependent variable, we use the *change of approval (in percentage points)* of leader/government in country i as of week t. As a robustness check, we also estimate the baseline model including all explanatory variables as one week lags.

One challenge to our analysis is the heterogeneity in the timing of Covid outbreaks across countries. Italy and South Korea, for example, had more than 100 registered cases by late February, while other countries, like Brazil, India or New Zealand, passed this mark only in mid or end March. We address this issue by indexing the time dimension of our panel to start on the week of the Covid outbreak in a given country (i.e., the 100th confirmed infection). As a result, we include Italy from the last week of February onward, while for New Zealand we start in the last week of March. To control for time effects, we include monthly time fixed effects for every four weeks after the sample start. Our results are robust when using month-calendar fixed effects.

3 Covid infections and government approval

3.1 Preliminary evidence: Infection growth reduces approval

We start by showing descriptive evidence on the development of political approval across countries during the Covid-19 crisis. Most countries see increased public support, with a few exceptions that lost government approval, such as Brazil, the United States and United Kingdom. On average, governments increased their approval rates by 16 percent between February and July 2020. Figure 1 graphs the percentage change for the 35 countries in our sample in descending order. It shows considerable heterogeneity: The ranking of "winners" is led by Australia, whose prime minister Morrison saw his approval level rise by 90 percent. The governments with the strongest drop in leader approval are Romania, followed by Japan and the United States, where President Trump saw his approval rating drop by around 17 percent.

We provide similar visual evidence based on percentage point changes in Figure A1 in Appendix C, which compares absolute changes in approval, irrespective of the initial pre-pandemic level. Quantitatively, the changes in approval vary between gains of 31 (Australia) and losses of 25 (Romania) percentage points, with an average gain of 4.8

[11] The main results are robust to using alternative specifications based on daily or monthly data (see Table A3 in the Appendix).

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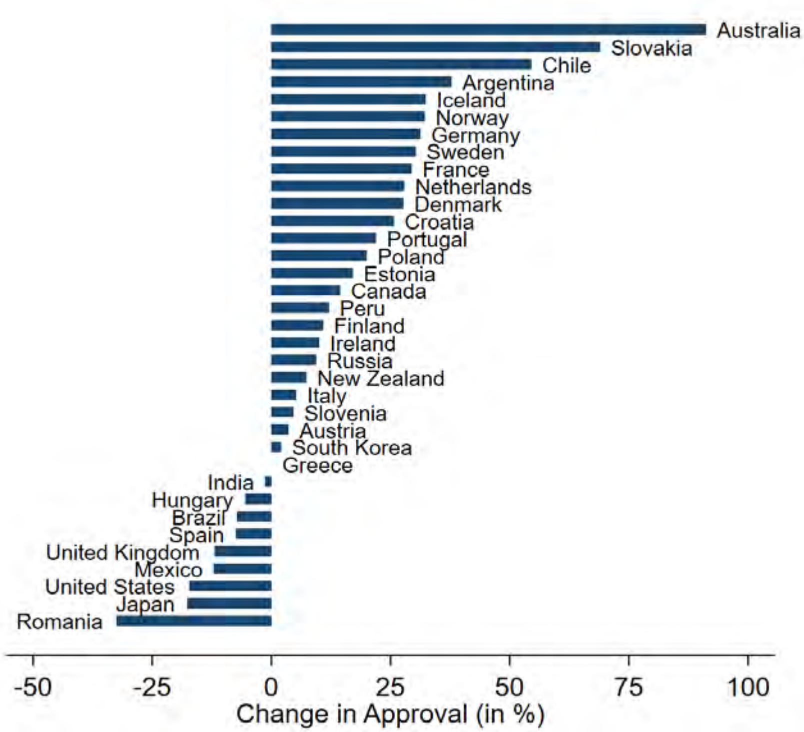
Figure 1: Government approval during the Covid-19 crisis, February - July 2020



Notes: This figure shows the percentage change in government approval from February to July 2020 for the 35 countries in our sample. The approval data build on newly collected dataset combining political polls on leader approval and polls on voting intentions for the coalition government parties (see Table A1 in Appendix A for details.

percentage points of approval between February and July 2020. These cross-country differences are substantial, given that elections are often decided by few percentage points in most countries.

We now show the dynamics of approval over time and link this with data on Covid-19 infection by country. Panel A of Figure 2 tracks the evolution of government approval over the course of the pandemic as am average for all countries. Panel B then splits the sample into countries with high case growth and those with low case growth. For this purpose, we calculate the average growth rate of Covid infections since the 100th case for each country and then split the sample at the median rate. Among others, this approach classifies Russia, Sweden, Brazil, the United Kingdom and United States as countries with high case growth. The grey shaded areas represent 90 % confidence bands (grey areas).

The graph points to a rally-around-the-flag effect (Mueller 1970), at least initially. During the first four weeks after the outbreak approval increases strongly, on average, for all countries and under all policies. The gain in popularity is less pronounced for the group of high case growth countries, but still sizable, with an increase of about 8 percent. However, in this group, approval quickly starts to decline again after the initial rally. At the end of week 13, high case growth countries are back to their pre-pandemic approval level. In contrast, governments in countries with low case growth do not see a drop in approval numbers. By week 13, their approval level is still 20 percent higher than their pre-pandemic level (this corresponds to an average increase of 7 percentage points, i.e. from an average pre-pandemic level of 41 to 48, see A2 in Appendix C) . The difference between the two groups is both quantitatively large and statistically significant.

3.2 Regression result: Infection growth reduces approval

Next, we move to a more systematic analysis of the relationship between the growth rate of Covid infections and changes in approval. Table 2 reports regression results for our sample of countries indexed to the day of the 100th case. We start by including only case growth and a constant as explanatory variables, with country fixed effects (Column 1). The coefficient is negative and significant at the 1% level, confirming the previous graphical evidence.

In Columns 2 to 4, we add changes in death, economic activity and the Stringency Index one-by-one. The coefficient on case growth remains statistically significant at slightly varying sizes across specifications. The coefficient of new Covid-19 fatalities enters with the expected, negative sign, although it is barely statistically significant, only at a 10% level. More surprisingly, economic activity also has a negative sign, and is statistically significant in Column 3. This suggests that a stronger downturn is associated with gains in approval. We interpret this as the mirror image of the relationship depicted in Column 4, namely the statistically significant relationship between stringency and approval. Indeed, there is a high negative correlation between activity and stringency (-0.73) over our sample period. Taken together, Columns 3 and 4 suggest that leaders that enforce strict policies,

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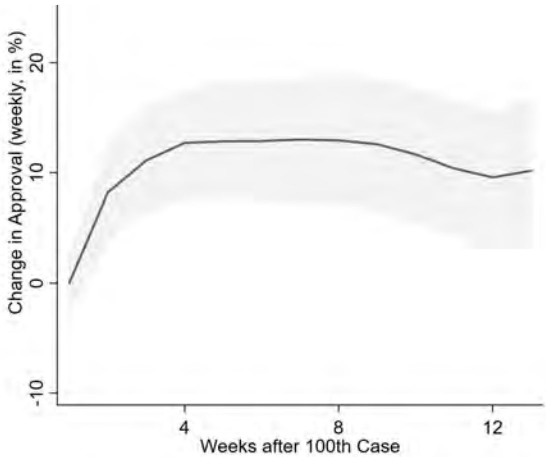
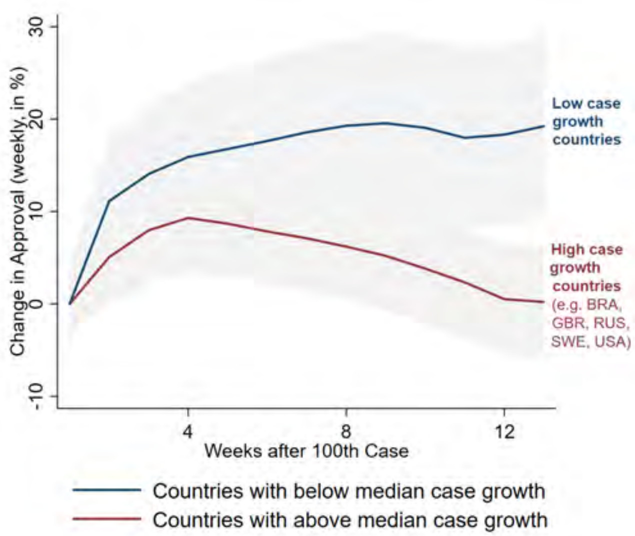
Figure 2: Government approval during the Covid-19 crisis

Panel A: Government approval, all countries



Panel B: Approval in countries with high and low case growth



Notes: This figure shows the percentage change in government approval on a weekly basis after the outbreak of the Covid-19 pandemic. Panel A averages across all 35 countries in our sample. Panel B splits the sample into two groups: Countries with below median case growth during the sample and countries with high case growth. The shaded grey areas show 90 percent confidence bands. The figure is based on an indexed sample, starting at the week of the 100th reported case in a given country. The data are smoothed using 3-week moving averages.

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Table 2: Government approval and Covid-19 infections

	Contemporaneous explanatory variables							1-week lags
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δ Cases	-4.48***	-6.92***	-5.69***	-4.28**	-7.47***	-5.93***	-4.75**	-5.75***
(new Covid-19 infections)	(1.60)	(2.17)	(1.73)	(1.59)	(2.42)	(1.75)	(2.23)	(1.66)
Δ Deaths		-0.47*			-0.46*	-0.48	-0.29	-0.50
(new Covid-19 fatalities)		(0.25)			(0.26)	(0.33)	(0.29)	(0.31)
Δ Activity			-0.17***		-0.09	-0.21		-0.11
(change in mobility, Google)			(0.05)		(0.13)	(0.13)		(0.11)
Stringency government response				0.13**	0.06			
(Oxford index)				(0.05)	(0.13)			
Δ Activity							-0.27**	
(change in total electricity usage)							(0.13)	
Constant	12.47***	15.85***	7.96***	3.87	9.46*	6.33	10.12**	13.30**
	(0.73)	(2.06)	(1.78)	(3.21)	(5.30)	(7.04)	(4.36)	(6.45)
Observations	523	523	468	523	468	468	305	461
Countries	35	35	33	35	33	33	20	33
R2	0.09	0.13	0.15	0.12	0.18	0.20	0.16	0.16
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	No	No	No	No	Yes	Yes	Yes

Notes: The dependent variable is the change in government approval compared to the pre-pandemic level at weekly frequency. The main explanatory variable is the log growth rate of new Covid-19 infections. In Columns 1-7, the explanantory variables are included contemporanously, Column 8 uses 1-week lags. All results are estimated from an indexed sample, starting at the week of the 100th reported case in a given country. All regressions include robust standard errors clustered on country. Significance levels denoted by *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

and as a result or at the same time experience a sharp downturn in activity, benefit in terms of public support. Column 5 reports results when including all three variables jointly, with country fixed effects and a constant. The coefficient of case growth stays statistically significant, but the remaining explanatory variables lose their significance.

Column 6 shows our preferred specification, controlling for activity and Covid-19 fatalities and including country and time fixed effects. The effect of case growth is statistically significant at the 1% level. Quantitatively, a one standard deviation increase in the weekly growth rate of Covid infections is associated with a weekly decline in government approval of 3.6% (namely, 0.61 × -5.93 = -3.6) relative to the pre-pandemic level.

To give an example on the size of the effect: President Trump had an approval level 41.5% at the start of the pandemic, which rose to 42.5 during the first four weeks after the outbreak. Our results suggest that a one standard deviation increase in case growth in week 5 would have resulted in a fall in the approval rate by 1.5 percentage points in the next week (41.5 × -3.6 = -1.5), to a new level of 41.

We estimate the same model using an alternative, electricity-based proxy of economic activity in Column 7, which is available for 20 of the 35 countries. The results in this reduced sample remain robust, with the effect of case growth slightly smaller but still significant at the 5 % level. In Column 8, we re-estimate the specification in Column 6, but including all explanatory variables as one week lags in order to capture delayed reactions in popularity. The results are almost unchanged.

In Appendix B, Table A2, we show that we obtain similar results when using approval changes in percentage points (this is, instead of using as dependent variable $(A_t - A_0)/A_0$ as in these tables we use $A_t - A_0$, where A_t is the approval in week t and A_0 the approval at the outbreak). Our results are also robust to excluding countries without weekly polls and when using a daily or monthly data frequency (see Table A3 in Appendix B).

3.3 Dynamic effects: the impact of infection growth increases over time

We now analyze the evolution over time, especially comparing periods of policy tightening (first weeks after the outbreak) with periods of policy loosing (second phase). Figure 3 sheds light on the dynamics between approval and the explanatory variables. The black line in Panel A plots the correlation coefficient between Covid case growth and changes in political approval over time, while the two thin, dotted lines represents 90 % confidence bands (dotted lines, based on bootstrapped standard errors). As can be seen, the correlation is positive early on and becomes more negative over time.

Panel B compares this to the correlation coefficients with (i) changes in stringency and (ii) economic activity. The correlation between approval and stringency is positive early on (as high as 0.35), but falls to around zero after the 6th week. Changes in workplace visits are positively correlated with changes in approval, however the coefficients are small in magnitude. In comparison, the negative correlation between Covid case growth and approval is more sizable and has a stronger time trend. This suggests not only an initial ”rally after the flag” effect, in which the public seems to grant a “truce period” at the outbreak, but also that the public becomes increasingly impatient with the increase in infections as time goes by.

A more formal analysis of the time varying correlation between case growth and changes in approval is illustrated in Figure 2. Specifically, we expand the baseline model in Column 6 of Table 2 (also shown in Column 1 of Table 3) by including time dummies for what can be termed the ”first” and ”second” phase of the Covid-19 pandemic. The first phase is characterized by rapidly increasing case numbers and policy tightening and typically spans the first 8-10 weeks after the outbreak. The second phase, is then a period of lower or at least more stable case numbers and gradual policy loosening in most countries. To be conservative, we choose a 10-week cut-off, since by then most countries saw decreasing case numbers, but the results are stable when shifting the cut-off forward or backward by 2 weeks.

Column 2 of Table 3 includes country fixed effect only. We find that the coefficient of case growth during the first phase roughly corresponds to those obtained for the whole sample. For the second phase, however, the coefficient increases more than threefold. Both coefficients are statistically significant at the 1 and 5 percent confidence level, respectively. Next, we include time fixed effects (Column 3). Both coefficients remain statistically significant and of roughly similar size. If anything, the difference in magnitude becomes

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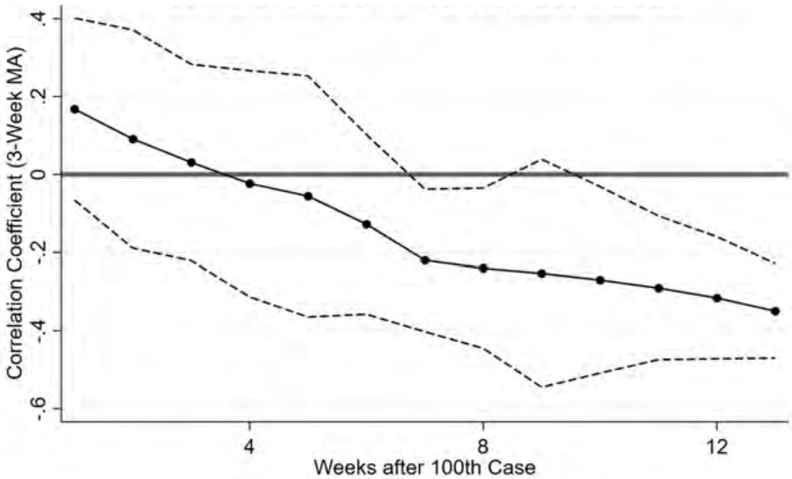
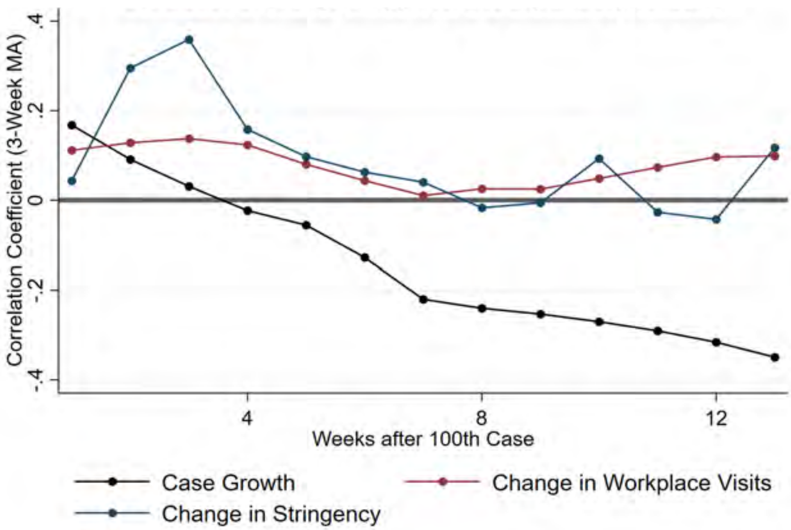
Figure 3: Correlation of approval rates and main explanatory variables

Panel A: Correlation of approval and Covid-19 case growth



Panel B: Correlation of approval with case growth, economic activity and stringency



Notes: This figure shows correlation coefficients (3-week moving averages) of changes in approval and the main explanatory variables. Correlation coefficients are computed based on the cross section of countries in a given period. Panel A plots the correlation coefficients of case growth and approval, including 90 percent confidence bands based on bootstrapped standard errors. Panel B compares the correlation of changes in approval with changes in stringency, activity and case growth. The figure is based on an indexed sample, starting at the week of the 100th reported case in a given country.

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Table 3: The dynamic effect of case growth on approval

	(1)	(2)	(3)
Δ Cases	-5.93***		
(new Covid-19 infections)	(1.75)		
First Phase × Δ Cases		-7.82***	-5.79***
		(2.17)	(1.80)
Second Phase × Δ Cases		-28.50**	-30.49**
		(12.09)	(11.58)
Δ Deaths	-0.48	-0.39	-0.46
(new Covid-19 infections)	(0.33)	(0.28)	(0.34)
Δ Activity	-0.21	-0.14*	-0.21
(change in mobility, Google)	(0.13)	(0.07)	(0.14)
Constant	6.33	12.31***	5.86
	(7.04)	(2.95)	(7.58)
Observations	468	468	468
Countries	33	33	33
R2	0.20	0.19	0.21
Country FE	Yes	Yes	Yes
Time FE	Yes	No	Yes

Notes: The dependent variable is the change in government approval compared to the pre-pandemic level at weekly frequency. The main explanatory variable is the log growth rate of new Covid-19 infections. Column 1 shows the preferred specification from Table 2. Columns 2 and 3, case growth is interacted with time dummies for first phase (up to the 10th week after the outbreak) and second phase (after the 10th week). The non-interacted dummies are included in the model, but their coefficients are omitted from the table. All regressions include robust standard errors clustered on country. Significance levels denoted by *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

even more pronounced after adding time fixed effects. The coefficient for case growth clearly becomes more negative over time. Results based on percentage point changes are reported in Columns 4 and 5 of Table A2 in Appendix B.

The growing impact of case growth on approval is consistent with the notion that governments receive the benefit of the doubt early on, but are punished when Covid-19 case numbers do not drop or even increase again later on.

3.4 Interaction effects: conditioning on policy stringency

In this section, we analyze the conditional effect of government actions on the relationship between case growth and approval. The goal is to interpret the reaction of the public to an increase in infections when considering how leaders are acting. For that purpose, we augment the baseline model in Column 6 of Table 2 (also shown as Column 1 in Table 4), by including the Stringency Index and by including an interaction term of case growth and stringency in the regression (Column 3). The interaction coefficient turns out to be positive and statistically significant at the 1% level, suggesting that the effect of case growth declines (i.e. becomes less negative) at high levels of stringency.[12]

Figure 4 builds on Column 3 and illustrates this relationship graphically, by showing the effect of case growth on approval at different levels of policy stringency, as well as 90 percent confidence bands (dotted lines). Case growth is significant only for index levels below 80. At the median level of stringency (at 61), case growth has a coefficient of -6, such that a one standard deviation increase in the weekly growth of cases is associated with a 3.6 percent decline in approval (namely, 0.61 $\times$ -6 = -3.6) relative to the pre-pandemic level. However, at lower index values (loose policies) the coefficient for case growth strongly increases in size. For example, at a stringency index value of 40 the coefficient decreases to -10, such that a one standard deviation increase in weekly case growth is associated with a 6.1 percent decrease in approval (namely, 0.61 $\times$ -9.5 = -5.8).

Figure 4 thus lends support to the idea that the number of Covid infections influence approval only in countries which mismanage the pandemic and fail to implement forceful containment measures. To provide further perspective on this, Figure 4 shows the Stringency Index for all countries in our sample since the day the 100th case was reported. As can be seen, there is remarkable co-movement in terms of the government responses, in particular during the first few weeks. Since outbreak timing differs across regions, some countries already had stringent policies in place before the 100th case was confirmed. From the 8th week onwards, policy stances begin to diverge more strongly, with some countries deciding to loosen measures earlier than others.

Even though stringency and economic activity are highly correlated in average, in the second stage they do not move as close. As an example, Croatia and Portugal had roughly similar policy stances and experienced economic downturns of equal magnitude at the beginning of April (Stringency levels were at 96 and 82 respectively, activity declined by 55

[12] Results based on percentage point changes are shown in A2 in Appendix B, and are consistent with these results.

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Table 4: Interaction effects between case growth and stringency

	(1)	(2)	(3)
Δ Cases	-5.93***	-5.57***	-15.97***
(new Covid-19 infections)	(1.75)	(1.65)	(3.07)
Δ Deaths	-0.48	-0.48	-0.43
(new Covid-19 fatalities)	(0.33)	(0.32)	(0.31)
Δ Activity	-0.21		
(change in mobility, Google)	(0.13)		
Stringency government response		0.14*	-0.01
(Oxford index)		(0.08)	(0.07)
Δ Cases × Stringency government response			0.17***
			(0.04)
Constant	6.33	4.70	14.05**
	(7.04)	(6.26)	(5.91)
Observations	468	523	523
Countries	33	35	35
R2	0.20	0.17	0.22
Country FE	Yes	Yes	Yes
Time FE	Yes	Yes	Yes

Notes: The dependent variable is the change in government approval compared to the pre-pandemic level at weekly frequency. The main explanatory variable is the log growth rate of new Covid-19 infections. All results are estimated from an indexed sample, starting at the week of the 100th reported case in a given country. All regressions include robust standard errors clustered on country. Significance levels denoted by *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

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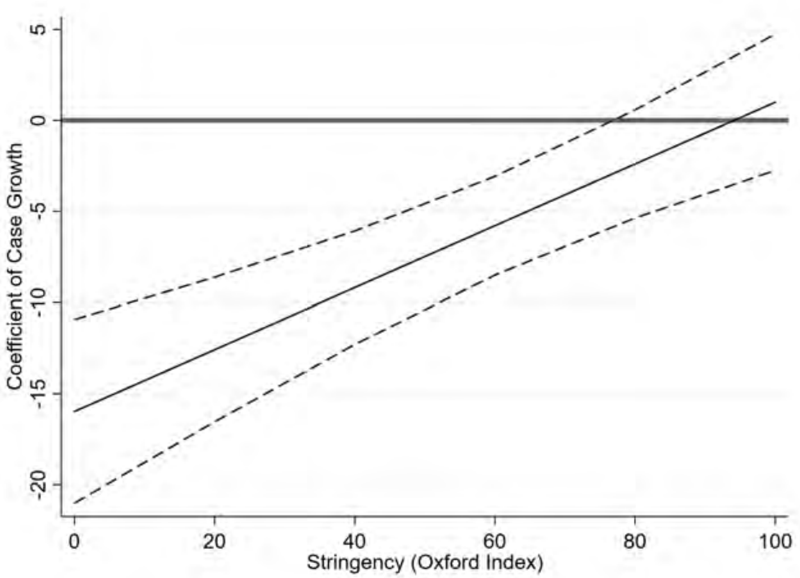
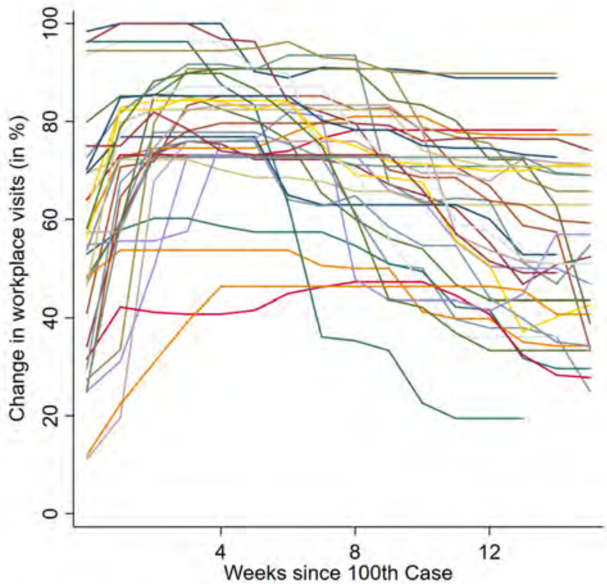
Figure 4: Interaction between case growth and stringency



Notes: This figure shows the effect of case growth on approval for different levels of policy stringency (based on Column 3 of Table 3). The dotted lines show 90 percent confidence bands.

Figure 5: Variation in government responses (stringency index)



Notes: This figure shows the variation of government responses (Stringency index) over time across the 35 countries in our sample. The figure is based on an indexed sample, starting at the week of the 100th reported case in a given country.

% and 60 %). Until the end of June, Croatia underwent rapid re-opening, dropping all the way to 36 in terms of stringency, whereas Portugal barely loosened policies and remained at a level of about 70. However, the economic recovery in the two economies, based on the number of workplace visits, was of identical size, gaining 35 percentage points each until the end of June. Across countries, the correlation between policy stringency is -0.72 in the first phase (before the 10th week after the pandemic outbreak) and -0.62 in the second phase (after the 10th week). Figure A3 in the Appendix provides further visual evidence on the cross-country patterns of economic activity over time.

To summarize, since case growth is associated with losses in approval only when response measures are loose, strategies which err on the side of caution seem to pay off politically.

4 (Mis-)managing the Covid crisis: survey evidence

In this section we add further, more direct but also less comprehensive, evidence on the political consequences of mismanaging the Covid crisis. In particular, we consider how the population evaluates the governments's Covid management based on an international survey conducted by Fetzer et al. (2020).[13] The survey includes responses for more than

[13] Accessed on 10.07.2020, https://covid19-survey.org/index.html

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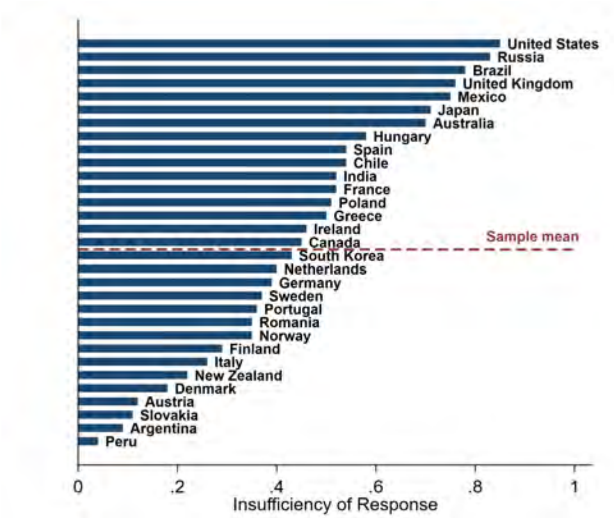
100,000 individuals between March 20th and April 6th who, among other questions, were asked to evaluate their respective governments' handling of the Covid crisis (*"Do you think your governments' response to the current Coronavirus outbreak is appropriate, too extreme or not sufficient?"*). Participants responses were captured on a 5-point scale. The results are reported as percent of respondents that judge the governments' response as "insufficient".

Figure 6 illustrates the survey results for the 31 countries in our sample that are also covered by the Fetzer et al. (2020) dataset. The picture shows a large heterogeneity across countries. On the one side of the spectrum, in Argentina and Peru, only around 10 % of participants were dissatisfied with the government response to Covid. In contrast, more than 80% of participants from the United States and Russia thought that the government response was insufficient.

Figure 6: Covid-19 survey: Insufficient government reaction (in %)

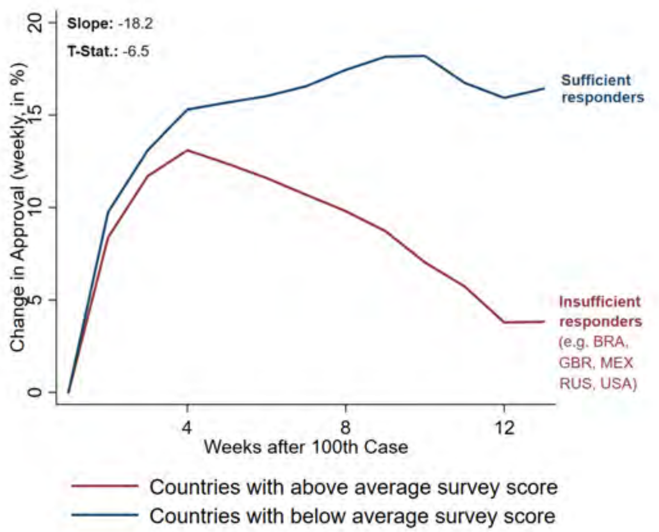


Notes: This figure shows the results from an international survey of Fetzer et al. (2020) and covers the 31 countries in our sample that were included in that survey. The bars show the percent of respondents in each country that judge the governments' handling of the Covid crisis as "insufficient".

Next, we split the sample of 31 countries with available data at the average level of "insufficiency" (above or below 44%). Based on this, we form two country groups and then compare approval rates over time by adding in our own dataset.

Figure 7 shows the result for the two groups. Similar to Figure 2, there is a strong initial increase in approval in the full sample until around the 4th week, with rates increasing by between 12.5 and 15 percent. Thereafter, the average approval of countries belonging to the "sufficient responders" continues to increase (reaching a 17 percent gain after 13 weeks), while the approval rate of "insufficient responders" collapses. At the end of the sample period, the difference between the two groups amounts to more than 10 percentage points, on average.

Figure 7: Government approval and sufficiency of Covid-19 response



Notes: This figure shows the percentage change in government approval on a weekly basis after the outbreak of the Covid-19 pandemic for two groups of countries based on Fetzer et al. (2020). The sample is split at the average survey score across countries, with "sufficient responders" being countries in which less than 44% judged the government response as insufficient, while "insufficient responders" are countries with a score below that average. The figure is based on an indexed sample, starting at the week of the 100th reported case in a given country. The data are smoothed using 3-week moving averages. The statistics in the upper left corner show the coefficient and t-statistic of a simple regression model of weekly approval on the survey score and an intercept.

We also confirm the negative relationship between survey response and popularity more formally, using a simple regression model of weekly approval on the survey score and an intercept. As shown in the upper left corner of Figure 7, the slope coefficient is negative and statistically significant at the 1% level, suggesting that a higher survey scores (i.e. more respondents judging the response as "insufficient") is associated with less approval. Taken as a whole, this result implies that governments which are badly evaluated in their handling of the Covid crisis, lose out substantially in terms of popularity.

5 Conclusion

This short paper studies the political approval consequences of the Covid 19 pandemic, focusing on case numbers and the policy response of governments. We construct a comprehensive, high-frequency dataset on government approval and document a robust, and quantitatively sizeable, relationship between the weekly growth rate of Covid infections

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and changes in government approval. However, this effect only holds when government policies are loose, not when strict measures are imposed to counter the spread of the virus. Based on a cross-country survey, we further show that the pandemic responses are key for approval:governments that are badly evaluated in managing the pandemic, are those that do worst in terms of approval.

On the one hand, the cross-country scope of our dataset allows a comparison of political support for leaders across the world facing a common, synchronous and novel shock: a pandemic. On the other hand, the high-frequency dimension of our dataset allows keeping track of the dynamics of political support in how governments deal with this unique common challenge.

The evidence we present sheds new light on the policy trade-offs that politicians face in a pandemic. In a nutshell, governments that placed more weight on health outcomes versus economic outcomes gained political support. Moreover, this effect increases over time. At the initial stages of the pandemic, leaders are granted the benefit of the doubt, but this "token of trust" fades quickly: after about 4 weeks, growing case numbers increasingly hurt political approval, especially if no stringent policies were in place.

In sum, this paper highlights what the public feels most strongly about: the growth of infections (rather than the resulting deaths or other factors), especially when unaccompanied by efforts to curb them with stringent policies, even at the expense of economic activity.

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Appendix A Data and Sources

Table A1: Sample Summary

Country	Approval data on leader	Incumbent leader or government coalition parties	Number of polls in 2020	Source(s)
Australia	Yes	Scott Morrison	27	MorningConsult
Argentina	Yes	Alberto Fernández	19	Inteligencia Analítica, Synopsis
Austria	No	People's Party, The Greens	26	Politico, Wikipedia (various)
Brazil	Yes	Jair Bolsonaro	19	Wikipedia (various)
Canada	Yes	Justin Trudeau	26	Wikipedia (various)
Chile	Yes	Sebastián Piñera	27	Cadem
Croatia	No	Christian Democratic Union, Liberal Democrats	20	Wikipedia (various)
Denmark	No	Social Democrats	35	Wikipedia (various)
Estonia	No	Centre Party, Social Democratic Party, Estonia 200	35	Wikipedia (various)
Finland	No	Social Democratic Party, Left Alliance, Centre Party, People's Party, Green League	14	Wikipedia (various)
France	Yes	Emmanuel Macron	32	Wikipedia (various)
Germany	No	Christian Democratic Union, Social Democratic Party	88	Wikipedia (various)
Greece	No	New Democracy	28	Wikipedia (various)
Hungary	No	Fidesz, Christian Democratic People's Party	17	Wikipedia (various)
Iceland	No	Independence Party, Left-Green Movement, Progressive Party	14	Wikipedia (various)
India	Yes	Narendra Modi	27	MorningConsult
Ireland	No	Fine Gael, Fianna Fáil, Green Party	17	Wikipedia (various)
Italy	No	5-Star Movement, Democratic Party	128	Wikipedia (various)
Japan	No	Liberal Democratic Party	30	Wikipedia (various)
Mexico	Yes	Andrés Manuel López Obrador	27	MorningConsult
Netherlands	No	People's Party for Freedom and Democracy, Christian Democratic Appeal, Democrats 66, Christian Union	29	Wikipedia (various)
New Zealand	No	Labour Party, New Zealand First, Greens	9	Wikipedia (various)
Norway	No	Conservative Party, Liberal Party, Christian Democratic Party	47	Wikipedia (various)
Peru	Yes	Martín Vizcarra	7	IPSOS, Pulso Peru
Poland	No	United Right	70	Wikipedia (various)
Portugal	No	Socialist Party	20	Wikipedia (various)
Romania	No	National Liberal Party	13	Wikipedia (various)
Russia	No	United Russia	25	Wikipedia (various)
Slovakia	No	Freedom and Solidarity, For the People, Christian Union, We are Family	22	Wikipedia (various)
Slovenia	No	Democratic Party, Democratic Party of Pensioners, Modern Centre Party, New Slovenia	25	Wikipedia (various)
South Korea	Yes	Moon Jae-in	30	Wikipedia (various)
Spain	No	Socialist Workers' Party, United We Can	59	Wikipedia (various)
Sweden	No	Social Democratic Party, Green Party	31	Wikipedia (various)
United Kingdom	Yes	Boris Johnson	43	Wikipedia (various)
United States	Yes	Donald Trump	114	Wikipedia (various)

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Appendix B Robustness

Table A2: Government approval and Covid-19 infections (Percentage point results)

	Baseline model		1-week lags	Time interaction		Policy interaction	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Δ Cases	-2.11***	-1.77*	-2.21***			-2.07***	-6.43***
(new Covid-19 infections)	(0.71)	(0.87)	(0.66)			(0.72)	(1.32)
Δ Deaths	-0.19	-0.12	-0.19	-0.16	-0.18	-0.18	-0.16
(new Covid-19 fatalities)	(0.13)	(0.11)	(0.13)	(0.11)	(0.13)	(0.12)	(0.12)
Δ Activity	-0.07		-0.05	-0.05**	-0.08		
(change in mobility, Google)	(0.04)		(0.04)	(0.02)	(0.05)		
Δ Activity		-0.08*					
(change in total electricity usage)		(0.04)					
First Phase × Δ Cases				-2.75***	-2.02***		
				(0.85)	(0.72)		
Second Phase × Δ Cases				-15.94***	-16.59***		
				(5.55)	(5.52)		
Stringency government response						0.04	-0.02
(Oxford index)						(0.03)	(0.03)
Δ Cases × Stringency government response							0.07***
							(0.02)
Constant	2.04	3.69**	4.27*	4.00***	1.76	2.17	6.09***
	(2.34)	(1.54)	(2.15)	(1.00)	(2.53)	(2.18)	(2.21)
Observations	468	305	461	468	468	523	523
Countries	33	20	33	33	33	35	35
R2	0.17	0.15	0.15	0.18	0.19	0.14	0.20
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	No	Yes	Yes	Yes

Notes: The dependent variable is the change in government approval in percentage points at weekly frequency. The main explanatory variable is the log growth rate of new Covid-19 infections. Columns 1-2 show the baseline model, with mobility and electricity-based actitivty proxies, respectively. Column 3 includes all explanatory variables as 1-week lags. In Column 4, the stringency level is included instead of economic activity. Column 5 interacts the level of policy stringency and case growth. In Columns 6-7, case growth is interacted with time dummies for first phase (up to the 10th week after the outbreak) and second phase (after the 10th week of the outbreak). The non-interacted dummies are included in the regressions but omitted from the table. All results are estimated from an indexed sample, starting at the week of the 100th reported case in a given country. All regressions include robust standard errors clustered on country. Significance levels denoted by *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

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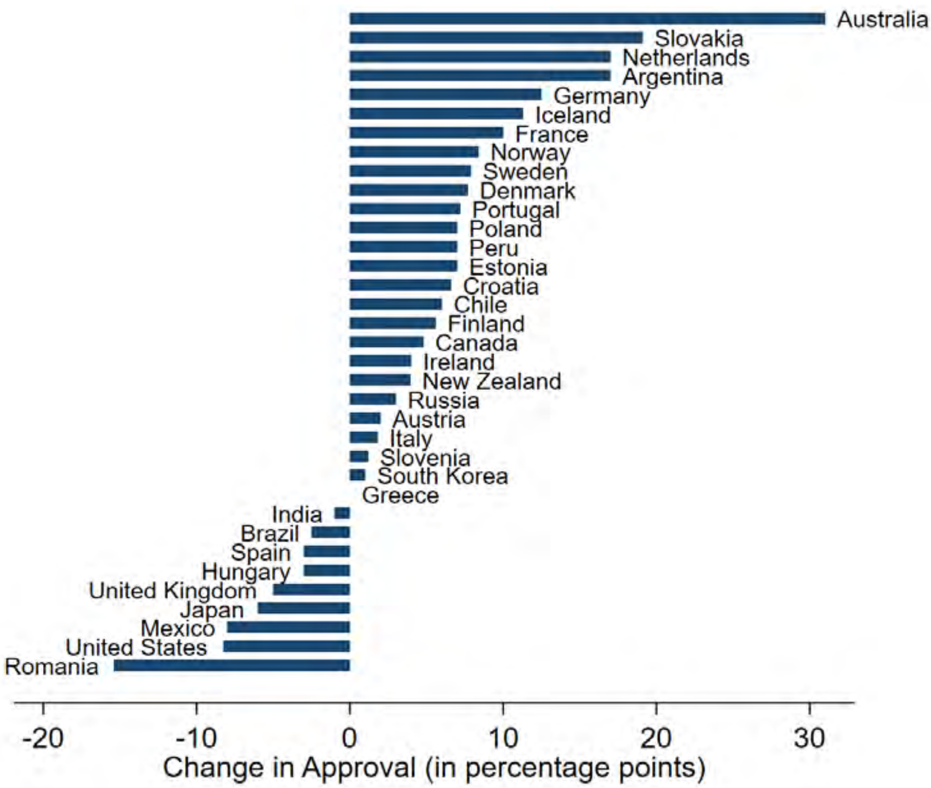
Table A3: Robustness regression results

	Excluding countries without weekly polls	Daily data	Monthly data
	(1)	(2)	(3)
Δ Cases	-6.44***	-24.64***	-8.02**
(new Covid-19 infections)	(1.87)	(8.17)	(3.24)
Δ Deaths	-0.49	-0.23	-0.13
(new Covid-19 fatalities)	(0.34)	(0.17)	(0.22)
Δ Activity	-0.22	-0.16	0.65***
(change in mobility, Google)	(0.15)	(0.11)	(0.22)
Constant	7.76	6.23	75.29***
	(7.91)	(5.77)	(20.51)
Observations	430	3560	130
Countries	30	33	33
R2	0.21	0.22	0.46
Country FE	Yes	Yes	Yes
Time FE	Yes	Yes	Yes

Notes: The dependent variable is the weekly change in government approval. The main explanatory variable is the log growth rate of new Covid-19 infections. Column 1 is based on weekly data and excludes countries without weekly polls (New Zealand, Peru, Iceland and Finland), columns 2 and 3 use daily and monthly data, respectively. All results are estimated from an indexed sample, starting at the week of the 100th reported case in a given country. All regressions include robust standard errors clustered on country. Significance levels denoted by *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Appendix C Backup Figures

Figure A1: Government approval during the Covid-19 crisis (change in percentage points)



Notes: This figure shows the percentage point change in government approval from February to July 2020 for the 35 countries in our sample. We construct a measure of government approval on a weekly basis using a combination of approval rates of the incumbent leader approval and voting intentions for the coalition government parties (see Table A1 in Appendix A for details.

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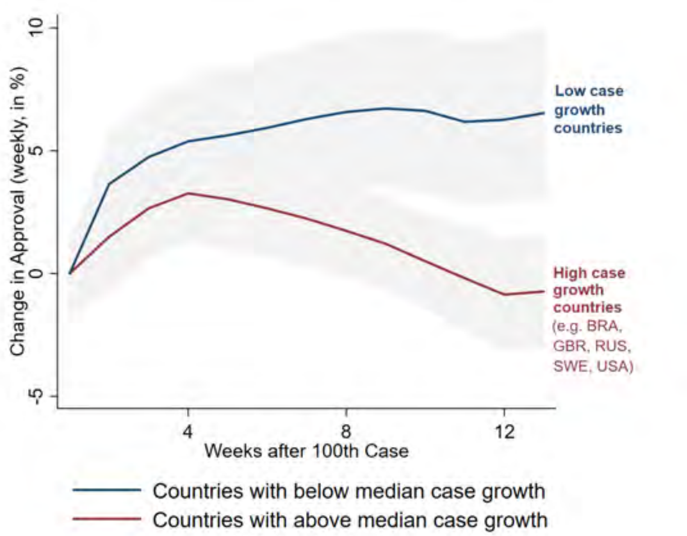
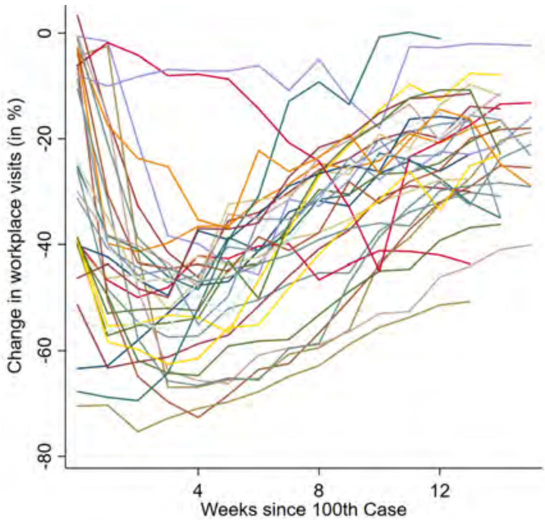
Figure A2: Dynamics of approval: high vs. low case growth (using percentage points)



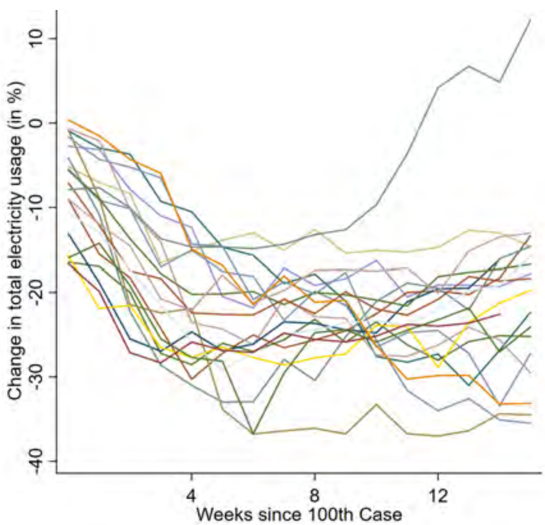
Notes: This figure shows the change in government approval (in percentage points) on a weekly basis after the outbreak of the Covid-19 pandemic. The sample is split into two groups: Countries with below median case growth during the sample and countries with high case growth. The shaded grey areas show 90 percent confidence bands. The figure is based on an indexed sample, starting at the week of the 100th reported case in a given country. The data are smoothed using 3-week moving averages.

Figure A3: Economic activity: the Covid recession by country

Panel A: Activity based on workplace visits



Panel B: Activity based on electricity usage



Notes: This figure shows the variation of changes in economic activity over time. Panel A is based on workplace visits (Google mobility) for the 33 countries in our sample with available data. Panel B is based on total electricy usage and available for 20 countries in our sample. All figures are based on an indexed sample, starting at the week of the 100th reported case in a given country.

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