CESifo WORKING PAPERS

9013
2021

April 2021

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CESifo

Impressum:

CESifo Working Papers
ISSN 2364-1428 (electronic version)
Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH
The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute
Poschingerstr. 5, 81679 Munich, Germany
Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de
Editor: Clemens Fuest
https://www.cesifo.org/en/wp
An electronic version of the paper may be downloaded
· from the SSRN website: www.SSRN.com
· from the RePEc website: www.RePEc.org
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CESifo *Working Paper No. 9013*

The Political Scar of Epidemics

Abstract

What political legacy is bequeathed by national health crises such as epidemics? We show that epidemic exposure in an individual's "impressionable years" (ages 18 to 25) has a persistent negative effect on confidence in political institutions and leaders. The effect is specific to the impressionable ages, observed only for political institutions and leaders, and does not carry over to other institutions and individuals with one key exception. That exception is strong negative effects on confidence in public health systems, suggesting that the loss of confidence in political institutions and leaders is associated with the (in)effectiveness of a government's healthcare-related responses to past epidemics. We document this mechanism, showing that weak governments took longer to introduce policy interventions in response to the COVID-19 outbreak, and demonstrating that the loss of political trust is larger for individuals who experienced epidemics under weak governments. Finally, we report evidence suggesting that the epidemic-induced loss of political trust may discourage electoral participation in the long term.

JEL-Codes: D720, F500, I190.

Keywords: epidemics, trust, political approval.

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April, 2021

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1. Introduction

Epidemics are stress tests for governments. Public officials and institutions face the challenge of assembling information and mounting effective interventions against a rapidly spreading, potentially fatal disease. They must communicate that information, describe their policies, and convince the public of their trustworthiness. Fukuyama (2020) argues that the keys to success in dealing with COVID-19 are "whether citizens trust their leaders, and whether those leaders preside over a competent and effective state". By way of example, Rothstein (2020) ascribes greater early success at containing the COVID-19 in the Nordic countries than in Italy to greater trust in government.

Trust in government is not a given, however; there is reason to ask how epidemic exposure itself affects such trust. On the one hand, there is the "rally 'round the flag hypothesis". Trust in and support for political institutions and leaders tend to rise in the wake of disasters (Mueller, 1970; Baum, 2002). On the other hand, trust in government may decline because public institutions and those charged with their operation fail to prevent or contain the epidemic. In both cases, moreover, the persistence of the effect is unclear.

Here we provide the first large-scale evidence on the effects of epidemics on political trust.[1] We use novel data on trust and confidence in governments, elections, and national leaders from the 2006-2018 Gallup World Polls (GWP) fielded in up to 140 countries annually, together with data on the incidence of epidemics since 1970 as tabulated in the EM-DAT International Disasters Database. We show that exposure to epidemics, specifically when an individual at the time of exposure is in his or her "impressionable years" (ages 18 to 25) during which attitudes and outlooks are indelibly formed, durably shapes confidence in governments, elections and leaders.

Our empirical strategy exploits within-country-year between-cohort variation. We ask whether cohorts of individuals who have been exposed to epidemics during their impressionable years display lower political trust than other cohorts surveyed in the *same country* and *same year*. We achieve this by controlling for country, year, cohort, and age fixed effects, as

[1] There is some evidence on other political impacts of epidemics and containment efforts. Flückiger, Ludwig, and Önder (2019) show that the intensity of the West African Ebola is associated with greater trust in government, a relationship mediated by the higher valuation of government policy responses in areas that suffer most from the virus. (We return to this study below.) Campante, Depetris-Chauvin, and Durante (2020) find that heightened concern about Ebola led to lower voter turnout in the United States but find no evidence of an anti-incumbent effect. Amat, Arenas, Falcó-Gimeno, and Muñoz (2020) show that following the COVID-19 outbreak in Spain, citizens expressed a stronger preference for technocratic governance and strong leadership. Bol, Giani, Blais, and Loewen (2020) surveyed citizens of 15 European countries and found that lockdown was associated with a 2 percent increase in trust in government. Another body of research examines the impact of trust in government on epidemics and containment efforts. Marlow, Waller, and Wardle (2007) show that trust in government is a predictor of flu vaccine acceptance by mothers in the United States.

well as country-by-year fixed effects in our more demanding specifications.

The impact is substantial: an individual with the highest exposure to an epidemic (relative to zero exposure) is 5.1 percentage points less likely to have confidence in the national government; 7.2 percentage points less likely to have confidence in the honesty of elections; and 6.2 percentage points less likely to approve of the performance of the national leader. These effects represent the average treatment values for the remainder of life; that is, they are up to four times larger for age groups that are close to their impressionable years and decay only gradually as individuals age. On average, they persist for nearly two decades.

We further address identification concerns in four distinct and complementary ways. First, we show that a country's epidemic experience has no analogous impact on political trust for individuals who are older or younger at the time of exposure; the effect we find is specific to the exposure in the impressionable years.[2] Second, we show that our baseline epidemic exposure variable has no impact on social trust and trust in a variety of non-political institutions; the impact is specific to political institutions and leaders. Third, by creating an event-study setting around the dates since early 2000s when a pandemic was declared by the World Health Organisation, we show that countries with and without a pandemic shock share a common trend in the pre-event window, and the divergence in terms of political trust starts only after the shock. We then validate our previous impressionable-year results by employing this more recent (albeit more restrictive) pandemic-event dataset. Finally, to verify that what we capture is epidemic exposure, as distinct from general health conditions in a country, we estimate the effects of communicable vs. non-communicable disease exposure during individuals' impressionable years, confirming that our results obtain only for the former.

To establish robustness, we show that our results are not driven by other observable economic (growth and stability of the economy, inflation, GDP per capita), social and political (internal conflict, external conflict, corruption scandals, democratic accountability, revolutions, assasinations, purges, riots, anti-government demonstrations) exposures that individuals may have simultaneously experienced in their impressionable years. Following the method proposed by Oster (2019), we show that our results are unlikely to be driven by the unobserved variation potentially related to omitted factors. In addition, our estimates are robust to different measures of epidemic exposure (such as a population-unadjusted treatment variable and various threshold dummies for high exposures) and across a variety of specification checks (excluding potentially bad controls, multiple hypothesis testing, ruling

[2]That is, our results are unique to epidemic exposure experienced in an individual's impressionable ages of 18 to 25. Additionally we implement an agnostic approach by checking all alternative experience windows; we show that the maximal impact coincides with the ages of 16 to 23, which suggests a slightly earlier peak period relative to the conventional definition of the impressionable years.

out the importance of influential observations, constructing a dependent variable based on principal component analysis). As a falsification exercise, we present results focusing on a sample of immigrants who did not spend their impressionable years in the country of the interview, finding no impact on this immigrant sample. As a further falsification test, we return to our baseline (non-immigrant) sample, but where we now randomly allocate each individual to a country where they may have spent their impressionable years. Again, we find no effect.

Finally, we provide evidence that epidemic exposure alters not just reported political attitudes but also actual political behavior: respondents with epidemic exposure in their impressionable years are significantly less likely to have voted in recent national elections, more likely to have taken part in lawful/peaceful public demonstrations, and more likely to have signed a petition.[3]

The second part of the paper then explores the mechanisms behind our results. We begin by showing that individuals exposed to epidemics in their impressionable years are less likely to have confidence in public health systems, suggesting that the perceived adequacy of health-related government interventions during epidemics may be important for trust in government generally. We then investigate whether an effective and timely policy response at the time of the epidemic matters for how citizens adjust their political trust. In the absence of an international dataset on policy reactions to past epidemics, we make this point in two steps. First, we validate the conjecture that the (a priori) strength of a government positively predicts the speed of its policy response to the recent COVID-19 pandemic. Here our measure of government strength represents "an assessment both of the government's ability to carry out its declared program(s), and its ability to stay in office".[4] Second, we show that when individuals experience epidemics under weak governments, the negative impact on trust is larger and more persistent. This is consistent with the idea that governments that lack unity and legislative capacity are also less capable of reacting effectively to national health crises, producing a more substantial long-term decline in their citizens' political trust.

Section 2 reviews kindred literatures. Sections 3 through 5 describe our data, empirical strategy, and model. Section 6 and 7 present the baseline results and mechanism at play, after which Section 8 concludes.

[3]These results along with other robustness checks are reported in the **Online Appendix**.

[4]As defined in ICRG Methodology codebook. See our data section for the detailed documentation of the data sources.

2. Literature

Our analysis connects up to several literatures. First, there is work in economics on the determinants and correlates of trust. Contributions here (e.g. Alesina and Ferrara, 2000; Nunn and Wantchekon, 2011) tend to focus on social trust (trust in other individuals, both in-group and out-group trust) rather than trust in political institutions and leaders. There are also a few studies of trust in political institutions and leaders (Becker, Boeckh, Hainz, and Woessmann, 2016; Algan, Guriev, Papaioannou, and Passari, 2017; and Dustmann, Eichengreen, Otten, Sapir, Tabellini, and Zoega, 2017), but these tend to focus either on the impact of political circumstances long past or of relatively recent economic variables, such as growth and unemployment. Ours is the first study to present global evidence for the adverse impact on trust of health-related concerns and to consider the long-term impact of health crises experienced at an early stage of an individual's lifecycle.

Second, there is the literature on the "impressionable years". A seminal study pointing to the importance of this stage of the lifecycle in durably shaping attitudes and values is the repeated survey of women who attended Bennington College between 1935 and 1939 (Newcomb, 1943; Alwin, Cohen, and Newcomb, 1991), among whom beliefs and values formed then remained stable for long periods. An early statement of the resulting hypothesis is Dawson and Prewitt (1968); Krosnick and Alwin (1989), among others, then pinpoint the impressionable years as running from ages 18 to 25.

In terms of applications, Giuliano and Spilimbergo (2014) establish that experiencing a recession between the ages of 18 and 25 has a significant impact on political preferences and beliefs about the economy.[5] Using survey data from Chile, Etchegaray, Scherman, and Valenzuela (2019) show that individuals in their impressionable years in periods of political repression have a greater tendency to withhold their opinions, compared to those who grew up in less repressive times. Farzanegan and Fereidouni (2019) find that Iranians experiencing the Iran-Iraq War in their impressionable years are more likely to prioritize a strong defense. In our paper, we control for many aspects of economic, social and political experience during an individual's impressionable years to establish that our results are not spuriously driven by the factors detected in these previous studies. Our contribution is not only to add evidence for yet another adverse shock (i.e., epidemics) but also to document its persistence in the long term and to identify a novel mechanism (i.e., government policy (in)effectiveness) through which young individuals update their beliefs.

[5] In particular, authors show that individuals, after experiencing a recession in their impressionable-years, become more inclined to support government redistribution and vote for left-wing parties. This partisan impact is clearly different than the general (nonpartisan) impact on political trust that we document in our setting.

Third, there is the recent pandemic-related literature. Flückiger et al. (2019) focus on the Ebola outbreak in West Africa from 2013 to 2016 and show that state legitimacy — proxied by trust in central government (parliament and president) and police — increased disproportionately in regions with higher exposure to the epidemic. The authors further show that the effects are more pronounced in areas where governments responded more successfully to the epidemic. Aassve, Alfani, Gandolfi, and Le Moglie (2021) use the approach of Algan et al. (2017) to study the impact of the 1918-19 Spanish flu pandemic on social trust. Analyzing the General Social Survey for the United States, they find that individuals whose families emigrated to the United States from a country with many Spanish flu victims display less trust in other people. Fetzer, Hensel, Hermle, and Roth (2020) use an experimental research design to establish that individuals' beliefs about pandemic risk factors associated with Covid-19 are causally related to their economic anxieties. In contrast to the single-epidemic focus of these and other recent studies, ours is the first (to the best of our knowledge) to bring large-scale international evidence and generalize the impact of a large set of historical epidemic episodes on individiual beliefs and behaviour.

Finally, there is our own work (Eichengreen, Aksoy, and Saka, 2021), where we investigate whether exposure to previous epidemics affected young people's trust in science and scientists. An obvious difference between the two papers is the focus, science and scientists versus politics and politicians. But another important difference lies in the channels or mechanisms linking epidemic exposure to distrust in the distinct political and scientific spheres. Here, where we show that epidemic exposure during early stages of life matters for political trust, the mechanism is the (lack of) effective and timely government policy response. In our companion paper, where we demonstrate that epidemic exposure reduces trust in scientists and in the benefits of their work, the mechanism is lack of consistent scientific communication during past epidemics.[6] The adequacy of the public-policy response and problems of scientific communication are entirely different mechanisms. These two papers also differ in terms of illustrating how distrust translates into changes in actual behaviour in the respective spheres.[7]

[6] We document this by showing that individuals with the least prior scientific education negatively update their beliefs the most. In addition, these effects tend to be stronger for scientists working in private companies as opposed to universities, which could be associated with public institutions. This nuance already speaks to the distinct setting in that paper and makes it difficult to directly associate the loss of scientific trust with the loss of political trust that we illustrate in the current paper. We also report further evidence here that the loss of trust is unique to political institutions and not observed in non-political public institutions such as military.

[7] While we illustrate in our companion paper that epidemic-induced scientific distrust translates into negative views towards vaccines and lower rates of child vaccination, we report suggestive evidence in the current paper showing that individuals with lower political trust after past epidemics reduce their electoral participation and prefer voicing their opinions via alternative means (such as attending demonstrations and

3. Data

Our principal data sources are the 2006-2018 Gallup World Polls (GWP) and the EM-DAT International Disasters Database. GWP are nationally representative surveys fielded annually from 2006 in about 150 countries, with responses from approximately 1,000 individuals in each country. Our full sample (depending on outcome variable) covers some 750,000 respondents in 142 countries.

The outcome variables come from questions asked of all Gallup respondents about their confidence in the national government, their confidence in the honesty of elections, and their evaluation of the job performance of the incumbent leader:[8] (i) "In (this country), do you have confidence in each of the following, or not: ... How about the national government?" (ii) "In (this country), do you have confidence in each of the following, or not: ... How about the honesty of elections?" (iii) "Do you approve or disapprove of the job performance of the leadership of this country?"

GWP provides information on respondents' age, gender, educational attainment, marital status, religion, urban/rural residence, labor market status, and income.

Data on worldwide epidemic occurrence and its effects are drawn from the EM-DAT International Disasters Database from 1970 to the present. These data are compiled from UN agencies, non-governmental organizations, insurance companies, research institutes, press agencies, and other sources. The database includes epidemics (viral, bacterial, parasitic, fungal, and prion) meeting one or more of the following criteria:

- 10 or more deaths;
- 100 or more individuals affected;
- Declaration of a state of emergency;
- Calls for international assistance.

Our dataset includes 47 epidemics and pandemics since 1970. This includes large outbreaks of Cholera, Ebola, and H1N1 and also more limited epidemics. Averaged across available years, H1N1, Ebola, Dysentery, Measles, Meningitis, Cholera, Yellow Fever, Diarrhoeal Syndromes, Marburg Virus, and Pneumonia were the top 10 diseases causing epidemic mortality worldwide. Many of these epidemics and pandemics affected multiple countries.[9]

signing petitions).

[8]We do not observe the respondent's, leader's or government's position on the left or right of the political spectrum. The political coloration of the government or leader could in principle be incorporated into our setting; albeit this does not constitute the focus of our paper.

[9]Note that the EM-DAT International Disasters Database does not include data on non-communicable diseases. We employ separate data on non-communicable diseases below.

137 countries experienced at least one epidemic, so measured, since 1970. This includes 51 countries in Africa, 40 in Asia, 22 in the Americas, 19 in Europe, and 5 in Oceania.[10] Each epidemic is tagged with the country where it took place. When an epidemic affects several countries, the database contains separate entries for each. EM-DAT provides information on the start and end date of the epidemic, the number of deaths and the number of individuals affected, where the number of individuals affected is how many require assistance with basic survival needs such as food, water, shelter, sanitation, and immediate medical treatment during the period of emergency. We aggregate all epidemic-related information in this database at the country-year level and merge it with Gallup World Polls.

In robustness checks, we also employ a disaggregated panel dataset on communicable as well as non-communicable diseases from Institute for Health Metrics and Evaluation (IHME) and a dataset on recent WHO-declared epidemics from Ma, Rogers, and Zhou (2020).[11]

4. Empirical Model

To assess the effect of past epidemic exposure on confidence in government, elections and political leaders, we estimate the following specification:

$$\begin{aligned} Y_{i,c,t,a,b} = \beta_1 ExposureToEpidemic(18-25)_{i,c,b} + \beta_2 X_i \\ + \beta_3 PeopleAffectedContemporaneously_{c,t-1} + \beta_4 C_c + \beta_5 T_t \\ + \beta_6 A_a + \beta_7 B_b + \beta_8 C_c * Age + \varepsilon_{i,c,t,a,b} \end{aligned} \quad (1)$$

where $Y_{i,c,t,a,b}$ is a dummy variable for whether or not respondent i of age a and birthyear b in country c at time t approves or has confidence in an aspect of their country's political institutions or leadership. Responses to all three questions are coded as dummy variables, with one representing a positive answer and zero otherwise. We estimate linear probability models for ease of interpretation.

To measure the *Exposure to epidemic (18-25)*, we calculate for each respondent the number of persons affected by an epidemic as a share of the population, averaged over the 8 years when the respondent was aged 18 to 25, consistent with the "impressionable years"

[10] We provide the full country-year-epidemic list in **Online Appendix E**.

[11] To explore underlying mechanisms, we use data from the Google Trends, the European Center for Disease Prevention Control, the Johns Hopkins Coronavirus Resource Center, and the Oxford COVID-19 Government Response Tracker. **Online Appendix Table A.1** shows descriptive statistics for the outcome variables, country characteristics, and individual characteristics.

hypothesis.[12] The vector of individual controls (X_i) includes indicator variables for urban residence and the presence of children under the age of 15 in the household, and dummy variables for gender, marital status, employment status, religion, educational attainment, and within-country-year income deciles.[13] We control for income before taxes in both log and log squared form. Prior epidemic exposure may possibly affect an individual's responses by affecting his or her subsequent income. But, by controlling for household income separately, we can rule out that prior exposure affects an individual's responses solely via this income channel. A sense of the relative importance of this and other channels can be gained by comparing specifications with and without this income variable.

We include fixed effects at the levels of country (C_c), year (T_t), and age (A_a). The country dummies control for time-invariant variation in the outcome variable caused by factors that vary cross-nationally. Year dummies capture the impact of global shocks that affect all countries simultaneously. Age dummies control for the variation in the outcome variable caused by factors that are heterogeneous across (but homogenous within) age groups. We also include country-specific age trends ($C_c * Age$) and cohort fixed-effects (B_b). A fully saturated specification includes also country-year fixed effects, which account for possible omitted country features that may change with time (such as GDP per capita, population, political regime, etc.).[14] We cluster standard errors by country and use sample weights provided by Gallup to make the data representative at the country level. Finally, we limit our sample to individuals born in the same country in which they were interviewed by Gallup.[15]

[12]While the effect of an epidemic on younger cohorts may also depend on the nature of the virus (i.e., how lethal it is to the young), EM-DAT does not contain information on the ages of the affected or of those who died. In addition, our treatment variable cannot differentiate between individuals who are themselves infected and individuals who may react to the infection of others. Thus, we can only calculate the average treatment effect across all types of epidemics operating through a combination of these channels.

[13]*People affected contemporaneously* controls for whether or not the individual is also exposed to an epidemic at the time surveyed. This is also calculated as the number of individuals affected by an epidemic as a share of the population in the country of residence in the year immediately prior to the interview. This variable is lagged to ensure that the independent variable is realized before the dependent variable, since Gallup World Polls may interview individuals at any point in the year (not necessarily at its end).

[14]This forces us to drop *People affected contemporaneously* variable, because it is perfectly correlated with the country-year dummies.

[15]We cannot guarantee that these individuals spent all of their impressionable years in their country of birth, but any measurement error arising from this concern only stacks the cards against us by lowering the precision of our estimates. Furthermore, to the extent that large epidemics push individuals to migrate to other countries not affected by the same epidemic, we may have a survivorship bias in our sample that leads us to underestimate the true effect of a past epidemic experience.

5. Threats to Identification

One can imagine several potential threats to identification. First, estimates could be driven by factors that are specific to each cohort, since our treatment categorizes individuals in each country by year of birth. Some cohorts could have cohort-specific attitudes toward political institutions and leaders or be more or less trusting than others in general. Individuals born in the late 1940s and early 1950s may vest less trust in political institutions and leaders, for example, because they experienced the widespread protests against political repression in the late 1960s, their impressionable years. We therefore include dummies for year of birth so as to compare the individuals only within the same birth cohort.[16]

Second, independent of cohort, individuals may exhibit differential behavior across the life cycle. They may become more (or less) trusting as they age, for example. Political views and ideologies may change from more liberal when young to more conservative when older (Niemi and Sobieszek, 1977). Age-specific factors also may matter if different generations were exposed to epidemics with different probabilities; given advances in science and improvements in national healthcare systems, one might anticipate that epidemics are less likely to be experienced by younger generations. We therefore include a full set of age-group dummies, which eliminates any influence on our outcome variables of purely age-related and generational effects.

Generational *trends* in political attitudes could also be heterogeneous across countries. Some national cultures may be more flexible and open to change in individual values and beliefs, leading to larger differences across generations. We therefore include country-specific age trends.

Third, an omitted variable that varies across countries and years can bias estimates even when conventional country and year fixed effects are included separately. This issue arises, for example, when we observe individuals' attitudes toward national political institutions and leaders. Because the identity of those leaders and the structure of those institutions may change, it can be difficult to separate these shifts in identity and structure from the treatment (i.e., the epidemic). For instance, even when approval of a leader declines following an epidemic, we may not capture this effect if the epidemic simultaneously triggers a change in the identity of the leader, bringing in someone for whom approval levels are higher. We address this by including dummies for each country-year pair. This eliminates all heterogeneity in our outcome variables traceable to country-specific time-varying factors,

[16]Including these dummies biases our estimates downward if epidemics are correlated across countries and affect them simultaneously. In this case, any common effect of an epidemic on a specific cohort will be subsumed by these cohort-specific dummies, and our treatment will pick up the variation in past epidemics only when they were staggered across countries.

such as changes in the government or leader. Thus, the treatment only compares individuals within the same country and survey year, ensuring that these individuals face the same political institutions and leaders. This mitigates concerns that the results are driven by other structural differences between countries that are repeatedly exposed to epidemics and those that are not

Fourth, in any study of the impact of past experience on current outcomes, the underlying assumption is that the effect is persistent. This, after all, is the essence of the "impressionable years" hypothesis. To the extent that this is not the case (because the effect has a relatively short half-life), our empirical strategy will be biased towards failing to reject the null of no effect. We explore this by tracing the impact of past epidemic exposure across different age groups and show that the effect persists for at least two decades while decaying only gradually as individuals age. Hence, the full-sample estimates represent the average treatment effect across the whole life cycle after the impressionable years.

Although we fully saturate our specifications with fixed effects, there could still be other past exposures correlated with epidemics. To address this, we control for observable economic, political and social factors in the country in question during the individual's impressionable years. Including these controls for other past conditions has no impact on the stability of our coefficients of interest. In addition, we use the methodology developed by Oster (2019). The results suggest that our findings are unlikely to be driven by unobserved variation.

6. Results

Table 1 reports estimates of **Equation 1**. The dependent variables are a dummy indicating that the respondent "has confidence in the national government" (first panel), that the respondent "approves of the performance of the leadership of his or her country" (second panel), that the respondent "has confidence in the honesty of elections" (third panel), the average of all three outcome variables (fourth panel), and the first principal component of responses (fifth panel). Column 1 reports estimates with country, year, and age fixed effects. Column 2 adds the logarithm of individual income and its square, demographic characteristics, within country-year income decile fixed effects, and labor market controls. Column 3 adds country-specific age trends, while Column 4 adds cohort fixed effects. Column 5 fully saturates the specification with country*year fixed-effects, non-parametrically controlling for all potentially omitted variables that can vary across countries and years.

Column 1 shows a negative, statistically significant relationship between exposure to an epidemic in an individual's impressionable years and current confidence in the national government. Column 5 restricts all variation to within country-year observations and reports conservative estimates that are smaller in magnitude but still significant at 1 percent level.[17]

In our preferred model (Column 4), an individual with the highest exposure (0.032, that is, the number of people affected by an epidemic as a share of the population in individual's impressionable years) relative to individuals with no exposure has on average 5.1 percentage points (-1.592*0.032) less confidence in the national government after his or her impressionable years.[18] Given that the mean level of this outcome variable is 50 percent, the effect is sizable.

The second and third panels of the table report results for approval of the performance of the leader and confidence in the honesty of elections. The results on impressionable-year epidemic exposure have the same sign, statistical significance, and magnitude (a 6.2 percentage point decrease in approval of the political leader and a 7.2 percentage point decrease in the honesty of elections, where the mean outcome levels are both 51 percent). When we use the average and the first principal component of these variables (as a way of identifying their common element) in the fourth and fifth panels, respectively, we again obtain very similar results.

6.1. *Do impressionable-year effects persist as individuals age?*

We investigate persistence by estimating our baseline specification on the subsample of older individuals immediately adjacent to their impressionable years (that is, ages 26 to 35) and then roll the age window forward in a series of separate estimates. This permits us to observe how the coefficients change as we increase the distance between the age in which impressionable individuals were exposed to epidemics and the age at which they were surveyed. If the effects are persistent, then the estimated coefficient should not change substantially as distance increases between exposure and observation.

Figure 1, based on Column 4 of **Table 1**, shows the effect of epidemic exposure on the outcome variables. The effects on the base subsample (i.e., 26-35) are up to four times larger than the point estimates for the full sample, confirming that the age groups closest to the experience window (i.e., 18-25) are disproportionately affected (compared to other age

[17] It makes sense that the point estimates shrink when we only compare individuals within the same country and point in time. It is likely that both treatment and control groups in this setting must have experienced the same epidemics but only in different parts of their life cycle (impressionable vs non-impressionable years). Hence, to the extent that epidemics carry negative effects for other experience windows, we are only estimating the differential impact on individuals who were in their impressionable years during these epidemics, thus reducing the size of our point estimates.

[18] Because epidemics are rare events and our main independent variable of interest, *Exposure to epidemic (18-25)*, is skewed to the right, it may not be appropriate to use its standard deviation or mean for understanding the effect size.

groups). For this base sample, the median time between the past experience window (median age: 21.5 years) and the subsample (median age: 30.5 years) is 9 years, documenting the effect of past epidemics in the medium term.

When the model is re-estimated on successively older subsamples, the magnitude of the impact remains stable for the first six estimates following the base sample before decaying gradually. It comes close to vanishing only estimated on the subsample of individuals aged 36 to 45, at which point the median distance between the experience window and the subsample is 19 years. Evidently, epidemic experience during the impressionable years has persistent effects on political trust that can remain for two decades of adult life.

6.2. Is the response specific to communicable diseases?

Poor public-policy responses to communicable diseases may have a powerful negative effect on trust in political institutions because such diseases spread contagiously, making that policy response especially urgent. Non-communicable diseases, in contrast, develop over longer periods and are driven by individual decisions and characteristics, such as lifestyles and demographics, instead of (or in addition to) government policy. Hence non-communicable diseases may not have equally powerful long-term effects on trust in political institutions. If they do, such effects should be smaller.

Since the EM-DAT International Disasters Database does not include data on non-communicable diseases, we use data from IHME for the period 1990 to 2016.[19] The communicable and non-communicable disease measures are population-adjusted and expressed in terms of Disability Adjusted Life Years Lost (DALYs).[20] As explained by Roser and Ritchie (2016), DALYs are a standardized metric allowing for direct comparison and summing of the burden of different diseases.

We present results in **Table 2**. Each column represents a separate regression in which we simultaneously include both types of past exposure (exposure to communicable and non-communicable diseases, respectively). Past exposure to communicable diseases has a significant negative impact, as before, on confidence in governments and elections as well as the common components of political trust (i.e., Columns 4 & 5). In contrast, there is no reasonable association between exposure to non-communicable diseases and trust in these

[19]This dataset is more limited than the EMDAT data that spans a much longer time period from the 1970s.

[20]Communicable diseases include diarrhea, lower respiratory disease, other common infectious diseases, malaria & neglected tropical diseases, HIV/AIDS, and tuberculosis. Non-communicable diseases include cardiovascular diseases, cancers, respiratory disease, diabetes, blood and endocrine diseases, mental and substance use disorders, liver diseases, digestive diseases, musculoskeletal disorders, and neurological disorders.

same political institutions. The results thus confirm that the association we document is unique to communicable diseases.

6.3. Are the results unique to impressionable years?

One could argue that our treatment effect can be influenced by the potential differential response in individuals who may have experienced the same epidemics not during their impressionable-years but in other close-by experience windows. Since these individuals will be categorised as counterfactuals in our setting, their potential differential response may drive our estimates upwards or downwards. In order to check this possibility, we re-estimate our specification on these alternative windows.

Figure 2 shows the effect of exposure in successive eight-year age windows (analogous to the eight-year window of ages 18 to 25).[21] The analysis focuses on two composite dependent variables: the average of the three outcome variables (Panel A) and the first principal component of the responses (Panel B). In both cases, the negative effect is only evident when epidemic exposure occurs in the individual's impressionable years.[22] This alleviates the concern in our setting that a counterfactual individual who experiences the same epidemic a little earlier or later than the impressionable age window may produce a differential response compared to an individual who has not experienced any epidemics at any of these windows.

In Panels C and D, we examine alternative experience windows by zooming in further, rolling them forward by one year each time from the ages of 10-17 to 18-25, where the effect turns from negligible to substantial as seen in Panels A and B. We find that the effects increase in older age windows and reach their maximum during the ages of 16-23 before declining. This suggests that the impressionable ages during which young people are most responsive to epidemic experience could be slightly earlier than the conventional definition used in the previous literature.

6.4. Additional analysis and robustness checks

Additional analyses, reported in the **Online Appendix**, document the robustness of our findings. These include: (i) controlling in various ways for additional economic, social and political exposures that individuals may have experienced in their impressionable years; (ii) conducting an Oster (2019) omitted variables test; (iii) estimating models for placebo out-

[21] We repeat the analysis only for the first four windows after birth to make sure we have age-wise comparable samples across separate estimations. It is important to keep in mind that as we check the later experience windows, respondents' age at the time of the survey has to be restricted to those older than the corresponding experience window.

[22] We again find the same for the three individual response variables. Results are available upon request.

comes related to non-political institutional or social trust; (iv) restricting the analysis only to overlapping samples for alternative measures of political trust; (v) using an alternative dataset for epidemic events; (vi) confirming that countries experiencing pandemics exhibit the same pre-trends in terms of political trust as other countries; (vii) distinguishing the extensive and intensive margin of the treatment effects; (viii) conducting falsification analyses; (ix) implementing multiple hypothesis tests; (x) excluding potential "bad controls"; (xi) experimenting with alternative treatment definitions; and (xii) ruling out influential observations.

7. Evidence on Mechanisms

Despite the null results documented previously on outcomes related to trust in non-political institutions, there exists an important exception. As reported in **Appendix Table C.1**, we identify a negative relationship between individuals' impressionable-year exposure to epidemics and their trust in the country's healthcare system. This suggests that the loss of trust in political institutions may be related to the governments' healthcare-related policy responses during past epidemics.

Weak, unstable governments with limited legislative strength, limited unity, and limited popular support are least able to mount effective responses to epidemics. If they are prone to disappointing their constituents, we would expect the effects we identify to be strongest when the government in office at the time of exposure is weak and unstable, other things equal.[23]

To explore this, we use ICRG data on government strength.[24] They measure, for the period since 1984, the unity of the government, its legislative strength, and its popular support.[25]

As a first step toward identifying the underlying mechanism, we exploit the recent COVID-19 setting and show in **Appendix C** that government strength is associated with

[23]There is vast literature in political science on how fragmented and weak governments (such as multiparty coalitions) are plagued by agency problems that may distort the policymaking process (Martin and Vanberg, 2005). An economic example of this phenomenon has been shown on coalition governments leading to excessive public spending due to reduced electoral accountability on the part of the government parties (Velasco, 2000; Bawn and Rosenbluth, 2006). Mian, Sufi, and Trebbi (2014) illustrate that governments become more polarized and weaker in the aftermath of financial crises, which is likely to produce a deadlock in the parliament and decrease the chances of major financial reform.

[24]These data are widely used in economics (see, for example, Knack and Keefer, 1997; Chong and Gradstein, 2007; Asiedu and Lien, 2011), political science and sociology (see, for example, Evans and Rauch, 1999; Souva, Smith, and Rowan, 2008; Gründler and Potrafke, 2019).

[25]Whereas in the ICRG dataset this index is labelled government stability, we refer to it as government strength, since we think this is a better name for what is essentially the implementation capacity of the incumbent government.

a statistically significant improvement in policy response time (see **Appendix Table C.2** and **Appendix Figures C.1-C.3**). Given this, we conjecture that weak governments, so measured, also performed poorly during past epidemics, and that individuals in such settings downgrade their confidence in government and trust in its leaders more severely as a result. Hence, in our second step, we calculate the average score for government strength in the individual's impressionable years. We then construct an indicator that takes the value of 1 for this past experience if the observation is in the bottom half/tercile/quartile of impressionable-year government strength index scores across all respondents.[26] We include this measure of impressionable-year government strength by itself in addition to interacting it with impressionable-year epidemic exposure to distinguish epidemic-specific and general effects.

This leads to the following specification:

$$\begin{aligned} Y_{i,c,t,a,b} = \beta_{10} ExposureToEpidemic(18-25)_{i,c,b} * GovernmentStrength_{i,c,b} \\ + \beta_9 GovernmentStrength_{i,c,b} + \beta_1 ExposureToEpidemic(18-25)_{i,c,b} + \beta_2 X_i \\ + \beta_3 PeopleAffectedContemporaneously_{c,t-1} + \beta_4 C_c + \beta_5 T_t + \beta_6 A_a + \beta_7 B_b + \beta_8 C_c * Age + \varepsilon_{i,c,t,a,b} \end{aligned} \tag{2}$$

The results reported in **Table 3** suggest that the effect of exposure to an epidemic on political trust is more than twice as large if the epidemic is experienced under a weak government. These findings suggest that our effects are mostly driven by individuals that experienced epidemics under weak governments who are less able to mount effective responses to epidemics.[27]

Importantly, the point estimates for the weak government dummy itself are small and mostly insignificant. This suggests that we are identifying not a "weak government effect" per se but rather the effect of epidemic exposure in the presence of a weak government.[28]

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[26] It is crucial to include this variable categorically rather than in a continuous form to make sure that it is unlikely to respond to changes in the pandemic experience.

[27] Similar mechanism is also identified by Flückiger et al. (2019) in the context of Ebola outbreak in West Africa. In particular, the authors show that the effects of Ebola exposure on perceived state legitimacy are more pronounced in areas where governments responded relatively well to the epidemic.

[28] **Appendix Figures B.1-B.3** show further evidence of the importance of government strength at the time of the epidemic. We again restrict the observations to the 26-35 age range and re-estimate the Equation (3) when rolling the age window forward. In each figure, the top panel shows the estimates for the total effect on individuals experiencing epidemics under weak governments, while the bottom panel shows the corresponding estimates for individuals experiencing epidemics under strong governments. For all outcomes, the negative impact on trust is larger and more persistent for respondents who experienced epidemics under weak governments. Again, this is consistent with the notion that these individuals became and remained more disenchanted with their country's political institutions and leaders, insofar as those institutions and leaders failed to adequately respond to the country-wide public-health emergency.

8. Conclusion

In this paper we have shown that experiencing an epidemic can negatively affect an individual's confidence in political institutions and trust in political leaders. This negative effect is large, statistically significant and persistent. Its largest and most enduring impact is on the attitudes of individuals in their impressionable late-adolescent and early-adult years when the epidemic breaks out. It is limited to infectious or communicable diseases, where a government's success or failure in responding is especially important. It is the largest in settings where there already exist doubts about the strength and effectiveness of government.

The implications are unsettling. Imagine that more trust in government is important for containment, but that failure of containment harms trust in government. One can envisage a scenario where low levels of trust allow an epidemic to spread, and where the spread of the epidemic reduces trust in government still further, hindering the ability of the authorities to contain future epidemics and address other social problems. As Schmitt (2020) puts it, "lack of trust in government can be a circular, self-reinforcing phenomenon: Poor performance leads to deeper distrust, in turn leaving government in the hands of those with the least respect for it".

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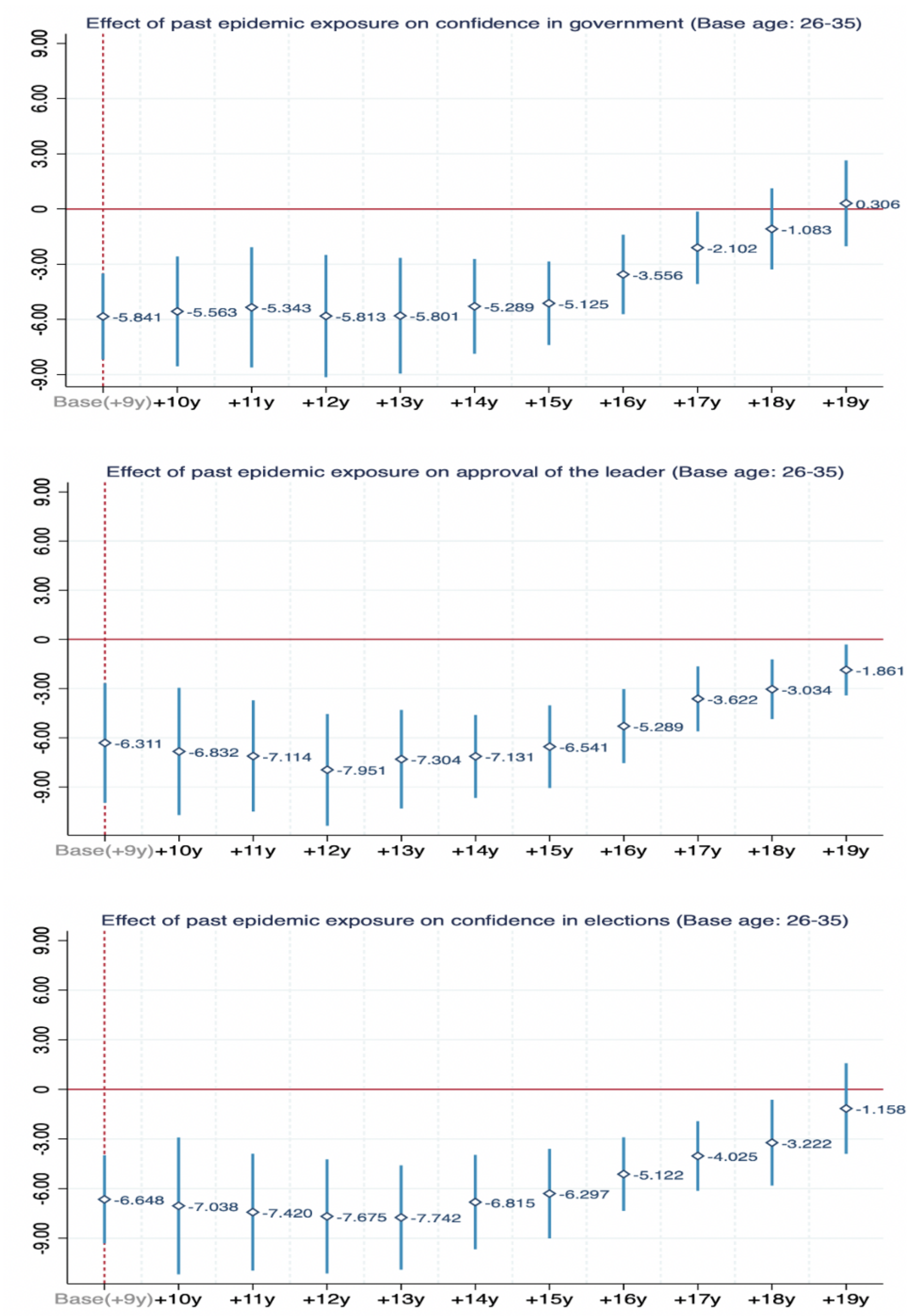

Fig. 1. **Effects of Epidemics in Impressionable Years over Subsamples with Rolling Age-Windows.** This figure shows the persistency of the effects on three main outcome variables by restricting the observations to the respondents who are in the 26-35 age range at the time of the survey (Base sample) and then repeatedly rolling this age window forward by one year for each separate estimation. The specification is Column 4 of Table 1 and only the estimated coefficient on *Exposure to epidemic (18-25)* is plotted. Confidence intervals are at 95% significance level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

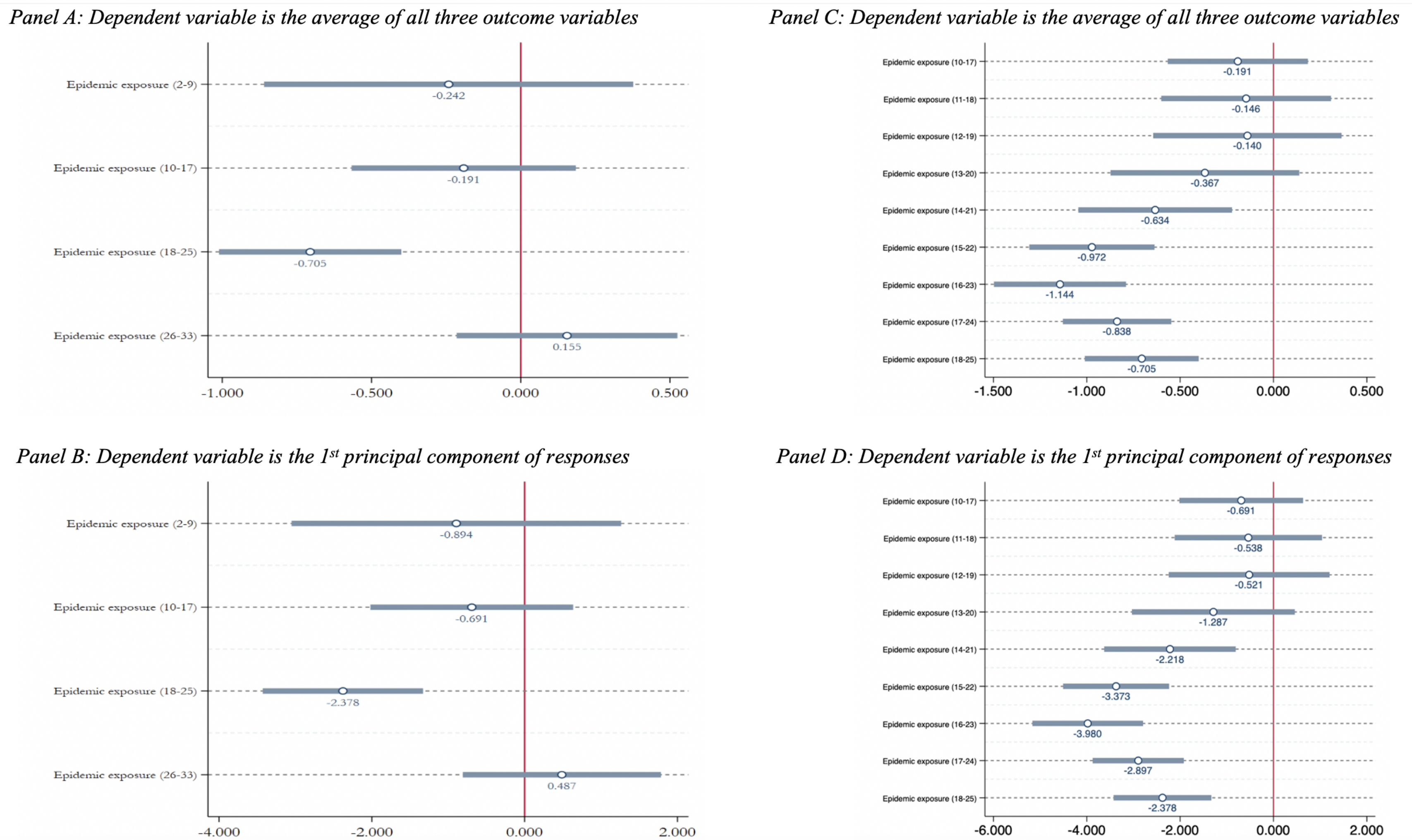

Fig. 2. **Effects of Epidemics in Alternative Treatment Years.** This figure shows the treatment effect for various age bands. That is, we calculate for each individual the number of people affected by an epidemic as a share of the population, averaged over the 8 years when the individual was 2-9 years old, 10-17 years old, 18-25 years old, and 26-33 years old. Each point estimate comes from four separate models. Specification is Column 5 of Table 1. Confidence intervals are at 95% significance level. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Outcome ➔	(1) Have confidence in national government	(2) Have confidence in national government	(3) Have confidence in national government	(4) Have confidence in national government	(5) Have confidence in national government
Exposure to epidemic (18-25)	-1.073*	-0.924	-1.614***	-1.592***	-0.508**
	(0.594)	(0.576)	(0.265)	(0.262)	(0.219)
Observations	760099	760099	760099	760099	760099
Outcome ➔	Approval of the leader	Approval of the leader	Approval of the leader	Approval of the leader	Approval of the leader
Exposure to epidemic (18-25)	-1.521***	-1.501***	-1.916***	-1.957***	-0.583***
	(0.380)	(0.369)	(0.326)	(0.330)	(0.118)
Observations	719742	719742	719742	719742	719742
Outcome ➔	Have confidence in honesty of elections	Have confidence in honesty of elections	Have confidence in honesty of elections	Have confidence in honesty of elections	Have confidence in honesty of elections
Exposure to epidemic (18-25)	-1.643**	-1.481*	-2.226***	-2.258***	-1.181***
	(0.794)	(0.811)	(0.341)	(0.339)	(0.273)
Observations	736679	736679	736679	736679	736679
Outcome ➔	Average of all three outcome variables	Average of all three outcome variables	Average of all three outcome variables	Average of all three outcome variables	Average of all three outcome variables
Exposure to epidemic (18-25)	-1.365**	-1.248**	-1.855***	-1.867***	-0.705***
	(0.565)	(0.539)	(0.264)	(0.264)	(0.155)
Observations	636156	636156	636156	636156	636156
Outcome ➔	the 1st Principal Component of Responses	the 1st Principal Component of Responses	the 1st Principal Component of Responses	the 1st Principal Component of Responses	the 1st Principal Component of Responses
Exposure to epidemic (18-25)	-4.672**	-4.269**	-6.361***	-6.400***	-2.378***
	(1.932)	(1.841)	(0.914)	(0.913)	(0.531)
Observations	636156	636156	636156	636156	636156
Country fixed effects	Yes	Yes	Yes	Yes	No
Year fixed effects	Yes	Yes	Yes	Yes	No
Age group fixed effects	Yes	Yes	Yes	Yes	Yes
Labor market cont. & individual income	No	Yes	Yes	Yes	Yes
Demographic cont. & income decile fixed effects	No	Yes	Yes	Yes	Yes
Country*Age trends	No	No	Yes	Yes	Yes
Cohort fixed effects	No	No	No	Yes	Yes
Country*Year fixed effects	No	No	No	No	Yes

Table 1: **The Impact of Exposure to Epidemic (18-25) on Political Trust.** * significant at 10%; ** significant at 5%; *** significant at 1%. Demographic characteristics include: a male dummy, a dummy for each age group, dummy variables for marital status (single, married), educational attainment (tertiary education, secondary education), religion dummies (Christian, Muslim, and other religions), employment status (full-time employed, part-time employed, unemployed), a dummy variable for living in an urban area and presence of children in the household (any child under 15). Income decile fixed-effects are constructed by grouping individuals into deciles based on their income relative to other individuals within the same country and year. Individual income includes all wages and salaries in the household, remittances from family members living elsewhere, and all other sources before taxes. Gallup converts local income to International Dollars using the World Bank's individual consumption PPP conversion factor, which makes it comparable across all countries. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

	(1)	(2)	(3)	(4)	(5)
Outcome ➔	Have confidence in national government	Approval of the leader	Have confidence in honesty of elections	Average of all three outcome variables	the 1st Principal Component of Responses
Exposure to communicable dis. (18-25)	-0.368**	-0.111	-0.515***	-0.328**	-1.117**
	(0.152)	(0.179)	(0.176)	(0.159)	(0.551)
Exposure to non-communicable dis. (18-25)	0.175	0.123	0.553*	0.315	1.064
	(0.303)	(0.336)	(0.305)	(0.308)	(1.069)
Observations	389882	370749	377838	330034	330034
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Age group fixed effects	Yes	Yes	Yes	Yes	Yes
Labor market cont. & individual income	Yes	Yes	Yes	Yes	Yes
Demog. cont. & income decile fixed effects	Yes	Yes	Yes	Yes	Yes
Country*Age trends	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes

Table 2: **Impact of Communicable and Non-Communicable Diseases on the Political Trust.** * significant at 10%; ** significant at 5%; *** significant at 1%. *Disability Adjusted Life Years Lost (DALYs)* is a standardized metric allowing for direct comparison and summing of burdens of different diseases. Conceptually, one DALY is the equivalent of one year in good health lost due to premature mortality or disability. For *Exposure to communicable diseases (18-25)*, we calculate for each respondent the population-adjusted DALYs related to communicable diseases (diarrhea, lower respiratory, other common infectious diseases, malaria & neglected tropical diseases, HIV/AIDS, tuberculosis, other communicable diseases) in their country of origin, averaged over the 8 years when the respondent was aged 18 to 25. For *Exposure to non-communicable diseases (18-25)*, we calculate for each respondent the population-adjusted DALYs related to non-communicable diseases (cardiovascular diseases, cancers, respiratory disease, diabetes, blood and endocrine diseases, mental and substance use disorders, liver diseases, digestive diseases, musculoskeletal disorders, neurological disorders, other non-communicable diseases) in their country of origin, averaged over the 8 years when the respondent was aged 18 to 25. See Table 1 for variable definitions. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and Institute for Health Metrics and Evaluation, 1990-2016.

Outcome ➔	(1) Have confidence in national government	(2) Approval of the leader	(3) Have confidence in honesty of elections	(4) Average of all three outcome variables	(5) the 1st Principal Component of Responses
Exp. to epidemic (18-25)*BelowMedianGov.Strength	-4.033***	-1.092	-2.987***	-2.471***	-8.609***
	(0.876)	(0.849)	(0.618)	(0.705)	(2.461)
Exposure to epidemic (18-25)	-0.235	-3.018***	-1.901**	-1.770*	-5.998*
	(1.038)	(1.044)	(0.833)	(0.988)	(3.447)
BelowMedianGov.Strength	0.014*	0.015*	-0.000	0.009	0.033
	(0.008)	(0.009)	(0.007)	(0.008)	(0.027)
Exp. to epidemic (18-25)*BottomTercileGov.Strength	-3.919***	-2.230***	-4.863***	-3.479***	-11.955***
	(0.719)	(0.629)	(0.559)	(0.565)	(1.964)
Exposure to epidemic (18-25)	-1.048	-2.514***	-1.183*	-1.560**	-5.377**
	(0.808)	(0.693)	(0.698)	(0.724)	(2.521)
BottomTercileGov.Strength	0.013*	0.023***	0.002	0.014*	0.051*
	(0.008)	(0.008)	(0.007)	(0.007)	(0.026)
Exp. to epidemic (18-25)*BottomQuartileGov.Strength	-3.578***	-2.027***	-4.643***	-3.184***	-10.924***
	(0.748)	(0.542)	(0.521)	(0.518)	(1.803)
Exposure to epidemic (18-25)	-1.289	-2.657***	-1.373*	-1.777**	-6.130**
	(0.889)	(0.640)	(0.800)	(0.784)	(2.724)
BottomQuartileGov.Strength	-0.000	0.010	-0.002	0.004	0.015
	(0.008)	(0.010)	(0.008)	(0.008)	(0.028)
Observations	422523	394323	412051	358772	358772

Table 3: **The Role of Government Strength.** * significant at 10%; ** significant at 5%; *** significant at 1%. The specification is Equation 2. See Table 1 for variable definitions. Results reported in each column and panel come from separate models. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1970-2017, and the International Country Risk Guide.

Online Appendix for

The Political Scar of Epidemics

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April, 2021

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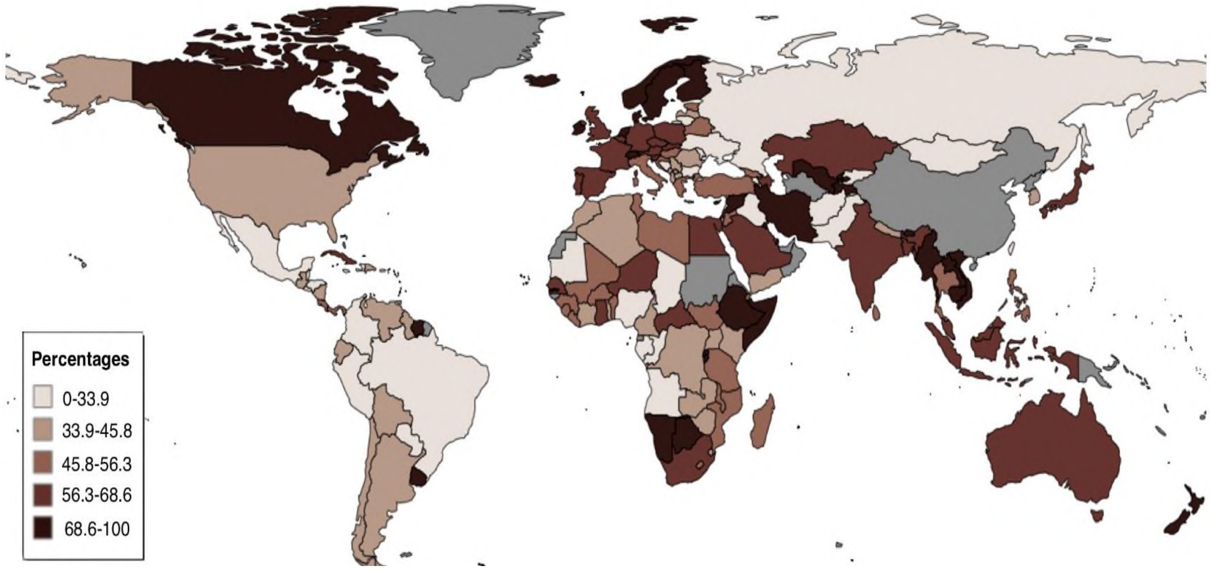
Online Appendix A: Descriptive Characteristics

Appendix Table A.1: Sample Characteristics

Variables	(1) Mean (Standard deviation)
Main dependent variables	
Confidence in national government	0.50 (0.50) – N: 760099
Confidence in honestly of elections	0.51(0.49) – N: 736679
Approval of the leader	0.51 (0.49) – N: 719742
Have confidence in the health system	0.62 (0.49) – N: 98283
Placebo outcomes	
Have confidence in the military	0.72 (0.45) – N: 730156
Have confidence in the banks	0.59 (0.49) – N: 809972
Have confidence in the media	0.54 (0.50) – N: 190167
Individual-level characteristics	
Age	41.58 (10.41)
Male	0.47 (0.49)
Tertiary education	0.18 (0.38)
Secondary education	0.50 (0.50)
Married	0.63 (0.48)
Urban	0.40 (0.49)
Christian	0.57 (0.49)
Muslim	0.20 (0.40)
Country-level characteristics	
Exposure to epidemic	0.002 (0.0015)
Government strength	7.33 (1.26)

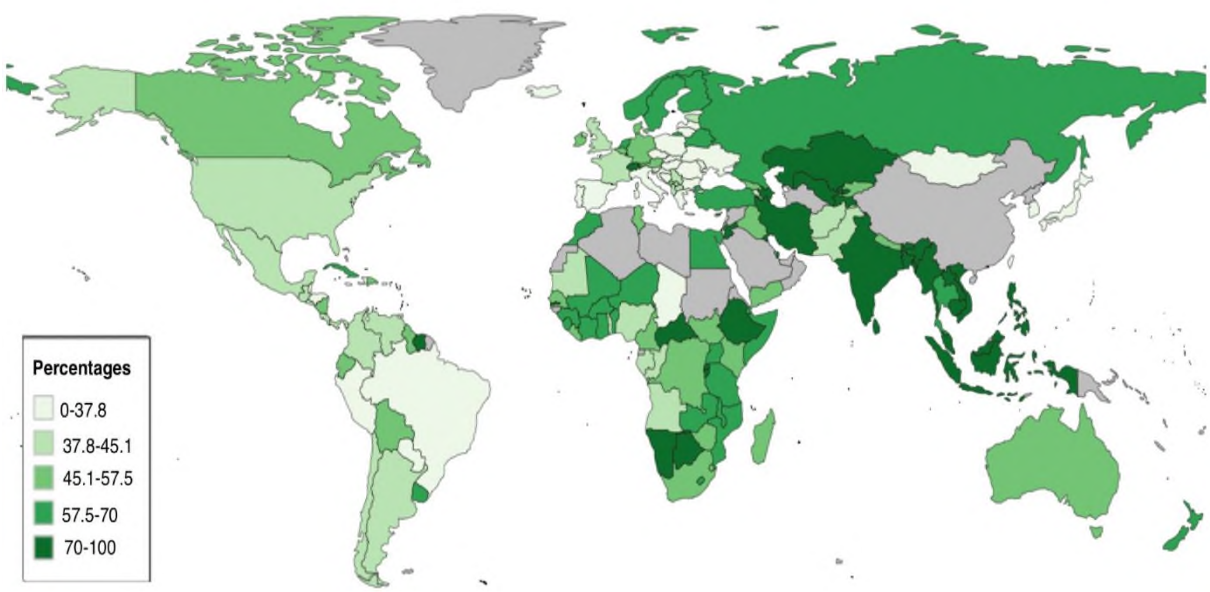
Notes: Means (standard deviations). This table provides individual and aggregate level variables averaged across the 13 years (2006-2018) used in the analysis. The sample sizes for some variables are different either due to missing data or because they were not asked in every year.

Appendix Figure A.1: Share of Respondents Who Have Confidence in Honesty of Elections



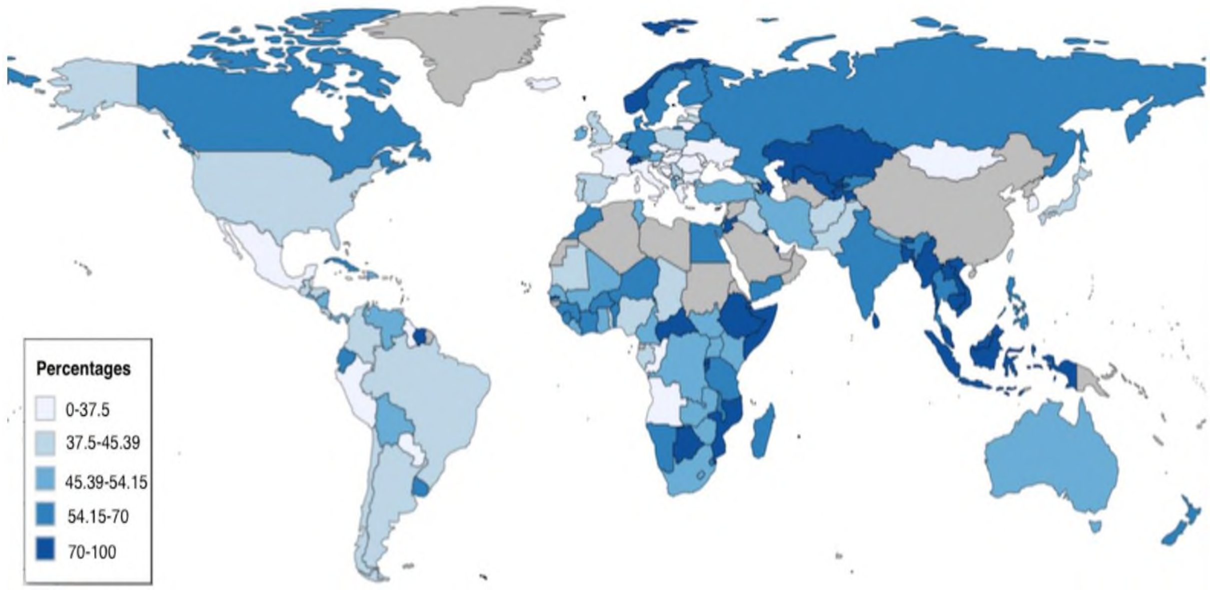
Notes: This figure shows the share of respondents who have confidence in honesty of elections, averaged across all available years. Source: Gallup World Polls, 2006-2018.

Appendix Figure A.2: Share of Respondents Who Have Confidence in National Government



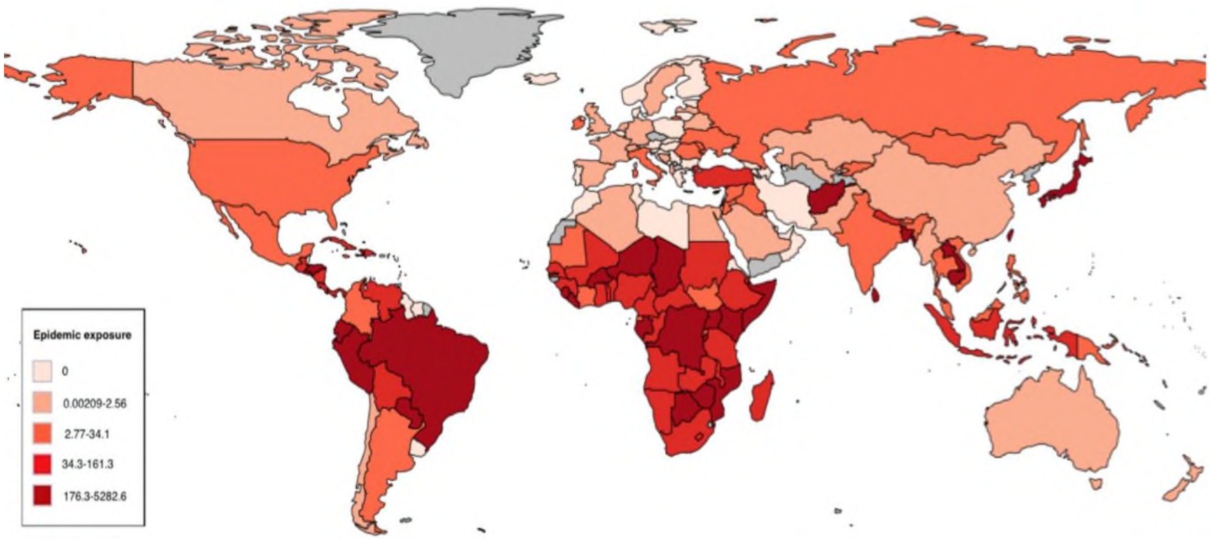
Notes: This figure shows the share of respondents who have confidence in national government, averaged across all available years. Source: Gallup World Polls, 2006-2018.

Appendix Figure A.3: Share of Respondents Who Approve the Performance of the Leader



Notes: This figure shows the share of respondents who approve the performance of the leader, averaged across all available years. Source: Gallup World Polls, 2006-2018.

Appendix Figure A.4: Average Number of People (per million) Affected by Epidemics, 1970-2017



Notes: This figure shows the number of people affected by epidemics (per million), averaged across all available years. Source: EM-DAT International Disaster Database, 1970-2017, UN Population Database, 1970-2017, and authors' calculations.

Online Appendix B: The Role of Country Characteristics and Robustness Checks

The role of country characteristics

We consider the baseline specification (Column 4 of **Table 1**) for various country subsamples. Each cell of **Appendix Table B.1** reports a separate regression. Each column shows the coefficient estimates for our main variable of interest: average epidemic exposure during the impressionable years. We report the baseline estimates for our main outcome variables in the top row.

The negative impact of epidemic exposure on confidence in the government and its leader is larger in low-income countries, although the difference across groups is not always statistically significant. This pattern is in line with evidence from Gómez et al. (2020), who find that people in low-income countries see their governments as more untrustworthy and unreliable in the context of public reactions to the COVID-19 pandemic.

The negative impact of an epidemic also tends to be larger in countries with democratic political systems; the difference in coefficients for democracies and non-democracies is consistently significant at standard confidence levels.[2] An interpretation is that respondents expect democratically-elected governments to be responsive to their needs and are especially disappointed when such governments do not respond in ways that prevent or contain an epidemic. In contrast, the effect of prior epidemic exposure is insignificantly different from zero in non-democracies, where there may be no similar presumption of responsiveness. In addition, democratic regimes may have more difficulty with consistent messaging. Because such regimes are open, they may allow for a cacophony of conflicting

[2] We classify political regimes based on the most recent Polity5 dataset. Countries with Polity scores 5 and above are classified as democracies.

official views, resulting in a larger impact on confidence and trust. Either way, our results are driven by respondents in democratic regimes.[3]

These results go some way toward addressing the issue of external validity in the context of COVID-19. The effects we report here are not limited to low-income countries, autocratic governments, or fragile democracies – the kind of regimes that are popularly associated with prominent epidemics such as Ebola. This suggests that our results may also have broader applicability to global pandemics such as COVID.

Robustness checks

In this section we report further analyses establishing the robustness of our findings.

Are the results driven by other past experiences?

The literature suggests that economic conditions (Hetherington and Rudolph, 2008), social conflict (De Juan and Pierskalla, 2016), and corruption (Anderson and Tverdova, 2003) also affect political trust. **Appendix Tables B.2 and B.3**, therefore, consider whether our results are driven by other omitted economic, social and political exposures that individuals may have experienced in their impressionable years.

In **Appendix Table B.2** we include measures from the ICRG data set, which captures 12 aspects of national economic and political conditions.[4] In particular, we

[3] This finding could also be explained by preference falsification, a phenomenon in which individuals' responses to public surveys might be affected by social desirability or implicit authoritarian pressures (Kuran, 1987). Such biases could naturally arise more often in non-democratic countries where survey participants feel the urge to hide their true beliefs, reducing the heterogeneity across respondents within the same country and time point. In an unreported robustness check, we dropped ten per cent of the highest-ranking observations (in terms of approval of the leader) at the country-year level in our sample assuming that preference falsification -if exists- would be prevalent especially on these observations. We obtain similar results implying that preference falsification by itself is unlikely to explain the difference between democracies and autocracies.

[4] These are (1) government strength - an assessment both of the government's ability to carry out its declared programs and its ability to stay in office; (2) socioeconomic conditions - an assessment of the socioeconomic pressures in a society that could constrain government action or fuel social

include the following 12 indices to account for past economic, political, and social conditions: government strength, socio-economic conditions, investment profile, internal conflict, external conflict, corruption, military presence in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucracy quality.

In **Appendix Table B.3**, we control for GDP growth, GDP per capita, inflation rate, political regime (Polity2 scores), assassinations, general strikes, terrorism/guerrilla warfare, purges, riots, revolutions, and anti-government demonstrations during the individual's impressionable years. For all non-economic variables (excluding Polity2), we use the CNTS dataset in order to capture as many aspects of political conflict as possible. In both tables, we calculate the average values for each one of these dimensions during the impressionable years of each individual. Including these past experiences as controls makes for smaller samples, since ICRG and CNTS cover only some of the countries and years in our main sample.

None of these additional controls has much impact on the coefficients for past epidemics. Both the point estimates and statistical significance remain stable.[5] Note that we cannot directly control for pre-epidemic levels of social and political trust

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dissatisfaction; (3) investment profile - an assessment of factors affecting risks to investment not captured by other political, economic and financial risk components; (4) internal conflict - an assessment of political violence in the country and its actual or potential impact on governance; (5) external conflict - an assessment of the risk to the incumbent government from foreign action, including both non-violent external pressure and violent external pressure; (6) corruption - an assessment of corruption in the political system; (7) military in politics – an assessment of the military's involvement in politics, even at a peripheral level; (8) religious tensions – an assessment of whether a single religious group seeks to replace civil law by religious law and to exclude other religions from the political and/or social process; (9) law and order – an assessment of the strength and impartiality of the legal system and popular observance of the law; (10) ethnic tensions - an assessment of the degree of tension within a country attributable to racial, national, or linguistic divisions; (11) democratic accountability - a measure of how responsive government is to the people; and (12) bureaucracy quality – an assessment of whether bureaucracy has the strength and expertise to govern without drastic changes in policy or interruptions in government services.

[5] In addition **Appendix Tables B.4 and B.5** show that we get similar results if we were to control for the pre-existing values in the past (i.e., ages 10-17) instead of impressionable years (i.e., ages 18-25) in order to make sure that the past controls themselves are not influenced by the epidemic in the same experience window. Furthermore, our results remain qualitatively unchanged in **Appendix Tables B.6 and B.7** after controlling for both impressionable-year experiences and country*year fixed effects at the same time (à la Model 5 in **Table 1**).

due to lack of data availability.[6] However, we do control for various factors that can explain both social and economic trust, therefore it is unlikely that our results can be explained by omitted variables bias or reverse causality.

Nevertheless, we follow the method proposed by Oster (2019) to shed light on the importance of unobservables in **Appendix Table B.8,** where Panel A is based on the models with past exposure controls as in **Table B.2** and Panel B is based on the models with past exposure controls as in **Table B.3**.

We first reprint the baseline estimates for our main outcomes in the top row for comparison purposes. The second row of each panel then presents the estimation bounds where we define R_{max} upper bound as 1.3 times the R-squared in specifications that control for observables following Oster (2019). The bottom row presents Oster's delta, which indicates the degree of selection on unobservables relative to observables that would be needed to fully explain our results by omitted variable bias.

The results in **Appendix Table B.8** show very limited movement in the coefficients. The high delta values (between 12 and 24 depending on the outcome) are reassuring: given the wide range of controls we include in our models, it seems implausible that unobserved factors are 12 to 24 times more important than the observables included in our preferred specification.[7]

Are the results unique to political institutions and leaders?

It is important to establish that the relationship between epidemic exposure and subsequent views of political institutions and leaders is not simply part of a broader reassessment of social institutions and social trust (both in-group and out-group). If

[6] By interpolating the corresponding values across all historical waves of the World Values Surveys, we have created a country panel dataset on various social and political trust variables for the purpose of using them to control for pre-epidemic levels of trust in a country. However, due to poor country-year coverage in the old editions of the WVS, the size of our main Gallup sample falls by 95 percent to about 35,000 respondents. We, therefore, do not report the results as we lack statistical power due to very small sample size in these analyses.

[7] The rule of thumb to be able to argue that unobservables cannot fully explain the treatment effect is for Oster's delta to be over the value of one.

exposure to past epidemics worsens attitudes toward all national institutions and reduces social trust generally, it would be misleading to interpret the findings in **Table 1** as the effect of the epidemic exposure specifically on trust in political institutions and leaders narrowly defined.

We, therefore, estimate similar models for outcomes related to views of other institutions. In **Appendix Table B.9,** outcome variables equal one if the individual has confidence in the military (column 1), in banks and financial institutions (column 2), and in media freedom (column 3); has relatives or friends to count on – a proxy for in-group trust (column 4); and has helped a stranger in the past month – a proxy for out-group trust (column 5). The first three variables represent the confidence in non-political institutions in the same country, while the last two capture the potential change in individuals' trust towards their in-group or out-group peers.[8]

There are no meaningful relationships between past epidemic exposure and any of these variables, consistent with our hypothesis that loss of trust by individuals with epidemic experience is specific to political institutions and leaders, and not a reflection of the general loss of trust in society and its institutions.[9]

Are the results driven by non-comparable samples?

Not all Gallup respondents answered all trust-related questions. Thus, the results could conceivably be biased by heterogenous, non-comparable samples across various response variables. We therefore also consider only individuals who

[8] As Gallup does not have direct questions on generalized (social) trust, we refer to these two variables as the closest proxies to measure the in-group and out-group trust. Alternatively, using a measure of individual donations or the civic engagement index in Gallup generates very similar results.

[9] We understand that one could be concerned with media freedom in countries with low political trust and its potentially negative relationship with individuals' confidence in media. However the media is not a political institution strictly defined, even though it can be influenced by politics. We have no priors about how individuals might change their opinions about the media in the midst of a health crisis. One could easily argue that individuals' confidence in media may *rise* instead of falling if it functions well as a transmitter of life-saving information during the epidemic. Our results show that there is not much change in the long-term confidence in media, consistent with this - a priori - ambiguous direction of the relationship.

answered all seven questions in our setting. The results, reported in **Appendix Table B.10**, confirm that our findings are robust across overlapping samples.

Are the results robust to alternative data for epidemics?

We also analyze the recent large-scale epidemics reported in Ma et al. (2020), which constructs a country panel dataset starting in the early 2000s. This list of countries affected by post-2000 epidemics includes, at some point, almost all the countries in the world. For instance, H1N1 in 2009 alone infected more than 200 countries.

Several aspects of this dataset make it less than ideal for our purposes. One is its short time span, which allows us to consider only individuals young enough to be in their impressionable years between 2000 and 2018.[10] Another is that the dataset does not contain country-specific intensity measures and thus only can be used in a dichotomous form. As will be clear later, epidemic intensity matters, in that only large epidemics in EMDAT dataset have a significant impact on political trust. At the same time, this list of recent epidemics buttresses our assumption of the exogeneity of our treatment variable, since the *occurrence/start* of an epidemic (as opposed to its *intensity*) is likely to be uncorrelated with country or cohort characteristics.[11]

In **Appendix Table B.11,** where we utilize this dataset, *exposure to an epidemic (18-25)* takes a value of 1 if the respondent experienced SARS, H1N1, MERS, Ebola, or Zika in his or her impressionable years. The results for confidence in elections and approval of the leader (as well as average and principal component proxies for political trust) are robust to the use of these alternative data. In line with our earlier results (see Appendix Table B.1), the adverse impact of past epidemics is only evident in democratic countries. These results thus provide further evidence

[10] This also means that we must drop all observations in Gallup before 2008-9 to ensure that the first impressionable-years cycle (2000-2007) is calculated before we apply this variable onto individuals.
[11] As we show below, there is no evidence of a differential pre-trend in political trust between countries that were recently hit by an epidemic and those that were not.

that the causal direction of the relationship runs from past epidemic experience to political trust later in life.

Do countries with and without a pandemic display similar pre-trends?

As mentioned earlier, Ma et al. (2020) provide a comprehensive dataset of pandemic events in this century. By creating an event-study setting around the dates on which a pandemic was declared by the WHO for a specific country, we can investigate whether countries experiencing pandemics exhibit the same pre-trends as other countries. We can also analyze how quickly the overall level of political trust changes after a pandemic.

To do this, we estimate the following model:

$$Y_{i,\,c,\,t,\,a,\,b} = \beta_1 LaggedPandemic_{ict} + \beta_2 X_i \qquad \text{(B1)}$$

$$+ \beta_3 C_c + \beta_4 T_t + \beta_5 A_a + \beta_6 B_b + \beta_7 C_c{*}Age + \varepsilon_{ict}$$

LaggedPandemic is a dummy taking on a value of 1 if the WHO announced a pandemic for the country *c* in the year immediately preceding survey year *t* and 0 otherwise. This variable is lagged by one year to ensure that all respondents in the country experienced the pandemic (since Gallup surveys could be undertaken at any point of a year).[12]

Appendix Table B.12 shows that political trust starts declining immediately. In **Figure B.4**, we re-estimate the model changing the timing of the variable of interest. This helps to visualize the short-term response and also to check if the countries that were struck by a pandemic and those that were not shared similar

12 Here we do not include the past epidemic exposure variable as we would like to capture the response of the whole population, rather only those for whom we can calculate the past experience window.

trends in terms of their political trust levels before the pandemic hit the former.[13] Countries with and without a pandemic share a common trend in the pre-event window; the divergence starts only after the pandemic hits. This supports the exogeneity assumption we made in a previous section in which we employed the *occurrence* (rather than *intensity*) of recent epidemics as a shock to individuals' impressionable years.

Whereas there is no pre-trend prior to an epidemic infecting a country for the first time, the approval of the leader declines by more than 6 percentage points two years after. This aggregate effect is large. It is comparable to the lifetime effect that we previously found for impressionable-year exposures.

Are large epidemics different?

The effects we identify are larger for more severe epidemics. In **Appendix Table B.13**, we re-estimate our baseline model where, instead of the continuous variable reported in the top row, we use indicators for the top 0.5 percent of exposures to epidemics, the top 1 percent, the top 2 percent, and the top 5 percent, each in a separate estimation. An epidemic exposure in the top 0.5, 1, or 2 percent of exposures leads to a significant fall in an individual's confidence in elections, the national government, and its leader.[14]

Moreover, the magnitude of the effect linearly increases with more intense experiences, which leads us to undertake the next analysis.

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[13] We conservatively restrict the event window around the pandemic to plus/minus 2 years. This is because different pandemic events in Ma et al. (2020) may hit the same country in a matter of couple of years, which complicates the identification in larger event windows.

[14] Readers may wonder how many democracies are included among the top 2 per cent of most severe epidemics. It turns out that there are more democracies than autocracies in this limited sample. Democratic cases include Japan (1978), Botswana (1988), Bangladesh (1991), Peru (1991), Mozambique (1992), Paraguay (2006) and Haiti (2010). In **Appendix Table B.14**, we estimate an interacted model and find that the loss of political trust is larger in those experience windows during which the epidemic-stricken country was relatively more democratic.

Are the results driven by the intensive or extensive margin?

In **Appendix Table B.15**, we distinguish the intensive and extensive margins of the treatment. For the extensive margin, we mean whether the effect is due to any level of epidemic exposure. To capture this, we construct a binary variable based on whether the number of persons affected by epidemics during the individual's impressionable years is positive or zero. For the intensive margin, we limit the sample to individuals with positive epidemic exposure in their impressionable years. Approximately 55 percent of respondents in our surveys have no exposure to epidemics when impressionable and hence are dropped.

Appendix Table B.15 shows that the treatment works via the intensive margin. It is not simply being exposed to an epidemic that generates the effect; rather, conditional on being exposed, the severity of the epidemic drives the results. When individuals with no epidemic exposure are excluded from the sample, the estimated effects of past exposure are, if anything, larger than in the full sample.

Falsification

We undertake two falsification exercises. **Appendix Table B.16** focuses on the GWP subsample of individuals aged 30 or above who migrated to the country of interview in the previous 5 years. These individuals did not spend their impressionable years in the country of the interview. For falsification purposes, we assume that they did so (as opposed to spending those years in their country of origin). Second, **Appendix Table B.17** assigns all individuals in the full (non-immigrant) sample to a random country for the calculation of their experience during impressionable years while keeping all else the same as in **Table 1**.

In both cases, we find no effect of these "made-up" and "randomly-assigned" treatments on political trust.

Multiple hypothesis testing

We also conducted multiple hypothesis testing by employing a randomization inference technique recently suggested by Young (2019). This helps to establish the robustness of our results both for individual treatment coefficients in separate estimations and also for the null that our treatment does not have any effect across any of the outcome variables (i.e., treatment is irrelevant), taking into account the multiplicity of the hypothesis testing procedure. The method builds on repeatedly randomizing the treatment variable in each estimation and comparing the pool of randomized estimates to the estimates derived via the true treatment variable. The results presented in **Appendix Table B.18** show that our findings remain robust both for the individual coefficients and the joint tests of treatment significance.

Excluding potential "bad controls"

One might worry that some of the individual characteristics (such as household income) are themselves affected by epidemic-related economic shocks. We checked for potential "bad controls" (Angrist and Pischke, 2008) by excluding these individual characteristics. Doing so does not substantively change the point estimates for our variables of interest (see **Appendix Table B.19**).[15]

Robustness to Alternative Treatment Definitions

One might be concerned that population size may be endogenous to the intensity of the epidemic as the epidemic experience may affect the population counts (through both mortality and immigration). We, therefore, checked the robustness of our results using a population *unadjusted* treatment variable: the number of individuals affected by an epidemic averaged over the 8 years when the individual was aged 18 to 25. The results presented in **Appendix Table B.20** show that our results are robust to this alternative definition.

[15] We therefore keep these controls in our baseline specification to avoid omitted variable bias.

Ruling Out Influential Observations

We rule out the importance of influential observations by plotting the coefficients of our preferred specifications as one year is omitted at a time. **Appendix Figure B.5** shows that our coefficient estimates are quite stable even as a specific survey year is eliminated from our main sample in each iteration.

We repeat a similar analysis with **Appendix Figure B.6** in which we drop one random country at a time in each estimation for 15 consecutive trials (for illustration purposes) and again find that our estimates are not driven by any single country.[16]

Evidence on Political Behavior

Even if epidemic exposure in one's impressionable years affects self-reported trust in government, elections, and political leadership, it is not obvious that it also alters actual behavior. For example, one might expect that less confidence in elections leads individuals to vote less and take more political action through non-electoral means, (by participating taking place in demonstrations, participating in boycotts, and signing petitions, for example).[17]

GWP lacks information on such behavior. We, therefore, turn to the World Values Survey (WVS) and the European Social Survey (ESS). We use all available waves of the WVS covering the period 1981-2014, as administered in more than 80 countries, where we focus on the democracies. We also consider annual waves of the ESS for the period 2002-2018 in over 30 countries. The WVS and ESS give us as many as 103,000 and 171,000 responses, respectively, depending on the

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[16] Results are similar for dropping any country within our sample and available upon request. We have also undertaken a dfbeta analysis (unreported here) on all three main outcome variables and confirmed that the highest absolute dfbeta value among all observations in our sample is 0.04 and thus much smaller than the standard threshold of 1.00 further alleviating the concerns about influential outliers.

[17] Early evidence in the context of the recent COVID-19 crisis suggests that the young generation in US is more likely to sympathise with the George Floyd protests and more critical of the way US government is handling the health crisis (Pew Research Center, 2020).

question. We estimate our baseline model (Column 4 of **Table 1**) on several outcome variables related to individuals' political behavior

Some of the results, in **Appendix Table B.21**, are consistent with the preceding conjecture.[18] ESS respondents with epidemic exposure in their impressionable years are significantly less likely to have voted in recent national elections. Both WVS and ESS respondents are significantly more likely to have attended or taken part in lawful/peaceful public demonstrations. WWS respondents are significantly more likely to have joined boycotts and signed a petition. These are the type of responses one would expect from individuals who render less confidence in elections and other conventional governmental institutions.[19]

[18] Note that we are not describing the self-reported behavior of the same individuals who, we showed above, self-reported less confidence and trust in elections, the national government, and the national leader (where one might worry, there could be selective misreporting to minimize cognitive dissonance). Rather, we are analyzing completely different data sets where respondents are asked about actual political behavior and actions. This fact makes these additional findings especially striking.

[19] Other results are insignificant. There is no difference in the likelihood of never voting in national elections among WVS respondents as a function of impressionable year epidemic exposure. Nor is there any difference among WWS respondents in the likelihood of having joined unofficial strikes or occupying buildings or factories. Our analysis of these variables is necessarily based on smaller samples, which may account for the contrast. However, the majority of the results where we have larger samples are consistent with the idea that not just self-reported trust but actual political behavior are affected by epidemic exposure in the expected manner.

Appendix Table B.1: Heterogeneity

	(1)	(2)	(3)
	Coefficient on Exposure to Epidemic (18-25) (standard error)	Coefficient on Exposure to Epidemic (18-25) (standard error)	Coefficient on Exposure to Epidemic (18-25) (standard error)
Outcome ➔	Have confidence in national government	Approval of the leader	Have confidence in honesty of elections
Full sample	-1.592*** (0.262)	-1.957*** (0.330)	-2.258*** (0.339)
Males	-1.153** (0.470)	-1.351** (0.528)	-2.014*** (0.379)
Females	-2.042*** (0.416) A	-2.516*** (0.545) A	-2.551*** (0.413)
Low-income countries	-11.181 (7.577)	-20.701* (11.546)	-11.753*** (4.145)
High-income countries	-1.212*** (0.262)	-1.503*** (0.260) A	-1.773*** (0.343) A
Less than degree level	-1.657*** (0.285)	-1.753*** (0.295)	-2.249*** (0.330)
Degree level education	0.658 (1.242) A	-5.120*** (1.328) A	-1.071 (0.816) A
Rural	-1.518*** (0.268)	-1.377*** (0.265)	-1.967*** (0.357)
Urban	-3.015*** (0.781) A	-6.195*** (1.452) A	-4.049*** (0.893) A
Low-income HH	-0.226 (0.341)	-0.112 (0.339)	-2.527*** (0.485)
Middle-income HH	-3.015*** (0.781)	-3.140*** (1.008)	-2.207** (0.869)
High-income HH	-0.854* (0.457)	-3.572*** (0.455)	-1.559*** (0.389)
Democratic countries	-1.884*** (0.249)	-1.587*** (0.301)	-2.514*** (0.287)
Non-democratic countries	3.097 (2.497) A	2.061 (2.529) A	0.880 (3.480) A

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Column 4 of Table 1. See notes to Table 1. A indicates statistically significant difference in each pair of means at p<.05. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Appendix Table B.2: Robustness to Controlling for Other Economic and Political Shocks

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome ➔	Have confidence in national government	Have confidence in national government	Approval of the leader	Approval of the leader	Have confidence in honesty of elections	Have confidence in honesty of elections
Exposure to Epidemic (18-25)	-3.589***	-3.417***	-3.926***	-3.944***	-4.373***	-4.219***
	(0.585)	(0.787)	(0.487)	(0.746)	(0.636)	(0.0849)
Government strength (18-25)	--	-0.001	--	-0.012*	--	0.006
		(0.005)		(0.007)		(0.005)
Socioeconomic conditions (18-25)	--	-0.018***	--	-0.007	--	-0.018***
		(0.006)		(0.007)		(0.006)
Investment profile (18-25)	--	0.007	--	0.010*	--	0.002
		(0.006)		(0.006)		(0.006)
Internal conflict (18-25)	--	-0.007	--	-0.013**	--	-0.002
		(0.005)		(0.006)		(0.005)
External conflict (18-25)	--	0.002	--	-0.001	--	0.006
		(0.005)		(0.006)		(0.004)
Corruption (18-25)	--	-0.009	--	-0.010	--	-0.005
		(0.010)		(0.010)		(0.009)
Military in politics (18-25)	--	0.021**	--	0.019*	--	0.010
		(0.009)		(0.011)		(0.009)
Religious tensions (18-25)	--	-0.003	--	-0.005	--	-0.003
		(0.011)		(0.014)		(0.010)
Law and order (18-25)	--	0.030**	--	0.045**	--	0.041***
		(0.015)		(0.017)		(0.014)
Ethnic tensions (18-25)	--	0.011	--	0.013	--	0.005
		(0.008)		(0.010)		(0.007)
Democratic accountability (18-25)	--	-0.005	--	-0.009	--	-0.016**
		(0.007)		(0.010)		(0.006)
Bureaucracy quality (18-25)	--	-0.017	--	-0.024	--	-0.022
		(0.016)		(0.021)		(0.014)
Observations	422523	422523	408564	408564	412051	412051
R^2	0.136	0.137	0.139	0.140	0.137	0.137

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Column 4 of Table 1. See notes to Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1984-2017, and ICRG 1984-2017.

Appendix Table B.3: Robustness to Controlling for Other Economic and Political Shocks

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome ➔	Have confidence in national government	Have confidence in national government	Approval of the leader	Approval of the leader	Have confidence in honesty of elections	Have confidence in honesty of elections
Exposure to Epidemic (18-25)	-1.879***	-1.743***	-2.274***	-2.204***	-2.519***	-2.185***
	(0.502)	(0.632)	(0.515)	(0.576)	(0.348)	(0.544)
Assassinations (18-25)	--	0.006	--	0.008*	--	0.002
		(0.005)		(0.004)		(0.005)
General Strikes (18-25)	--	0.010	--	0.012	--	0.005
		(0.007)		(0.009)		(0.007)
Terror./Guerrilla Warfare (18-25)	--	-0.023*	--	-0.015	--	-0.024**
		(0.012)		(0.020)		(0.011)
Purges (18-25)	--	0.021	--	0.035*	--	0.019
		(0.015)		(0.018)		(0.015)
Riots (18-25)	--	-0.003	--	-0.000	--	-0.001
		(0.004)		(0.006)		(0.003)
Revolutions (18-25)	--	0.014	--	-0.006	--	0.019*
		(0.013)		(0.014)		(0.011)
Anti-gov. Demons. (18-25)	--	-0.002	--	-0.001	--	-0.001
		(0.002)		(0.002)		(0.002)
GDP Growth (18-25)	--	0.001	--	0.002	--	0.001
		(0.002)		(0.002)		(0.001)
GDP Per Capita (18-25)	--	-0.000	--	0.000*	--	-0.000
		(0.000)		(0.000)		(0.000)
Inflation (18-25)	--	0.000	--	0.000	--	0.000
		(0.000)		(0.000)		(0.000)
Polity (18-25)	--	-0.001	--	-0.001	--	0.001
		(0.002)		(0.002)		(0.002)
Observations	429204	429204	398284	398284	415441	415441
R^2	0.134	0.134	0.123	0.123	0.159	0.159

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Column 4 of Table 1. See notes to Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1970-2017, and CNTS 1970-2017.

Appendix Table B.4: Robustness to Controlling for Other Economic and Political Shocks (Ages 10-17)

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome ➔	Have confidence in national government	Have confidence in national government	Approval of the leader	Approval of the leader	Have confidence in honesty of elections	Have confidence in honesty of elections
Exposure to Epidemic (18-25)	-3.478***	-2.205*	-5.000***	-3.627***	-4.496***	-3.839***
	(1.182)	(1.153)	(0.813)	(1.040)	(1.132)	(1.002)
Government strength (10-17)	--	0.002	--	-0.017**	--	0.010
		(0.007)		(0.008)		-0.007
Socioeconomic conditions (10-17)	--	-0.010	--	0.006	--	-0.011
		(0.009)		(0.012)		-0.008
Investment profile (10-17)	--	-0.005	--	-0.002	--	-0.012
		(0.009)		(0.012)		-0.008
Internal conflict (10-17)	--	-0.003	--	-0.003	--	-0.011*
		(0.007)		(0.007)		-0.006
External conflict (10-17)	--	-0.008	--	-0.019***	--	-0.002
		(0.006)		(0.007)		-0.006
Corruption (10-17)	--	-0.009	--	-0.015	--	-0.015
		(0.015)		(0.015)		-0.015
Military in politics (10-17)	--	0.035*	--	0.034*	--	0.016
		(0.014)		(0.017)		-0.012
Religious tensions (10-17)	--	-0.036**	--	-0.051**	--	-0.034**
		(0.017)		(0.020)		-0.015
Law and order (10-17)	--	0.037**	--	0.059***	--	0.049***
		(0.019)		(0.022)		-0.016
Ethnic tensions (10-17)	--	0.015	--	0.033**	--	0.012
		(0.011)		(0.016)		-0.012
Democratic accountability (10-17)	--	0.001	--	-0.007	--	0.004
		(0.013)		(0.016)		-0.012
Bureaucracy quality (10-17)	--	-0.036*	--	-0.048**	--	-0.03
		(0.019)		(0.024)		-0.019
Observations	274953	274953	257901	257901	268600	268600
R^2	0.135	0.137	0.113	0.116	0.135	0.137

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Column 4 of Table 1. See notes to Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1984-2017, and ICRG 1984-2017.

Appendix Table B.5: Robustness to Controlling for Other Economic and Political Shocks (Ages 10-17)

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome ➔	Have confidence in national government	Have confidence in national government	Approval of the leader	Approval of the leader	Have confidence in honesty of elections	Have confidence in honesty of elections
Exposure to Epidemic (18-25)	-1.622***	-1.639***	-2.465***	-2.811***	-2.657***	-2.748***
	(0.349)	(0.537)	(0.419)	(0.596)	(0.277)	(0.430)
Assassinations (10-17)	--	0.006	--	0.016	--	0.012**
		(0.010)		(0.013)		(0.005)
General Strikes (10-17)	--	0.028**	--	0.047***	--	0.022**
		(0.013)		(0.012)		(0.010)
Terror./Guerrilla Warfare (10-17)	--	-0.042*	--	-0.061**	--	-0.004
		(0.025)		(0.027)		(0.022)
Purges (10-17)	--	0.012	--	0.010	--	0.02
		(0.022)		(0.021)		(0.019)
Riots (10-17)	--	-0.001	--	-0.014	--	-0.005
		(0.006)		(0.008)		(0.005)
Revolutions (10-17)	--	-0.054***	--	-0.039*	--	-0.037**
		(0.019)		(0.022)		(0.015)
Anti-gov. Demons. (10-17)	--	-0.005	--	0.003	--	0.001
		(0.007)		(0.005)		(0.005)
GDP Growth (10-17)	--	0.003	--	0.004	--	0.004*
		(0.002)		(0.003)		(0.002)
GDP Per Capita (10-17)	--	-0.000	--	0.000	--	-0.000
		(0.000)		(0.000)		(0.000)
Inflation (10-17)	--	0.000	--	0.000	--	0.000
		(0.000)		(0.000)		(0.000)
Polity (10-17)	--	-0.001	--	-0.004	--	-0.003
		(0.002)		(0.003)		(0.002)
Observations	315587	315587	293751	293751	306094	306094
R^2	0.126	0.127	0.116	0.117	0.158	0.159

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Column 4 of Table 1. See notes to Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1970-2017, and CNTS 1970-2017.

Appendix Table B.6: Robustness to Controlling for Other Economic and Political Shocks and Country*Year Fixed Effects

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome ➔	Have confidence in national government	Have confidence in national government	Approval of the leader	Approval of the leader	Have confidence in honesty of elections	Have confidence in honesty of elections
Exposure to Epidemic (18-25)	-0.613**	-0.577**	-0.502**	-0.529**	-1.269***	-1.293***
	(0.253)	(0.286)	(0.197)	(0.259)	(0.191)	(0.192)
Government strength (18-25)	--	0.002	--	0.006***	--	0.002
		(0.002)		(0.002)		(0.002)
Socioeconomic conditions (18-25)	--	-0.002	--	-0.001	--	-0.003
		(0.002)		(0.002)		(0.002)
Investment profile (18-25)	--	0.002	--	0.002	--	0.001
		(0.002)		(0.002)		(0.002)
Internal conflict (18-25)	--	-0.002	--	-0.001	--	0.003
		(0.002)		(0.002)		(0.002)
External conflict (18-25)	--	0.001	--	0.002	--	0.002
		(0.002)		(0.002)		(0.002)
Corruption (18-25)	--	-0.005*	--	-0.003	--	-0.003
		(0.003)		(0.003)		(0.003)
Military in politics (18-25)	--	-0.002	--	-0.000	--	0.002
		(0.003)		(0.003)		(0.003)
Religious tensions (18-25)	--	0.002	--	0.007**	--	-0.003
		(0.003)		(0.003)		(0.004)
Law and order (18-25)	--	0.003	--	-0.004	--	0.006
		(0.004)		(0.004)		(0.004)
Ethnic tensions (18-25)	--	0.002	--	0.000	--	-0.002
		(0.003)		(0.002)		(0.003)
Democratic accountability (18-25)	--	-0.002	--	0.001	--	-0.009***
		(0.002)		(0.003)		(0.003)
Bureaucracy quality (18-25)	--	0.009	--	0.011*	--	0.009*
		(0.006)		(0.006)		(0.005)
Observations	422523	422523	408564	408564	412051	412051
R^2	0.174	0.174	0.166	0.166	0.170	0.170

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Column 5 of Table 1 with country*year fixed effects. See notes to Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1984-2017, and ICRG 1984-2017.

Appendix Table B.7: Robustness to Controlling for Other Economic and Political Shocks and Country*Year Fixed Effects

	(1)	(2)	(3)	(4)	(5)	(6)
Outcome ➔	Have confidence in national government	Have confidence in national government	Approval of the leader	Approval of the leader	Have confidence in honesty of elections	Have confidence in honesty of elections
Exposure to Epidemic (18-25)	-0.630***	-0.607***	-0.765***	-0.623***	-1.346***	-1.198***
	(0.184)	(0.217)	(0.158)	(0.200)	(0.159)	(0.205)
Assassinations (18-25)	--	-0.001	--	0.000	--	-0.004
		(0.003)		(0.002)		(0.003)
General Strikes (18-25)	--	0.002	--	-0.000	--	-0.003
		(0.004)		(0.005)		(0.004)
Terror./Guerrilla Warfare (18-25)	--	-0.002	--	-0.006	--	-0.015***
		(0.006)		(0.004)		(0.005)
Purges (18-25)	--	0.025*	--	0.025	--	0.007
		(0.013)		(0.018)		(0.016)
Riots (18-25)	--	-0.003	--	0.000	--	-0.001
		(0.002)		(0.002)		(0.002)
Revolutions (18-25)	--	0.016**	--	0.009	--	0.021***
		(0.007)		(0.007)		(0.007)
Anti-gov. Demons. (18-25)	--	0.001	--	-0.001	--	0.001
		(0.001)		(0.001)		(0.001)
GDP Growth (18-25)	--	0.000	--	0.001**	--	0.000
		(0.001)		(0.001)		(0.001)
GDP Per Capita (18-25)	--	-0.000	--	0.000**	--	0.000
		(0.000)		(0.000)		(0.000)
Inflation (18-25)	--	0.000	--	0.000	--	0.000
		(0.000)		(0.000)		(0.000)
Polity (18-25)	--	-0.001	--	0.000	--	0.001
		(0.001)		(0.001)		(0.001)
Observations	429204	429204	398284	398284	415441	415441
R^2	0.134	0.170	0.171	0.171	0.192	0.192

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Column 5 of Table 1 with country*year fixed effects. See notes to Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1970-2017, and CNTS 1970-2017.

Appendix Table B.8: Robustness to Omitted Variables Bias

	(1)	(2)	(3)
Outcome variable ➔	Have confidence in national government	Approval of the Leader	Have confidence in honesty of elections
Panel A: Estimation model: Columns 2, 4 and 6 of Appendix Table B.2, which controls for various past economic and political shocks			
Exposure to Epidemic (18-25)	-3.417***	-3.944***	-4.219***
	(0.787)	(0.746)	(0.849)
Bounds on the treatment effect (δ=1, Rmax=1.3*R)	(-3.417, -3.844)	(-3.944, -4.120)	(-4.219, -4.635)
Treatment effect excludes 0	Yes	Yes	Yes
Delta (Rmax=1.3*R)	11.60	24.24	19.02
Panel B: Estimation model: Columns 2, 4 and 6 of Appendix Table B.3, which controls for various past economic and political shocks			
Exposure to Epidemic (18-25)	-1.743***	-2.204***	-2.185***
	(0.632)	(0.576)	(0.544)
Bounds on the treatment effect (δ=1, Rmax=1.3*R)	(-1.743, -1.943)	(-2.204, -2.317)	(-2.185, -2.556)
Treatment effect excludes 0	Yes	Yes	Yes
Delta (Rmax=1.3*R)	12.72	21.34	12.34

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Bounds on the Exposure to Epidemic (18-25) effect are calculated using Stata code psacalc, which calculates estimates of treatment effects and relative degree of selection in linear models as proposed in Oster (2019). Delta, δ, calculates an estimate of the proportional degree of selection given a maximum value of the R-squared. Rmax specifies the maximum R-squared which would result if all unobservables were included in the regression. We define Rmax upper bound as 1.3 times the R-squared from the main specification that controls for all observables. Oster's delta indicates the degree of selection on unobservables relative to observables that would be needed to fully explain our results by omitted variable bias. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Appendix Table B.9: Placebo Outcomes

Outcome ➔	(1) Have confidence in the military	(2) Have confidence in banks	(3) Have confidence in media	(4) Have relatives or friends to count on	(5) Have helped to a stranger
Exposure to epidemic (18-25)	-0.542	0.147	-0.652	0.290	0.021
	(0.442)	(0.193)	(0.610)	(0.851)	(0.281)
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Age group fixed effects	Yes	Yes	Yes	Yes	Yes
Individual income	Yes	Yes	Yes	Yes	Yes
Demographic characteristics	Yes	Yes	Yes	Yes	Yes
Income decile fixed effects	Yes	Yes	Yes	Yes	Yes
Labor market controls	Yes	Yes	Yes	Yes	Yes
Country*Age trends	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	730156	809972	190167	902066	889981
R^2	0.141	0.136	0.104	0.122	0.074

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Outcome is a dummy variable indicating that the respondent has confidence in "military"; "banks and financial institutions"; "media freedom". Specification is Column 4 of Table 1. See notes to Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Appendix Table B.10: Robustness to Using Comparable Samples (i.e. sample of individuals who have responded to all 7 questions)

Outcome ➔	(1) Have confidence in national government	(2) Approval of the Leader	(3) Have confidence in honesty of elections	(4) Have confidence in the military	(5) Have confidence in the banks	(6) Have relatives or friends to count on	(7) Have helped to a stranger
Exposure to epidemic (18-25)	-0.570**	-0.420***	-1.282***	-0.374	0.598**	0.454	-0.095
	(0.242)	(0.112)	(0.224)	(0.291)	(0.249)	(0.577)	(0.239)
Observations	558299	558299	558299	558299	558299	558299	558299
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age group fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual income	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Income decile fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Labor market controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country*Age trends	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country*Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Appendix Table B.11: Robustness to Alternative Epidemic Exposure Measure - Exposure to SARS, H1N1, MERS, Ebola, or Zika

	(1)	(2)	(3)	(4)	(5)
	Coefficient on Exposure to Epidemic (18-25) (standard error)	Coefficient on Exposure to Epidemic (18-25) (standard error)	Coefficient on Exposure to Epidemic (18-25) (standard error)	Coefficient on Exposure to Epidemic (18-25) (standard error)	Coefficient on Exposure to Epidemic (18-25) (standard error)
Outcome ➔	Have confidence in national government	Approval of the leader	Have confidence in honesty of elections	Average of all three outcome variables	the 1st Principal Component of Responses
Sample: Democratic countries					
Exposure to epidemic (18-25)	-0.022	-0.044*A	-0.041**A	-0.038**	-0.132**A
	(0.020)	(0.024)	(0.017)	(0.019)	(0.066)
Observations	106530	102838	103551	94695	94695
R^2	0.137	0.108	0.135	0.171	0.171
Sample: Non-democratic countries					
Exposure to epidemic (18-25)	0.029	0.029*	0.022	0.030*	0.104*
	(0.021)	(0.016)	(0.022)	(0.016)	(0.056)
Observations	47796	44273	45566	37849	37849
R^2	0.187	0.183	0.192	0.254	0.253

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Exposure to epidemic (18-25) takes a value of 1 if the respondent experienced SARS, H1N1, MERS, Ebola, or Zika when the respondent was in their impressionable years (18-25 years). Specification is Column 4 of Table 1. See notes to Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. A indicates statistically significant difference in each pair of means at p<.05. Source: Gallup World Polls, 2006-2018 and Ma et al., 2020.

Appendix Table B.12: Contemporaneous Effects of Pandemic on Political Trust

	(1)	(2)	(3)
Outcome ➔	Have confidence in national government	Approval of the leader	Have confidence in honesty of elections
Lagged pandemic	-0.028*	-0.037**	-0.015
	(0.016)	(0.018)	(0.018)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Age group fixed effects	Yes	Yes	Yes
Individual income	Yes	Yes	Yes
Demographic characteristics	Yes	Yes	Yes
Income decile fixed effects	Yes	Yes	Yes
Labor market controls	Yes	Yes	Yes
Country*Age trends	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes
Observations	987864	931469	950827
R^2	0.142	0.131	0.147

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Equation B1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and Ma et al., 2020.

Appendix Table B.13: The Impact of Exposure to Epidemic (Ages 18-25) on Political Trust by Exposure Thresholds

	(1)	(2)	(3)
	Coefficient on Dummy Variable (standard error)	Coefficient on Dummy Variable (standard error)	Coefficient on Dummy Variable (standard error)
Outcome ➔	Have confidence in national government	Approval of the leader	Have confidence in honesty of elections
Baseline - Exposure to Epidemic (18-25)	-1.592***	-1.957***	-2.258***
	(0.262)	(0.330)	(0.339)
Top 0.5 per cent (*exposure to epidemic, 18-25*)	-0.144***	-0.131***	-0.147***
	(0.041)	(0.038)	(0.054)
Top 1 per cent (*exposure to epidemic, 18-25*)	-0.097**	-0.084**	-0.112***
	(0.038)	(0.040)	(0.034)
Top 2 per cent (*exposure to epidemic, 18-25*)	-0.054**	-0.051**	-0.061***
	(0.024)	(0.023)	(0.023)
Top 5 per cent (*exposure to epidemic, 18-25*)	0.001	-0.007	-0.014
	(0.016)	(0.021)	(0.014)

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Column 4 of Table 1. Results reported in each panel come from separate models. Threshold dummies in each row are defined based on the continuous treatment variable (Exposure to Epidemic, 18-25). See notes to Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Table B.14: The Role of Democracy at the Time of the Epidemic

Outcome ➔	(1) Have confidence in national government	(2) Approval of the leader	(3) Have confidence in honesty of elections
Exposure to epidemic (18-25) * Democracy (18-25)	-4.199**	-3.624	-3.379**
	(1.685)	(3.143)	(1.592)
Exposure to epidemic (18-25)	-1.504***	-2.112***	-2.110***
	(0.420)	(0.419)	(0.406)
Democracy (18-25)	0.007	-0.003	0.015
	(0.010)	(0.011)	(0.010)
Observations	523072	489155	504686
$R2$	0.140	0.127	0.154

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. The specification is Column 4 of Table 1. Results reported in each column come from separate models. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1970-2017, and the Polity5 dataset.

Appendix Table B.15: Impact of Exposure to Epidemics (Ages 18-25) on Political Trust – Intensive and Extensive Margins

	(1)	(2)	(3)	(4)	(5)	(6)
	Intensive margin	Intensive margin	Intensive margin	Extensive margin	Extensive margin	Extensive margin
Outcome ➔	Have confidence in national government	Approval of the leader	Have confidence in honesty of elections	Have confidence in national government	Approval of the leader	Have confidence in honesty of elections
Exposure to Epidemic (18-25)	-2.779***	-3.241***	-3.329***	-0.001	-0.009***	0.001
	(0.519)	(0.735)	(0.505)	(0.003)	(0.003)	(0.003)
Observations	351733	340226	342209	760099	719742	736679
R^2	0.138	0.119	0.133	0.145	0.133	0.146

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. For intensive margin, the sample is restricted to respondents with any epidemic experience in their impressionable years, and models are re-estimated as in Column 4 of Table 1. For extensive margin, *Exposure to Epidemic (18-25)* is re-defined as a dummy taking the value of 1 when the continuous version is positive and zero otherwise; and models are re-estimated over the full sample as in Column 4 of Table 1. See notes to Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Appendix Table B.16: Impact of "Made-up" Exposure on Immigrants' Political Trust

	(1)	(2)	(3)	(4)	(5)
Outcome ➔	Have confidence in national government	Approval of the leader	Have confidence in honesty of elections	Average of all three outcome variables	the 1st Principal Component of Responses
Exposure to epidemic (18-25)	-0.919	-5.915	-0.205	-1.475	-5.229
	(2.100)	(3.601)	(2.639)	(1.688)	(5.994)
Observations	4639	4306	4118	3611	3611
R^2	0.229	0.229	0.282	0.322	0.321

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Column 4 of Table 1. Exposure to epidemic (18-25) defined as the average per capita number of people affected by an epidemic when the respondent was in their impressionable years (18-25 years). The number of people affected refers to people requiring immediate assistance during a period of emergency (that is, requiring basic survival needs such as food, water, shelter, sanitation, and immediate medical assistance). Demographic characteristics include: a male dummy, a dummy for each age group, dummy variables for marital status (single, married), educational attainment (tertiary education, secondary education), religion dummies (Christian, Muslim, and other religions), employment status (full-time employed, part-time employed, unemployed), a dummy variable for living in an urban area and presence of children in the household (any child under 15). Income decile fixed-effects are constructed by grouping individuals into deciles based on their income relative to other individuals within the same country and year. Individual income includes all wages and salaries in the household, remittances from family members living elsewhere, and all other sources before taxes. Gallup converts local income to International Dollars using the World Bank's individual consumption PPP conversion factor, which makes it comparable across all countries. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Appendix Table B.17: Impact of "Randomly-Assigned" Exposure on Political Trust

	(1)	(2)	(3)	(4)	(5)
Outcome ➔	Have confidence in national government	Approval of the leader	Have confidence in honesty of elections	Average of all three outcome variables	the 1st Principal Component of Responses
Exposure to epidemic (18-25)	0.210	-0.250	-0.238	-0.040	-0.109
	(0.390)	(0.488)	(0.439)	(0.389)	(1.348)
Observations	668022	632661	647417	559274	559274
R^2	0.146	0.133	0.145	0.180	0.180

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Specification is Column 4 of Table 1. Exposure to epidemic (18-25) defined as the average per capita number of people affected by an epidemic when the respondent was in their impressionable years (18-25 years). The number of people affected refers to people requiring immediate assistance during a period of emergency (that is, requiring basic survival needs such as food, water, shelter, sanitation, and immediate medical assistance). Demographic characteristics include: a male dummy, a dummy for each age group, dummy variables for marital status (single, married), educational attainment (tertiary education, secondary education), religion dummies (Christian, Muslim, and other religions), employment status (full-time employed, part-time employed, unemployed), a dummy variable for living in an urban area and presence of children in the household (any child under 15). Income decile fixed-effects are constructed by grouping individuals into deciles based on their income relative to other individuals within the same country and year. Individual income includes all wages and salaries in the household, remittances from family members living elsewhere, and all other sources before taxes. Gallup converts local income to International Dollars using the World Bank's individual consumption PPP conversion factor, which makes it comparable across all countries. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Appendix Table B.18: Multiple Hypothesis Testing

Outcome ➔	(1) Have confidence in national government	(2) Approval of the leader	(3) Have confidence in honesty of elections	
Exposure to epidemic (18-25)	-1.592***	-1.957***	-2.258***	
	(0.262)	(0.330)	(0.339)	
Country fixed effects	Yes	Yes	Yes	
Year fixed effects	Yes	Yes	Yes	
Age group fixed effects	Yes	Yes	Yes	
Individual income	Yes	Yes	Yes	
Demographic characteristics	Yes	Yes	Yes	
Income decile fixed effects	Yes	Yes	Yes	
Labor market controls	Yes	Yes	Yes	
Country*Age trends	Yes	Yes	Yes	
Cohort fixed effects	Yes	Yes	Yes	
Observations	760099	719742	736679	
R^2	0.145	0.133	0.146	
Mean of outcome	0.50	0.51	0.51	
Randomization-c p-values	0.020**	0.007***	0.007***	
Randomization-t p-values	0.006***	0.007***	0.007***	
Randomization-c p-values (joint test of treatment significance)				0.008***
Randomization-t p-values (joint test of treatment significance)				N/A
Randomization-c p-values (Westfall-Young multiple testing of treatment significance)				0.013**
Randomization-t p-values (Westfall-Young multiple testing of treatment significance)				0.003***

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Randomization-t technique does not produce p-values for the joint test of treatment significance. Results are derived from 100 iterations. Specification is Column 4 of Table 1. Results use the Gallup sampling weights and robust standard errors are clustered at the country level.
Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017

Appendix Table B.19: Robustness to Excluding Potentially Bad Controls

	(1)	(2)	(3)	(4)
Outcome ➔	Have confidence in national government	Have confidence in national government	Have confidence in national government	Have confidence in national government
Exposure to epidemic (18-25)	-1.073*	-1.733***	-1.728***	-0.506**
	(0.594)	(0.262)	(0.258)	(0.223)
Observations	760099	760099	760099	760099
Outcome ➔	Approval of the Leader	Approval of the Leader	Approval of the Leader	Approval of the Leader
Exposure to epidemic (18-25)	-1.521***	-1.933***	-1.991***	-0.580***
	(0.380)	(0.313)	(0.316)	(0.123)
Observations	719742	719742	719742	719742
Outcome ➔	Have confidence in honesty of elections	Have confidence in honesty of elections	Have confidence in honesty of elections	Have confidence in honesty of elections
Exposure to epidemic (18-25)	-1.643**	-2.322***	-2.367***	-1.117***
	(0.794)	(0.362)	(0.355)	(0.255)
Observations	736679	736679	736679	736679
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Age group fixed effects	Yes	Yes	Yes	Yes
Country*Age trends	No	Yes	Yes	Yes
Cohort fixed effects	No	No	Yes	Yes
Country*Year fixed effects	No	No	No	Yes

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Appendix Table B.20: Robustness to Alternative Treatment (i.e., Population *Unadjusted* Number of Affected People)

Outcome ➔	(1) Have confidence in the government	(2) Approval of the Leader	(3) Have confidence in honesty of elections	(4) Average of all three outcome variables	(5) the 1st Principal Component of Responses
Exposure to epidemic (18-25)	-0.081***	-0.100**	-0.090***	-0.091***	-0.313***
	(0.029)	(0.043)	(0.014)	(0.030)	(0.105)
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Age group fixed effects	Yes	Yes	Yes	Yes	Yes
Individual income	Yes	Yes	Yes	Yes	Yes
Demographic characteristics	Yes	Yes	Yes	Yes	Yes
Income decile fixed effects	Yes	Yes	Yes	Yes	Yes
Labor market controls	Yes	Yes	Yes	Yes	Yes
Country*Age trends	Yes	Yes	Yes	Yes	Yes
Cohort fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	770836	731758	746610	644795	644795
R^2	0.149	0.135	0.146	0.184	0.184

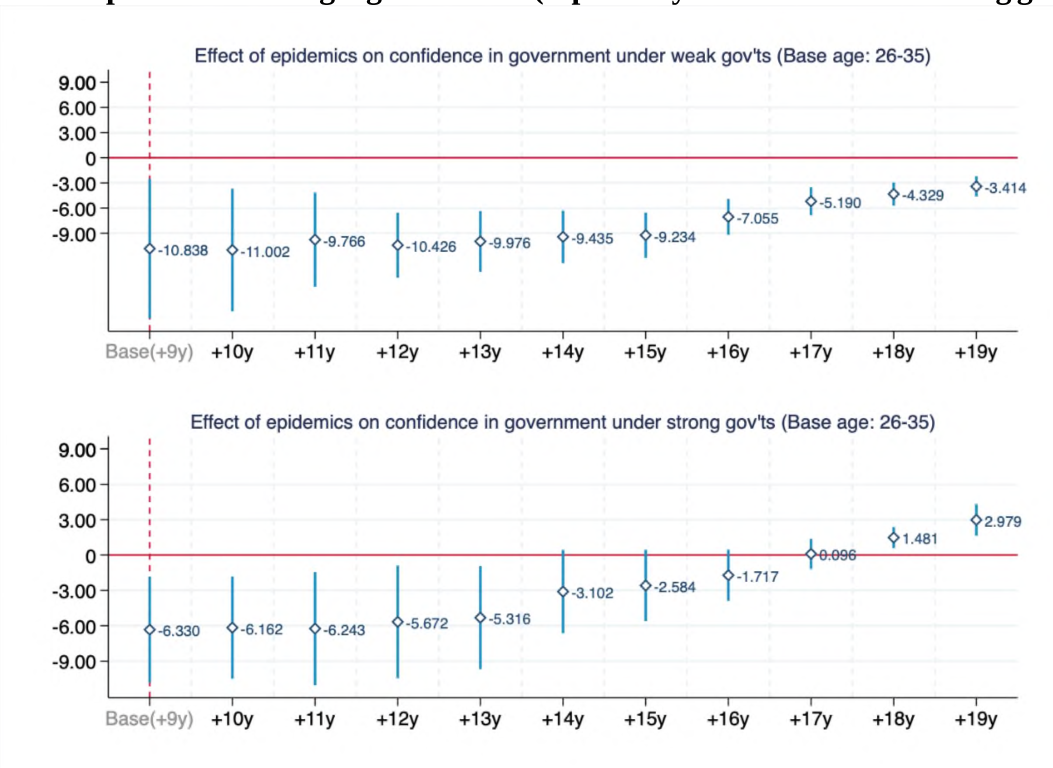
Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Appendix Table B.21: Evidence on Political Behaviour

	(1)	(2)	(3)	(4)
Outcome is ➔	WWS - Attending lawful/peaceful demonstrations	WWS – Never voted in national elections	ESS - Taken part in a lawful public demonstration	ESS - Voted in recent national elections
Exposure to epidemic (18-25)	16.412*	5.488	53.041**	-134.497**
	(9.736)	(7.014)	(12.811)	(59.276)
Observations	103681	32448	171889	128836
R^2	0.127	0.101	0.051	0.110
Outcome is ➔	WWS - Signed a petition	WWS - Joined in boycotts	WWS – Occupied buildings or factories	WWS - Joined unofficial strikes
Exposure to epidemic (18-25)	18.944**	19.322**	-2.481	-4.982
	(7.811)	(9.176)	(5.330)	(8.972)
Observations	103851	101088	39440	71851
R^2	0.226	0.198	0.081	0.132

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%.. Exposure to epidemic (18-25) defined as the average per capita number of people affected by an epidemic when the respondent was in their impressionable years (18-25 years). The number of people affected refers to people requiring immediate assistance during a period of emergency (that is, requiring basic survival needs such as food, water, shelter, sanitation, and immediate medical assistance). Demographic characteristics include: a male dummy, a dummy for each age group, dummy variables for marital status (single, married), educational attainment (tertiary education, secondary education), religion dummies (Christian, Muslim, and other religions), employment status (full-time employed, part-time employed, unemployed), a dummy variable for living in an urban area and presence of children in the household (any child under 15). Income decile fixed-effects are constructed by grouping individuals into deciles based on their income relative to other individuals within the same country and year. Results use the sampling weights and robust standard errors are clustered at the country-wave level. Source: World Values Survey (WVS), 1981-2014; European Social Survey (ESS), 2002-2018); and EM-DAT International Disaster Database, 1970-2017.

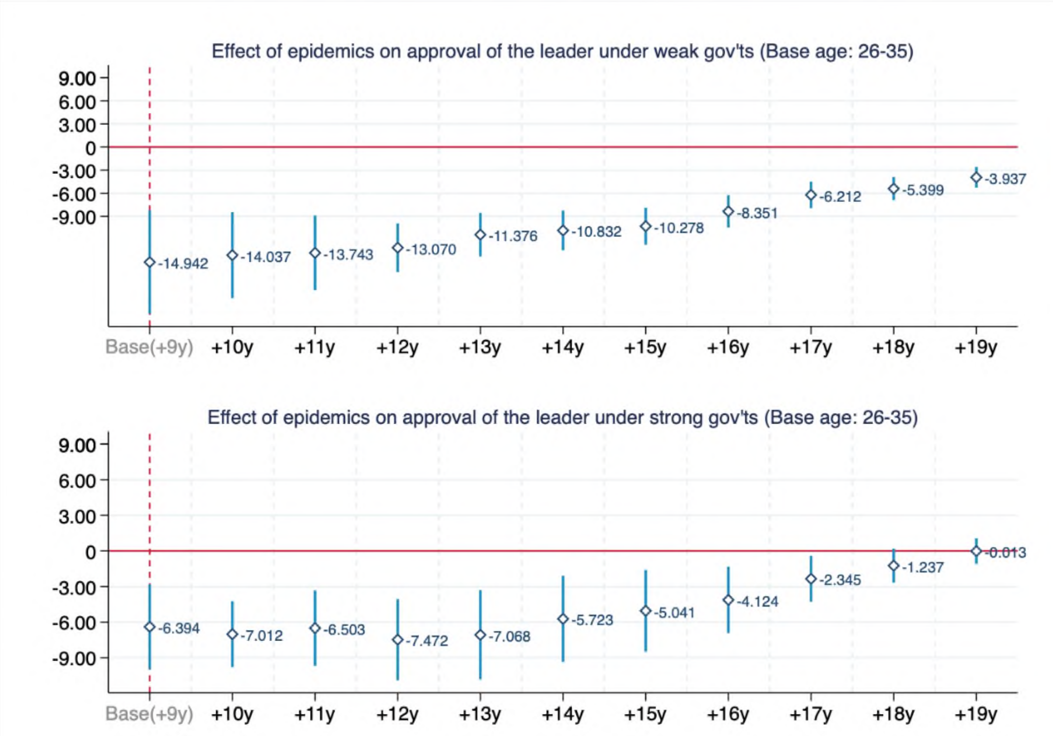
Appendix Figure B.1: Effects of Epidemics on Confidence in Government over Subsamples with Rolling Age-windows (separately under weak and strong governments)



Note: This figure shows the persistency of the effects on three main outcome variables by restricting the observations to the respondents who are in the 26-35 age range at the time of the survey (Base sample) and then repeatedly rolling this age window forward by one year for each separate estimation. The specification is Panel 3 in Table 3. The lower panel only plots the coefficient on *Exposure to epidemic (18-25)* whereas the upper panel plots the sum of the coefficients on *Exposure to epidemic (18-25)* and its interaction with bottom quartile government strength dummy. Confidence intervals are at 95% significance level.

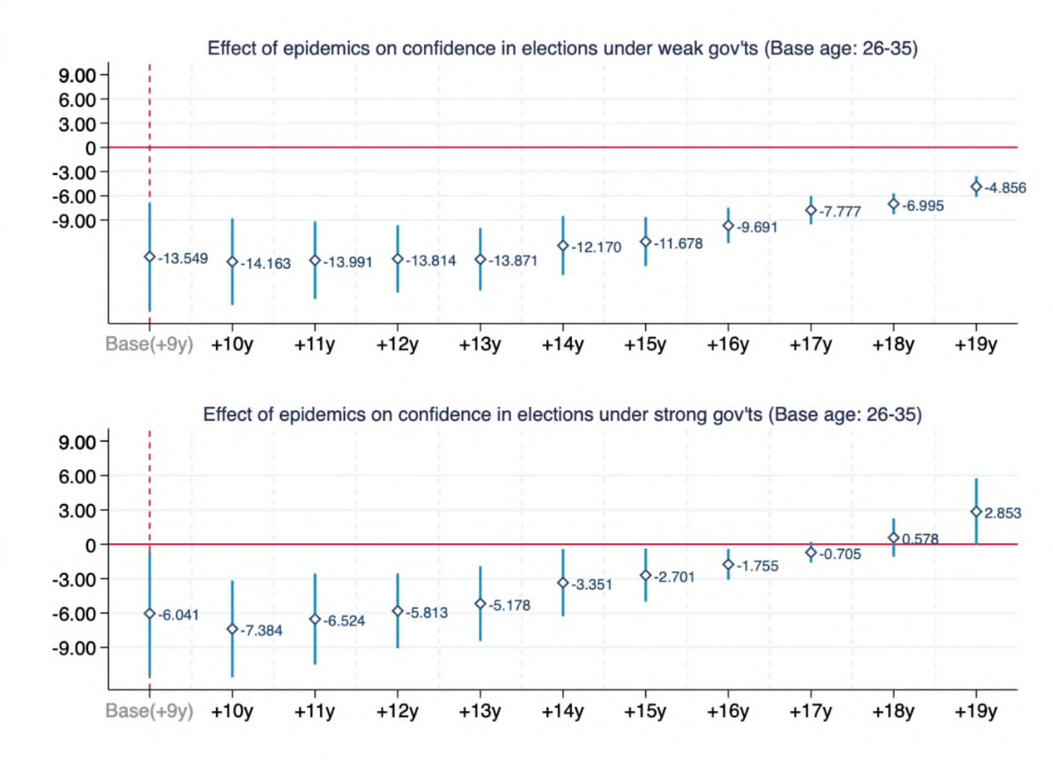
Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1970-2017, and the International Country Risk Guide.

Appendix Figure B.2: Effects of Epidemics on Approval of the Leader Over Subsamples with Rolling Age-Windows (separately under weak and strong governments)



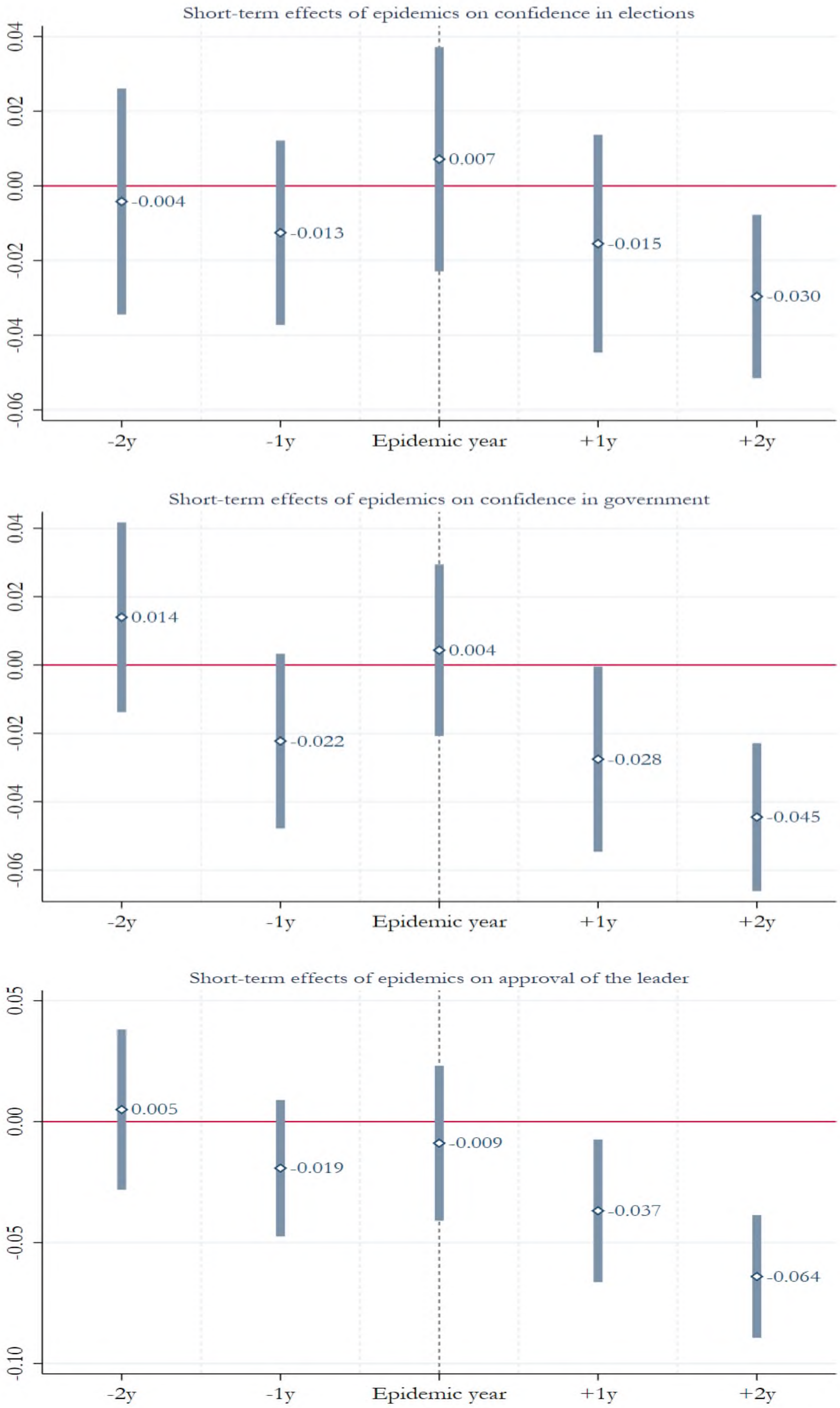
Note: This figure shows the persistency of the effects on three main outcome variables by restricting the observations to the respondents who are in the 26-35 age range at the time of the survey (Base sample) and then repeatedly rolling this age window forward by one year for each separate estimation. The specification is Panel 3 in Table 3. The lower panel only plots the coefficient on *Exposure to epidemic (18-25)* whereas the upper panel plots the sum of the coefficients on *Exposure to epidemic (18-25)* and its interaction with bottom quartile government strength dummy. Confidence intervals are at 95% significance level.
Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1970-2017, and the International Country Risk Guide.

Appendix Figure B.3: Effects of Epidemics on Confidence in Elections over Subsamples with Rolling Age-Windows (separately under weak and strong governments)



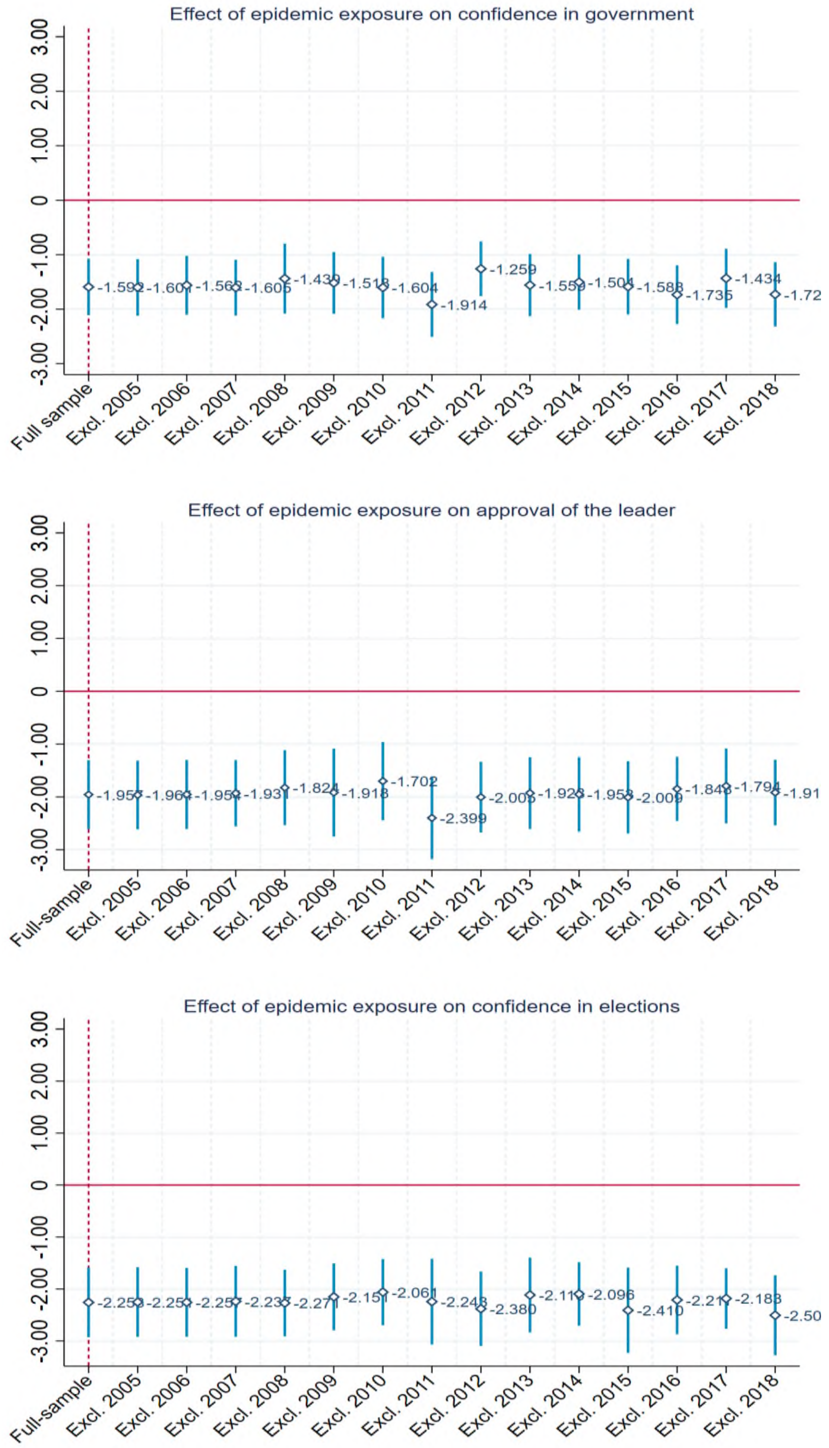
Note: This figure shows the persistency of the effects on three main outcome variables by restricting the observations to the respondents who are in the 26-35 age range at the time of the survey (Base sample) and then repeatedly rolling this age window forward by one year for each separate estimation. The specification is Panel 3 in Table 3. The lower panel only plots the coefficient on *Exposure to epidemic (18-25)* whereas the upper panel plots the sum of the coefficients on *Exposure to epidemic (18-25)* and its interaction with bottom quartile government strength dummy. Confidence intervals are at 95% significance level.
Source: Gallup World Polls, 2006-2018, EM-DAT International Disaster Database, 1970-2017, and the International Country Risk Guide.

Appendix Figure B.4: Short-term Effect of Epidemics on Political Trust



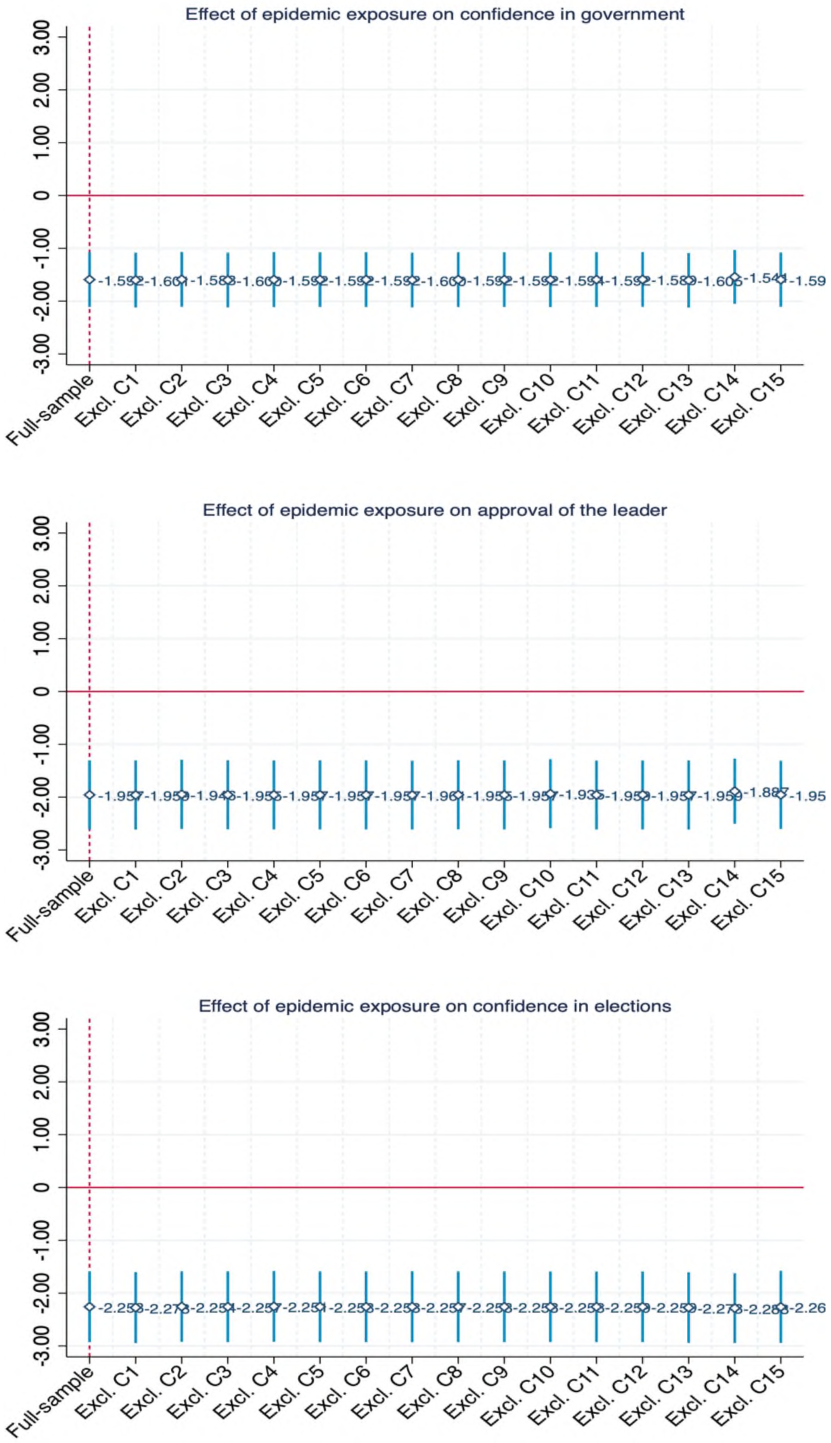
Note: Epidemic year corresponds to the year in which World Health Organisation (WHO) declared one of the following pandemic/epidemic outbreaks for the country in which Gallup respondent resides: SARS, H1N1, MERS, Ebola, or Zika. Specification is the same as in Equation B1. Confidence intervals are at 90% significance level. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and Ma et al., 2020.

Appendix Figure B.5: Robustness to Dropping One Year at a Time



Note: This figure shows the point estimates on Exposure to epidemic (18-25) variable on three main outcome variables while dropping one sample year at a time. The specification is Column 4 of Table 1. Only the estimated coefficient on Exposure to epidemic (18-25) is plotted. Confidence intervals are at 95% significance level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Appendix Figure B.6: Robustness to Dropping One Country at a Time



Note: This figure shows the point estimates on Exposure to epidemic (18-25) variable on three main outcome variables while randomly dropping one sample country at a time. The specification is Column 4 of Table 1. Only the estimated coefficient on Exposure to epidemic (18-25) is plotted. Confidence intervals are at 95% significance level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

Online Appendix C: Identification of the Mechanism

Attitudes towards Public Healthcare Systems

Governments' healthcare-related interventions may play an important role in the prevention of contagious diseases. Using data from GWP, we therefore analyze whether attitudes regarding the health system are affected by exposure to an epidemic in **Appendix Table C.1**. The results show that here too opinions are affected negatively by impressionable-year epidemic exposure. These results suggest that the same experience causing individuals to lose confidence in society's capacity specifically to deliver adequate health outcomes also causes them to lose confidence in the political system and its leaders more generally.

To the best of our knowledge, there is no international dataset consistently documenting government policy responses to past epidemics. Hence, in order to further explore this 'policymaking' mechanism, we follow a two-step procedure: we first validate the positive link between the (a priori) government strength and the effectiveness (i.e., timeliness) of government responses to COVID-19 outbreak and second, we employ a reduced-form specification to investigate how government strength at the time of the epidemic may change our previous results on the effects of impressionable-year epidemic exposure.

Evidence from COVID-19

Given the absence of internationally comparable data on policy interventions in response to past epidemics, we examine the association of government strength with policy interventions in the context of COVID-19.

To do so, we investigate the relationship between government strength and the number of days between the date of first confirmed case and the date of the first COVID-19 policy (i.e. non-pharmaceutical intervention: school closure, workplace closure, public event cancellation, public transport closure, or restrictions on within-country movement) on a large sample of countries. We also provide case studies detailing the link between government strength and policy interventions for France, South Korea, and the United Kingdom below.

Our sample consists of 78 countries that adopted non-pharmaceutical interventions between January 1, 2020 and March 31, 2020. We estimate OLS models, controlling for average Google search volume one week before the policy intervention to account for the possibility that public attention to COVID-19 accelerates the non-pharmaceutical response. We also control for (log) cumulative own country cases one week before the policy, (log) cumulative own country deaths one week before the policy, (log) GDP per capita, (log) urbanization rate, (log) total population, (log) share of the population age 65 and above, Polity2 score, and a dummy variable indicating whether a country experienced an epidemic since 2000.

Appendix Table C.2 reports the results for the full sample in Column 1, for countries with above-median Polity2 scores in Column 2, and for countries with below-median Polity2 scores in Column 3.[20] Although we make no causal claims, we find that government strength is *associated* with a statistically significant improvement in policy response time: a one standard deviation (0.765) increase in government strength reduces policy response time by three days.[21] This is a hint of why exposure to epidemic may lead to major negative revisions of confidence in governments and trust in political leaders when governments are weak.

According to Column 2, a one standard deviation (0.765) increase in government strength reduces the policy response time by four days in more democratic countries (those with above-median Polity2 scores). In contrast, there is little evidence that government strength reduces the policy response time in countries with below-median Polity2 scores. It is sometimes suggested that more democratic countries, where it is necessary to build a political and social coalition in support of restrictive policies, found it more difficult to respond quickly to the outbreak of COVID-19, compared to less democratic countries where "pseudo-democratic" leaders can move unilaterally to limit traditional political and civil rights and short-circuit democratic processes.[22] Evidently, government weakness is mostly a problem in democratic societies, since this is there where it translates into a greater delay and less timely intervention.

Case Studies on the Association of Government Strength with Policy Interventions in the Context of COVID-19

Appendix Figures C.1-C.3 show COVID-19 related developments in South Korea, France, and the United Kingdom. We choose these countries because they followed very different

[20] We cannot split the sample into democracies vs. non-democracies because we have only 10 countries in the non-democracy sample. This is why we instead split the sample by below and above the median polity score.
[21] Three days can make a substantial difference in the context of COVID-19, given the infection's high rate of reproduction when no non-pharmaceutical intervention is put in place.
[22] See for example the discussion in Diamond (2020).

trajectories in terms of public attention, policy interventions, and the spread of the virus. South Korea, France, and the United Kingdom are broadly similar in terms of their GDP per capita, urbanization, and population age structure (median age in all three countries is roughly 41). But they differ in terms of government strength: the ICRG score is 8.25 for South Korea, 7.5 for France, and 6 for the United Kingdom.[23]

The figures show the number of confirmed COVID-19 cases and deaths, public attention to COVID-19 as measured by Google Trends, and the date of the first non-pharmaceutical intervention (school closure, workplace closure, public event cancellation, public transport closure, or restrictions on within-country movement in the own country). We also report the number of days between the date of the first confirmed case and the date of the first COVID-19-related non-pharmaceutical intervention.

In South Korea, public attention rose rapidly after the first domestic case. The government responded within 11 days of the first case with domestic interventions aimed at curbing the epidemic. In France and the UK, in contrast, public attention remained low for several weeks after the first reported case. In France, domestic restrictions were imposed only after 36 days, while the UK government waited 45 days before imposing the first restrictions. These slow reactions were associated with rapid growth in confirmed cases and deaths in both countries. Simple comparisons among countries are complicated by the existence of other influences, such as past exposure to epidemics.[24] Still, these comparisons are suggestive of the idea that government strength is positively associated with the speed of response to the outbreak.

[23] The relatively low score for the UK may come as a surprise to readers but it is worth noting that: (i) it registered a significant fall since the Brexit Referendum (8.46 was the 2015 score); (ii) ICRG's government strength score include points for government unity, legislative strength and popular support. That the UK has had minority and coalition governments may therefore account for its ranking. Recent anecdotal evidence also reflects the low government strength score of the UK. For example, As the *Economist* wrote in June, 2020: "The painful conclusion is that Britain has the wrong sort of government for a pandemic—and, in Boris Johnson, the wrong sort of prime minister. Beating the coronavirus calls for attention to detail, consistency and implementation, but they are not his forte." See:
https://www.economist.com/leaders/2020/06/18/britain-has-the-wrong-government-for-the-covid-crisis

[24] Thus, it has been suggested that Asian countries responded quickly because of their past experience with Avian flu.

Appendix Table C.1: Impact of Epidemic Exposure (Ages 18-25) on Confidence in Healthcare

	(1)
Outcome ➔	Confidence in healthcare
Exposure to epidemic (18-25)	-6.760***
	(1.270)
Observations	95732
Country fixed effects	Yes
Year fixed effects	Yes
Age group fixed effects	Yes
Labor market cont. & individual income	Yes
Demographic cont. & income decile fixed effects	Yes
Country*Age trends	Yes
Cohort fixed effects	Yes

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. Demographic characteristics include: a male dummy, a dummy for each age group, dummy variables for marital status (single, married), educational attainment (tertiary education, secondary education), religion dummies (Christian, Muslim, and other religions), employment status (full-time employed, part-time employed, unemployed), a dummy variable for living in an urban area and presence of children in the household (any child under 15). Income decile fixed-effects are constructed by grouping individuals into deciles based on their income relative to other individuals within the same country and year. Individual income includes all wages and salaries in the household, remittances from family members living elsewhere, and all other sources before taxes. Gallup converts local income to International Dollars using the World Bank's individual consumption PPP conversion factor, which makes it comparable across all countries. Results use the Gallup sampling weights and robust standard errors are clustered at the country level. Source: Gallup World Polls, 2006-2018 and EM-DAT International Disaster Database, 1970-2017.

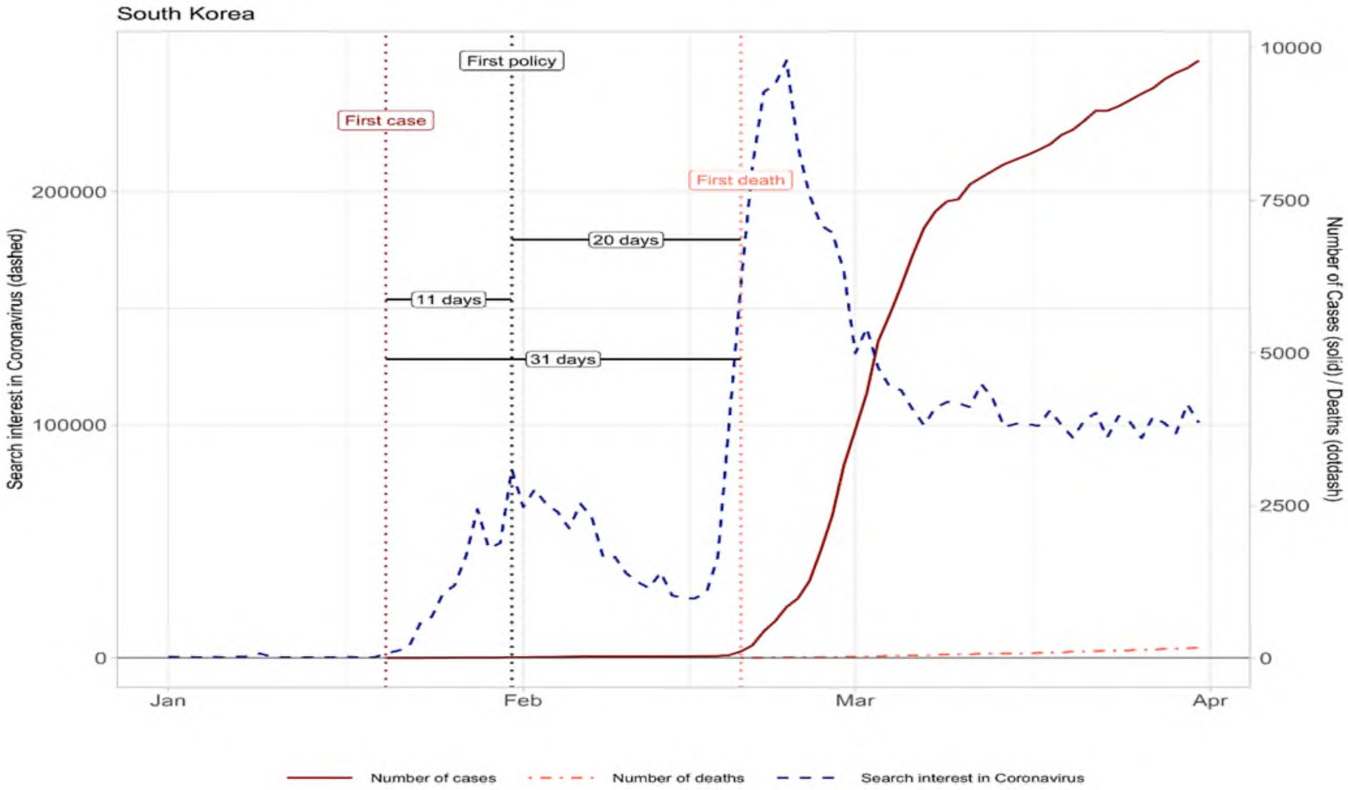
Appendix Table C.2: Government Strength and Policy Response Time to COVID-19

	(1)	(2)	(3)
Sample ➔	Full-sample	Above Median Polity Score	Below Median Polity Score
Government strength	-3.611**	-5.357**^{A}	-.0837
	(1.731)	(2.560)	(2.077)
	[-2.764]	[-4.231]	[-0.062]
Continent fixed effects	Yes	Yes	Yes
Country characteristics	Yes	Yes	Yes
Average Google search volume one week before the policy	Yes	Yes	Yes
(log) cumulative own country cases one week before the policy	Yes	Yes	Yes
(log) cumulative own country deaths one week before the policy	Yes	Yes	Yes
Observations	78	39	39

Notes: * significant at 10%; ** significant at 5%; *** significant at 1%. OLS regressions. Outcome variable is *the number of days* between the date of the first confirmed case and the date of the first COVID-19 policy (i.e. non-pharmaceutical intervention: school closure, workplace closure, public event cancellation, public transport closure, or restrictions on within-country movement) in the own country. *Government strength* is an assessment of both the government's ability to carry out its declared programs and its ability to stay in office. It ranges between 12 (maximum score) and 0 (minimum score) with higher scores indicating better quality. Country characteristics include (log) GDP per capita, (log) urbanization rate, (log) total population, (log) share of population age 65 and above, Polity Score, and a dummy variable indicating whether a country experienced any epidemic since 2 000. We add 1 to every country observation and then apply a logarithmic transformation. Brackets report point estimates for one standard deviation (0.765) increase in government strength index. Robust standard errors are clustered at the country level. ^{A} indicates statistically significant differences between the pair estimates. The sample consists of 78 countries that ever-adopted non-pharmaceutical policy between 1/1/2020 and 31/03/2012. Source: EM-DAT, European Centre for Disease Prevention Control, Google, Polity V, Oxford COVID-19 Government Response Tracker, the International Country Risk Guide, World Bank.

Appendix Figure C.1: COVID-19 Related Developments in South Korea

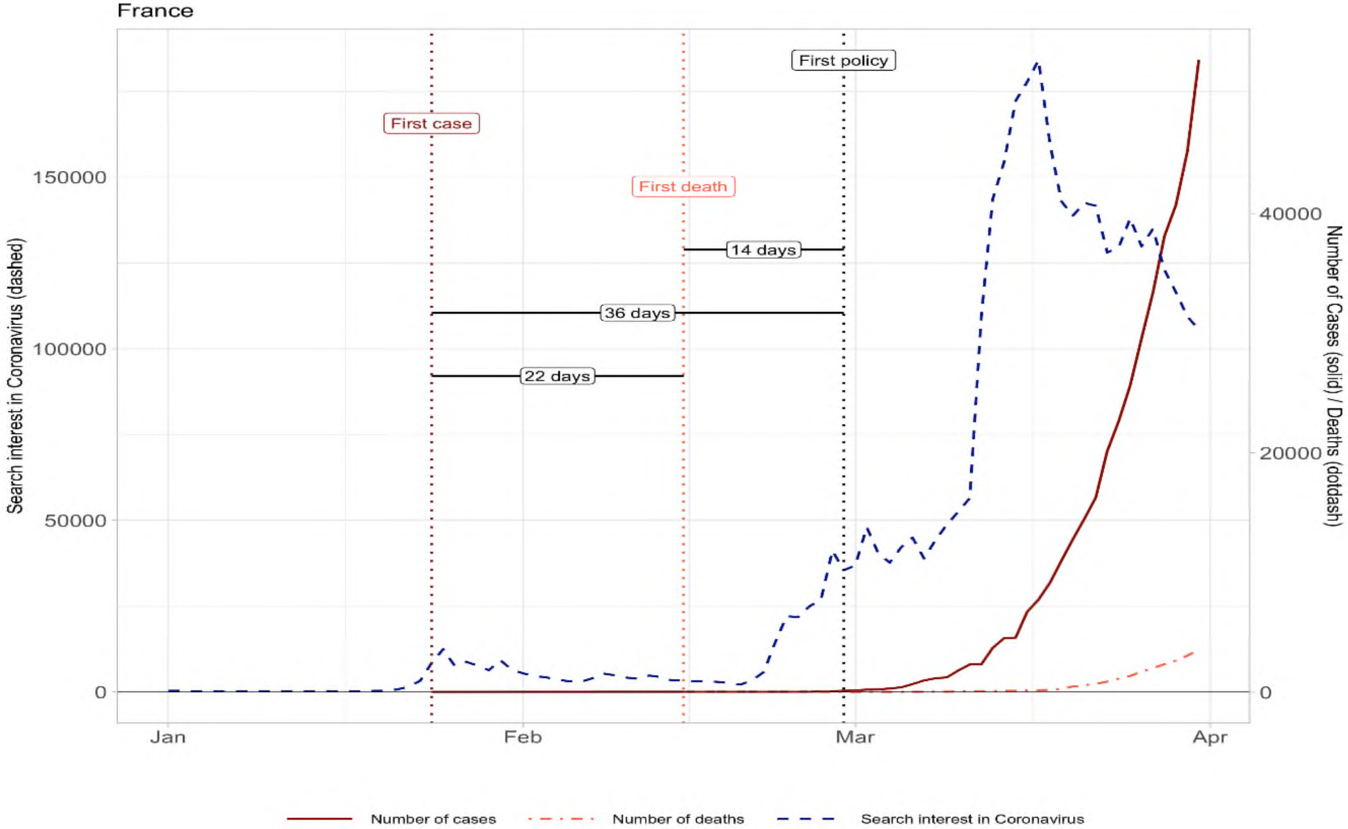
ICRG Government Strength score: 8.25



Note: This figure shows daily measures of public attention to COVID-19 measured as the share of Google searchers (left axis) and the number of COVID-19 cases and deaths (right axis), as well as the dates of the first case, first death, and first policy in South Korea. Source: Google Trends (1/1/2020-31/3/2010), JHCRC (1/1/2020-31/3/2010), and ICRG (2018).

Appendix Figure C.2: COVID-19 Related Developments in France

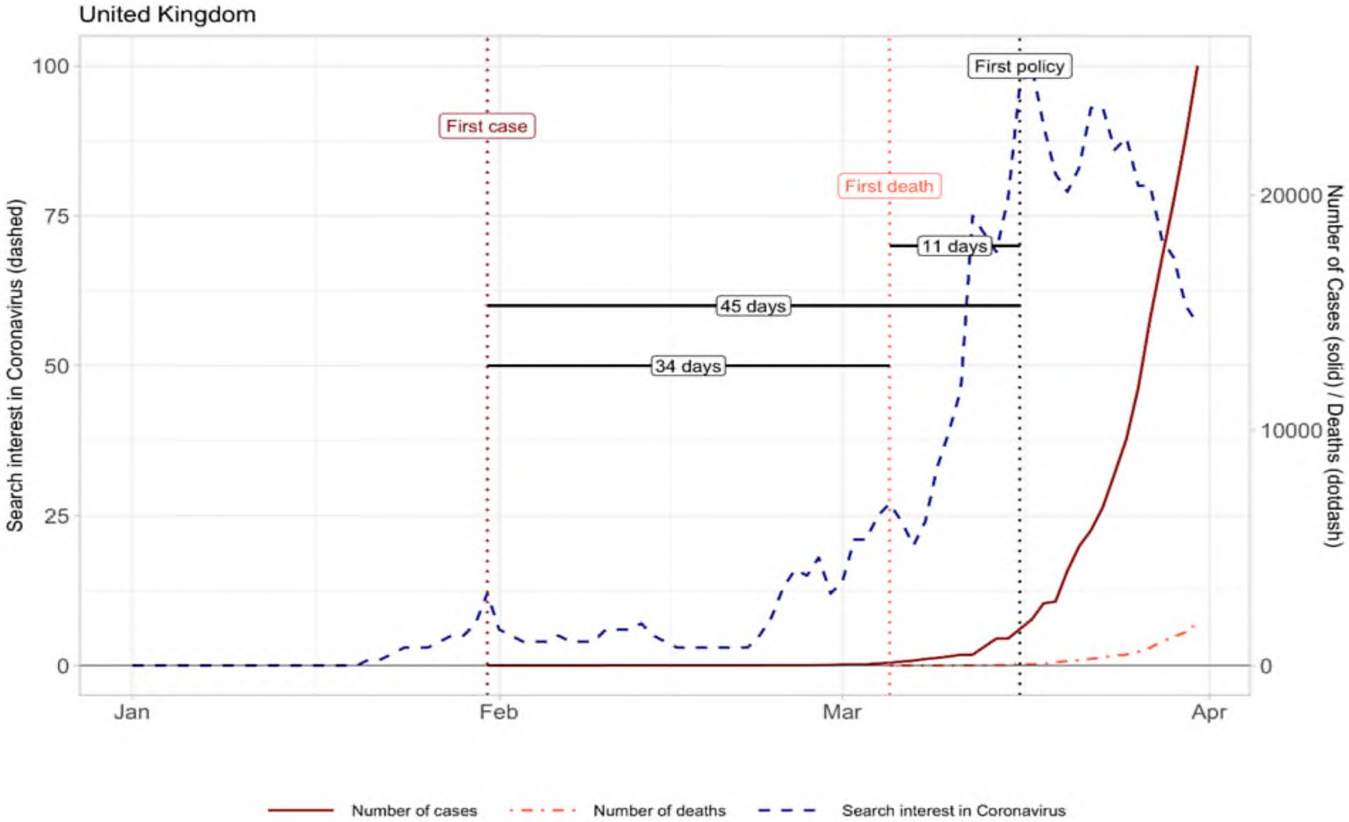
ICRG Government Strength score: 7.5



Note: This figure shows daily measures of public attention to COVID-19 measured as the share of Google searchers (left axis) and the number of COVID-19 cases and deaths (right axis), as well as the dates of the first case, first death, and first policy in France. Source: Google Trends (1/1/2020-31/3/2010), JHCRC (1/1/2020-31/3/2010), and ICRG (2018).

Appendix Figure C.3: COVID-19 Related Developments in the United Kingdom

ICRG Government Strength score: 6



Note: This figure shows daily measures of public attention to COVID-19 measured as the share of Google searchers (left axis) and the number of COVID-19 cases and deaths (right axis), as well as the dates of the first case, first death, and first policy in the United Kingdom. Source: Google Trends (1/1/2020-31/3/2010), JHCRC (1/1/2020-31/3/2010), and ICRG (2018).

Online Appendix D: Additional Data and Sources

International Country Risk Guide

Our data on institutional quality are from the International Country Risk Guide (ICRG). This measures 12 political and social attributes for approximately 140 countries from 1984 to the present. We focus on *government strength*, which is an assessment both of the government's ability to carry out its declared programs and its ability to stay in office.[25] Specifically, the index score is the sum of three subcomponents: (i) Government Unity; (ii) Legislative Strength; and (iii) Popular Support. In the original ICRG dataset, this measure is called as government stability. Throughout the paper, we refer to government stability as *government strength* as it captures the policy-making strength of the incumbent government. Scores for government strength range from a maximum of 12 and a minimum of 0.

Google Trends

We use Google Trends data on searches to measure public attention paid to the COVID-19 pandemic. More specifically, we collected data on the volume of Google searches for "corona; korona; Wuhan virus; COVID; COVID-19," translating these search terms into the official language of each country. We assemble these data on a daily basis at the country level for the period from January 1 through March 31, 2020. Observations are scaled from 0 (lowest attention) to 100 (highest attention). We exclude 21 countries where the internet is classified as "not free" according to Freedom House (2019).

COVID-19 Related Cases and Deaths

We obtain daily data on the coronavirus related cases and deaths by country from the European Center for Disease Prevention and Control (ECDC) and the Johns Hopkins Coronavirus Resource Center (JHCRC). There are minor reporting differences between the two sources. We use both datasets and create our measures of cases and deaths using the maximum value reported in either dataset.

Government Policy Responses

We rely on the Oxford COVID-19 Government Response Tracker (OxCGRT) for information on public policy responses to the outbreak (Hale et al., 2020). Specifically, we use the

[25] Other institutional quality index measures cover democratic accountability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, and bureaucracy quality.

information on the following responses: (i) closing of schools and universities; (ii) workplace closures; (iii) public event cancellations; (iv) closing of public transport; (v) restrictions on internal movement. We again gather these data for the period between January 1, and March 31, 2020.

Communicable and Non-communicable Diseases

We distinguish communicable diseases (diarrhea, lower respiratory, other common infectious diseases, malaria and neglected tropical diseases, HIV/AIDS, tuberculosis, other communicable diseases) from non-communicable diseases (cardiovascular diseases, cancers, respiratory disease, diabetes, blood and endocrine diseases, mental and substance use disorders, liver diseases, digestive diseases, musculoskeletal disorders, neurological disorders, other non-communicable diseases) using data from the Institute for Health Metrics and Evaluation. These data are at the country-level data and cover the period 1990-2016. These measures are population-adjusted and expressed in Disability Adjusted Life Years Lost (DALYs), which is a standardized metric allowing for direct comparison and summing of burdens of different diseases (Roser and Ritchie, 2020). Conceptually, one DALY is the equivalent of one year in good health lost to premature mortality or disability (Murray et al. 2015).

Country Characteristics

Data on GDP per capita and urbanization rate come from the World Bank. We obtain the data on the total population and population by age from the United Nations. Data on political regime characteristics are from the Polity5 Series, with scores ranging from -10 to +10. We define 5 and above democracies.

Political Behaviour

We use the World Values Survey (WVS) and the European Social Survey (ESS) to measure political behavior. We use all available waves of the World Values Survey from 1981 to 2014. The dataset covers more than 80 countries and we use 6 variables to capture political behavior. In particular, questions aim to capture some forms of political action that people can take and asked as follows: please indicate whether you have done any of these things, whether you might do it or would never under any circumstances do it: (i) attending lawful/peaceful demonstrations; (ii) the respondent signing petition; (iii) joining in boycotts; (v) occupying buildings or factories; (vi) joining unofficial strikes. We code “have done” and “might do” as

1 and zero otherwise. We also use the question on whether the respondent voted in recent parliament elections.

Additional data on political behavior come from the 2002-2018 European Social Surveys. These surveys are fielded biannually in over 30 European countries. The key outcome variables we use come from questions asked to all ESS respondents: (i) during the last 12 months, have you taken part in a lawful public demonstration?; (ii) did you vote in the last national election? We code "yes" as 1 and zero otherwise.

The Cross-National Time-Series (CNTS) Data

We use the following variables from CNTS data to control for individuals' past domestic political experiences. The variable definitions are as follows: (i) Assassinations: any politically motivated murder or attempted murder of a high government official or politician; (ii) General Strikes: any strike of 1,000 or more industrial or service workers that involves more than one employer and that is aimed at national government policies or authority; (iii) Terrorism/Guerrilla Warfare: any armed activity, sabotage, or bombings carried on by independent bands of citizens or irregular forces and aimed at the overthrow of the present regime. A country is also considered to have terrorism/guerrilla war when sporadic bombing, sabotage, or terrorism occurs; (iv) Purges: any systematic elimination by jailing or execution of political opposition within the ranks of the regime or the opposition; (v) Riots: any violent demonstration or clash of more than 100 citizens involving the use of physical force; (vi) Revolutions: any illegal or forced change in the top government elite, any attempt at such a change, or any successful or unsuccessful armed rebellion whose aim is independence from the central government; (vii) Anti-government Demonstrations: any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature.

Online Appendix E: Full List of Epidemics from the EM-DAT Database

Country	Year	Epidemic	Total no of affected people	Total no of deaths
Afghanistan	1998	cholera	15783	185
Afghanistan	1999	cholera	20702	135
Afghanistan	2000	cholera	2228	50
Afghanistan	2001	cholera	4425	154
Afghanistan	2002	leishmaniasis	206834	102
Afghanistan	2005	cholera	3245	0
Afghanistan	2008	cholera	1100	17
Albania	1996	poliovirus	66	7
Albania	2002	unknown	226	0
Algeria	1991	typhiod	204	0
Algeria	1997	typhiod	364	1
Angola	1987	cholera	673	59
Angola	1989	cholera	15525	766
Angola	1995	meningitis	1007	0
Angola	1998	meningitis	1113	115
Angola	1999	poliovirus	873	188
Angola	2000	meningitis	117	18
Angola	2001	meningitis	420	39
Angola	2004	marburg virus	45	329
Angola	2006	cholera	57570	2354
Angola	2007	cholera	18343	515
Angola	2008	cholera	17437	363
Angola	2009	diarrhoeal syndrome	25938	116
Angola	2015	yellow fever	4599	384
Angola	2018	cholera	139	2
Argentina	1992	cholera	3883	67
Argentina	2009	dengue and dengue haemorrhagic fever	13366	6
Australia	2002	sars	6	0
Australia	2016	dengue and dengue haemorrhagic fever	2016	0
Bangladesh	1977	cholera	10461	260
Bangladesh	1982	cholera	173460	2696
Bangladesh	1986	water-borne diseases	52000	165
Bangladesh	1987		601200	750
Bangladesh	1991		1608000	2700
Bangladesh	1993		5660	38
Bangladesh	1995		21236	400
Bangladesh	1996		10000	20
Bangladesh	1997		14330	64
Bangladesh	1998		185000	151
Bangladesh	2000		26214	31
Bangladesh	2002		49904	96
Bangladesh	2004	nipah viral disease	54	32
Bangladesh	2007	cholera	284910	86
Bangladesh	2017	diphteria	789	15
Belarus	1995		282	13

Belarus	1997		605	0
Belgium	1945	poliovirus	104	0
Benin	1976	poliovirus	7	1
Benin	1987		403	65
Benin	1989		2411	228
Benin	1996	yellow fever	21	65
Benin	1997		226	47
Benin	1998		527	78
Benin	1999	diarrhoeal syndrome	241	9
Benin	2000	meningitis	7762	351
Benin	2001	meningitis	9760	378
Benin	2002		452	50
Benin	2003	cholera	265	3
Benin	2005	cholera	206	4
Benin	2008	cholera	988	33
Benin	2010	cholera	1037	25
Benin	2013	cholera	486	6
Benin	2016	cholera	678	13
Benin	2019	meningitis	24	13
Bhutan	1985		247	41
Bhutan	1992	cholera	494	0
Bolivia	1969	poliovirus	77	18
Bolivia	1989	yellow fever	97	67
Bolivia	1991	cholera	17665	329
Bolivia	1997	cholera	734	18
Bolivia	1998	cholera	165	5
Bolivia	1999	yellow fever	68	33
Bolivia	2007	dengue and dengue haemorrhagic fever	228	1
Bolivia	2008	dengue and dengue haemorrhagic fever	7202	27
Bolivia	2010	dengue and dengue haemorrhagic fever	25236	29
Bolivia	2018	h1n1	1428	23
Bosnia and Herzegovina	2000	hepatitis a	400	0
Botswana	1988		14618	183
Botswana	2006	diarrhoeal syndrome	22264	470
Botswana	2008	cholera	15	2
Brazil	1974		30000	1500
Brazil	1975		107	0
Brazil	1986	dengue and dengue haemorrhagic fever	34722	0
Brazil	1988		170	0
Brazil	1991	cholera	15240	196
Brazil	1995	dengue and dengue haemorrhagic fever	112939	2
Brazil	1997		25900	0
Brazil	1998	dengue and dengue haemorrhagic fever	214340	13
Brazil	1999	cholera	235	3
Brazil	2002	dengue and dengue haemorrhagic fever	317730	57
Brazil	2008	dengue and dengue haemorrhagic fever	162701	123
Brazil	2009	dengue and dengue haemorrhagic fever	126139	23
Brazil	2010	dengue and dengue haemorrhagic fever	942153	0

Brazil	2016	yellow fever	777	261
Brazil	2017	yellow fever	310	154
Burkina Faso	1969	meningitis	4550	304
Burkina Faso	1979		1612	241
Burkina Faso	1981		10013	1091
Burkina Faso	1983	yellow fever	386	237
Burkina Faso	1984		1000	0
Burkina Faso	1996		40967	4135
Burkina Faso	1997		17996	2274
Burkina Faso	1998	cholera	441	26
Burkina Faso	2001	meningitis	20820	2978
Burkina Faso	2003	meningitis	7146	1058
Burkina Faso	2004	meningitis	2783	527
Burkina Faso	2005	cholera	606	9
Burkina Faso	2006	meningitis	7402	784
Burkina Faso	2007	meningitis	20765	1490
Burkina Faso	2008	measles	53000	550
Burkina Faso	2009	meningitis	2892	389
Burkina Faso	2010	meningitis	5960	841
Burkina Faso	2017	dengue and dengue haemorrhagic fever	9029	18
Burundi	1978	cholera	1530	54
Burundi	1992		2068	220
Burundi	1997	typhus	24350	21
Burundi	1999		616434	80
Burundi	2000		730691	308
Burundi	2002		2163	87
Burundi	2003	cholera	230	6
Burundi	2011	cholera	600	12
Burundi	2016	cholera	193	1
Cabo Verde	1994	cholera	12344	245
Cabo Verde	2009	dengue and dengue haemorrhagic fever	20147	6
Cambodia	1992		380400	50
Cambodia	1997	dengue and dengue haemorrhagic fever	227	3
Cambodia	1998	dengue and dengue haemorrhagic fever	15069	490
Cambodia	1999	cholera	874	56
Cambodia	2006	dengue and dengue haemorrhagic fever	4368	0
Cambodia	2007	dengue and dengue haemorrhagic fever	17000	182
Cameroon	1988		340	39
Cameroon	1989		550	100
Cameroon	1990	yellow fever	172	118
Cameroon	1991	cholera	1343	308
Cameroon	1992		7865	731
Cameroon	1993		4070	513
Cameroon	1996	cholera	2825	378
Cameroon	1997	shigellosis	479	109
Cameroon	1998	cholera	2086	239
Cameroon	1999		105	14
Cameroon	2000	meningitis	65	22

Cameroon	2001	meningitis	542	31
Cameroon	2004	cholera	2924	46
Cameroon	2005	cholera	1400	42
Cameroon	2006	cholera	71	8
Cameroon	2009	cholera	1456	109
Cameroon	2010	cholera	7869	515
Cameroon	2011	cholera	16706	639
Cameroon	2014	cholera	2056	111
Cameroon	2015	measles	858	0
Cameroon	2018	cholera	942	57
Canada	1918	h1n1	2000000	50000
Canada	1953	poliovirus	8000	481
Canada	1991		171	18
Canada	2001	cryptosporidiosis	399	1
Canada	2002	sars	347	45
Central African Republic	1992		418	56
Central African Republic	1999		86	14
Central African Republic	2000		2572	448
Central African Republic	2001	meningitis	1473	343
Central African Republic	2002	hepatitis e	727	6
Central African Republic	2003	shigellosis	379	23
Central African Republic	2011	cholera	172	16
Central African Republic	2013	measles	63	0
Central African Republic	2016	cholera	266	21
Central African Republic	2018	hepatitis e	119	1
Central African Republic	2019	measles	3600	53
Chad	1971	cholera	7476	2312
Chad	1988		6794	433
Chad	1991	cholera	12204	1262
Chad	1996	cholera	1317	94
Chad	1997		2835	239
Chad	2000	meningitis	9673	1209
Chad	2001	cholera	3444	113
Chad	2003	cholera	131	11
Chad	2004	cholera	3567	144
Chad	2005		6000	115
Chad	2006	cholera	216	20
Chad	2008	hepatitis e	1755	22
Chad	2009	meningitis	871	102
Chad	2010	measles	5319	239
Chad	2011	cholera	18123	557
Chad	2012	meningitis	1708	88
Chad	2017	cholera	652	58
Chad	2018	measles	4227	90
Chile	1991	cholera	40	1
China	1987	rotavirus	1000	0
China	1988		2000	0
China	2002	sars	6652	369

China	2004	h5n1	9	16
China	2005	septicaemia	168	38
Colombia	1991	cholera	14137	350
Colombia	1996	cholera	3000	62
Colombia	2012	dengue and dengue haemorrhagic fever	23235	0
Colombia	2013	dengue and dengue haemorrhagic fever	1171	91
Colombia	2016	yellow fever	12	0
Colombia	2019	dengue and dengue haemorrhagic fever	79639	169
Comoros (the)	1989	typhiod	450	3
Comoros (the)	1998	cholera	3200	40
Comoros (the)	1999	cholera	140	14
Comoros (the)	2005	chikungunya	2282	0
Comoros (the)	2007	cholera	1490	29
Congo (the Dem.Rep.)	1976	ebola	262	245
Congo (the Dem.Rep.)	1996	cholera	1954	202
Congo (the Dem.Rep.)	1997	cholera	1411	54
Congo (the Dem.Rep.)	1998	cholera	13884	972
Congo (the Dem.Rep.)	1999	marburg virus	72	3
Congo (the Dem.Rep.)	2000		63	26
Congo (the Dem.Rep.)	2001	cholera	11094	838
Congo (the Dem.Rep.)	2002	h1n1	539375	2502
Congo (the Dem.Rep.)	2003	cholera	20401	786
Congo (the Dem.Rep.)	2004	typhiod	46220	406
Congo (the Dem.Rep.)	2005	cholera	4872	101
Congo (the Dem.Rep.)	2006	cholera	2986	151
Congo (the Dem.Rep.)	2007	ebola	419	172
Congo (the Dem.Rep.)	2009	cholera	15909	209
Congo (the Dem.Rep.)	2010	cholera	4342	56
Congo (the Dem.Rep.)	2011	cholera	28757	636
Congo (the Dem.Rep.)	2012	cholera	23626	608
Congo (the Dem.Rep.)	2014	ebola	17	49
Congo (the Dem.Rep.)	2016	measles	2638	55
Congo (the Dem.Rep.)	2017	cholera	1022	43
Congo (the Dem.Rep.)	2018	ebola	3454	2297
Congo (the Dem.Rep.)	2019	measles	277000	5872
Congo (the)	1997	cholera	485	83
Congo (the)	1999	cholera	99	15
Congo (the)	2001	ebola	13	19
Congo (the)	2002	ebola	15	128
Congo (the)	2003	ebola	2	29
Congo (the)	2005	ebola	2	10
Congo (the)	2006	cholera	3030	50
Congo (the)	2008	cholera	630	26
Congo (the)	2010	poliovirus	524	219
Congo (the)	2011	chikungunya	10819	65
Congo (the)	2012		57	5
Congo (the)	2013	cholera	1071	16
Congo (the)	2019	measles	208246	3819

Costa Rica	1995	dengue and dengue haemorrhagic fever	4786	0
Costa Rica	2013	dengue and dengue haemorrhagic fever	12000	3
Costa Rica	2019	dengue and dengue haemorrhagic fever	4852	0
Cuba	1993	neuromyelopathy	49358	0
Cuba	1997	dengue and dengue haemorrhagic fever	823	3
Cyprus	1996	meningitis	280	0
Côte d’Ivoire	1970	cholera	1500	120
Côte d’Ivoire	1991	cholera	50	16
Côte d’Ivoire	1995	cholera	2027	150
Côte d’Ivoire	2001	cholera	3180	196
Côte d’Ivoire	2002	cholera	861	77
Côte d’Ivoire	2005		210	40
Côte d’Ivoire	2006	cholera	451	42
Côte d’Ivoire	2007	meningitis	150	30
Côte d’Ivoire	2017	dengue and dengue haemorrhagic fever	621	2
Djibouti	1994	cholera	239	10
Djibouti	1997	cholera	827	29
Djibouti	1998		2000	43
Djibouti	2000	cholera	419	4
Djibouti	2007	cholera	562	6
Dominican Republic (the)	1995	dengue and dengue haemorrhagic fever	1252	2
Dominican Republic (the)	2009	dengue and dengue haemorrhagic fever	3270	25
Dominican Republic (the)	2010	cholera	17321	130
Dominican Republic (the)	2011	cholera	220	1
Dominican Republic (the)	2012	cholera	26090	167
Dominican Republic (the)	2019	dengue and dengue haemorrhagic fever	16907	34
Ecuador	1967	poliovirus	528	36
Ecuador	1969	encephalitis syndrome (aes)	40000	400
Ecuador	1977	typhiod	300	0
Ecuador	1991	cholera	15131	343
Ecuador	1995	dengue and dengue haemorrhagic fever	3399	0
Ecuador	1998	cholera	11	1
Ecuador	2000		100220	8
Ecuador	2002	unknown	100	0
Ecuador	2010	dengue and dengue haemorrhagic fever	4000	4
Ecuador	2012	dengue and dengue haemorrhagic fever	6967	11
Egypt	2004	hepatitis a	143	15
El Salvador	1969	encephalitis syndrome (aes)	19	12
El Salvador	1991	cholera	5625	155
El Salvador	1992	cholera	350	0
El Salvador	1995	dengue and dengue haemorrhagic fever	9296	5
El Salvador	1998	dengue and dengue haemorrhagic fever	1670	0
El Salvador	2000	dengue and dengue haemorrhagic fever	211	24
El Salvador	2002	dengue and dengue haemorrhagic fever	2399	6
El Salvador	2003	pneumonia	50000	304
El Salvador	2009	dengue and dengue haemorrhagic fever	4598	7
El Salvador	2014	dengue and dengue haemorrhagic fever	12783	4
El Salvador	2019	dengue and dengue haemorrhagic fever	16573	5

Equatorial Guinea	2004		946	15
Ethiopia	1970	cholera	4000	500
Ethiopia	1980	dysentery	25000	157
Ethiopia	1981		50000	990
Ethiopia	1985	cholera	4815	1101
Ethiopia	1988		41304	7400
Ethiopia	1999		276	9
Ethiopia	2000	meningitis	7033	371
Ethiopia	2001	meningitis	8166	429
Ethiopia	2005		964	74
Ethiopia	2006	diarrhoeal syndrome	32848	351
Ethiopia	2008	diarrhoeal syndrome	3134	20
Ethiopia	2009	cholera	13652	135
Ethiopia	2010	diarrhoeal syndrome	967	16
Ethiopia	2013	yellow fever	288	110
Ethiopia	2018	measles	4000	0
Ethiopia	2019	cholera	1916	39
Fiji	2019	measles	14	0
France	2002	sars	6	1
Gabon	1988	cholera	132	0
Gabon	1996	ebola	15	45
Gabon	2001	ebola	10	50
Gabon	2004	typhiod	100	1
Gabon	2007	chikungunya	17900	0
Gabon	2010	chikungunya	551	0
Gambia (the)	1997		793	120
Gambia (the)	2000	meningitis	116	21
Germany	2002		609	0
Ghana	1977	cholera	6558	0
Ghana	1984		1500	103
Ghana	1988		138	15
Ghana	1989		19	0
Ghana	1996		3757	411
Ghana	1997		159	26
Ghana	1998	cholera	1546	67
Ghana	1999	diarrhoeal syndrome	1196	24
Ghana	2001		1141	12
Ghana	2005	cholera	2248	40
Ghana	2010	meningitis	100	27
Ghana	2011	cholera	10002	101
Ghana	2012	cholera	5441	76
Ghana	2013	cholera	560	18
Ghana	2014	cholera	56469	249
Ghana	2015	meningitis	465	85
Ghana	2016	cholera	172	0
Guatemala	1969	encephalitis syndrome (aes)	8	4
Guatemala	1991	cholera	26800	180
Guatemala	1995	dengue and dengue haemorrhagic fever	3402	0

Guatemala	1998	cholera	1345	17
Guatemala	2002	dengue and dengue haemorrhagic fever	2042	1
Guatemala	2013	dengue and dengue haemorrhagic fever	1977	8
Guatemala	2015	chikungunya	15211	0
Guatemala	2019	dengue and dengue haemorrhagic fever	6264	17
Guinea	1987		30	18
Guinea	1999	cholera	123	12
Guinea	2000	yellow fever	322	190
Guinea	2001	cholera	143	12
Guinea	2002		123	23
Guinea	2003	yellow fever	43	24
Guinea	2006	cholera	298	129
Guinea	2007	cholera	2410	90
Guinea	2012	cholera	5523	105
Guinea	2013	measles	143	0
Guinea	2014	ebola	3814	2544
Guinea	2017	measles	122	0
Guinea-Bissau	1987	cholera	6000	68
Guinea-Bissau	1996	cholera	26967	961
Guinea-Bissau	1997	cholera	22299	781
Guinea-Bissau	1999		2169	404
Guinea-Bissau	2008	cholera	14004	221
Haiti	1963		2724	0
Haiti	2003	typhiod	200	40
Haiti	2010	cholera	513997	6908
Haiti	2012	cholera	5817	50
Haiti	2014	chikungunya	39343	0
Haiti	2015	cholera	20000	170
Haiti	2016	cholera	6096	0
Honduras	1965	poliovirus	170	7
Honduras	1995	dengue and dengue haemorrhagic fever	15998	5
Honduras	1998	cholera	2452	17
Honduras	2002	dengue and dengue haemorrhagic fever	4530	8
Honduras	2009	dengue and dengue haemorrhagic fever	11771	7
Honduras	2010	dengue and dengue haemorrhagic fever	27000	67
Honduras	2013	dengue and dengue haemorrhagic fever	34128	27
Honduras	2019	dengue and dengue haemorrhagic fever	71216	128
Hong Kong	2002	sars	1456	299
India	1967		13576	3029
India	1977	cholera	9091	0
India	1978		1000	48
India	1984	dysentery	27000	3290
India	1985		6589	854
India	1986		11600	265
India	1990	diarrhoeal syndrome	18000	90
India	1994	pneumonia	5150	53
India	1996	dengue and dengue haemorrhagic fever	8423	354
India	1997		890	80

India	1998	cholera	15238	807
India	1999		79504	281
India	2000		1851	191
India	2001	cholera	58889	89
India	2002		5153	50
India	2003	dengue and dengue haemorrhagic fever	2185	0
India	2005	chikungunya	155813	640
India	2009	encephalitis syndrome (aes)	1521	311
India	2019	dengue and dengue haemorrhagic fever	1318	121
Indonesia	1968	bubonic	94	40
Indonesia	1977	cholera	29942	37
Indonesia	1978	cholera	70	11
Indonesia	1982	cholera	200	39
Indonesia	1984		4000	105
Indonesia	1986		500700	59
Indonesia	1991		15000	170
Indonesia	1996	dengue and dengue haemorrhagic fever	5373	117
Indonesia	1998	dengue and dengue haemorrhagic fever	32665	777
Indonesia	1999	dengue and dengue haemorrhagic fever	4645	56
Indonesia	2000	dengue and dengue haemorrhagic fever	1719	25
Indonesia	2002	shigellosis	759	17
Indonesia	2004	dengue and dengue haemorrhagic fever	58322	745
Indonesia	2005	poliovirus	329	0
Indonesia	2007	dengue and dengue haemorrhagic fever	35211	403
Iran (Islamic Republic of)	1965	cholera	2500	288
Iraq	1978	cholera	51	1
Iraq	1997		185	0
Iraq	2007	cholera	4696	24
Iraq	2008	cholera	892	11
Iraq	2015	cholera	2217	0
Ireland	2000		1374	2
Ireland	2002	sars	1	0
Israel	2000	west nile fever	139	12
Italy	2002		10001	3
Jamaica	1990	typhiod	300	0
Jamaica	2006		280	3
Japan	1977	cholera	74	1
Japan	1978	h1n1	2000000	0
Japan	1997	campylobacter	460	0
Jordan	1981	cholera	715	4
Kazakhstan	1998		593	7
Kazakhstan	1999	typhus	166	0
Kazakhstan	2000	typhus	114	0
Kenya	1991		200	26
Kenya	1994		6500000	1000
Kenya	1997	cholera	33036	932
Kenya	1998	cholera	1025	27
Kenya	1999		329570	1814

Kenya	2000	cholera	721	50
Kenya	2001		743	40
Kenya	2004		141	8
Kenya	2005		1645	53
Kenya	2006	rift valley fever	588	170
Kenya	2009	cholera	10446	251
Kenya	2010	cholera	3880	57
Kenya	2014	cholera	3459	72
Kenya	2017	cholera	4421	76
Kenya	2019	cholera	3847	26
Korea (the Republic of)	1969	cholera	1538	137
Korea (the Republic of)	1998	shigellosis	350	0
Korea (the Republic of)	2000		39531	6
Korea (the Republic of)	2002	sars	3	0
Korea (the Republic of)	2015	mers	185	36
Kuwait	2002	sars	1	0
Kyrgyzstan	1997		336	22
Kyrgyzstan	1998	typhiod	458	0
Kyrgyzstan	2010	poliovirus	141	0
Lao People's Dem. Rep.	1987	dengue and dengue haemorrhagic fever	2000	63
Lao People's Dem. Rep.	1994	cholera	8000	500
Lao People's Dem. Rep.	1995	cholera	244	34
Lao People's Dem. Rep.	2000		9685	0
Lao People's Dem. Rep.	2013	dengue and dengue haemorrhagic fever	36000	77
Latvia	2000	diphteria	102	0
Lesotho	1974	typhiod	500	0
Lesotho	1999	dysentery	1862	28
Lesotho	2000		1834	28
Liberia	1980	cholera	1887	466
Liberia	1995	yellow fever	359	9
Liberia	1998	diarrhoeal syndrome	560	12
Liberia	2000	cholera	112	3
Liberia	2002	diarrhoeal syndrome	661	0
Liberia	2003	cholera	19418	0
Liberia	2005	cholera	674	29
Liberia	2014	ebola	10682	4810
Macao	2002	sars	1	0
Macedonia FYR	2002	unknown	200	0
Madagascar	1999	cholera	18228	981
Madagascar	2002	h1n1	21975	671
Madagascar	2008	rift valley fever	520	20
Madagascar	2009	chikungunya	702	0
Madagascar	2013	pneumonia	660	113
Madagascar	2017	plague	2384	207
Madagascar	2018	measles	98415	0
Malawi	1989		444	35
Malawi	1997		622	10
Malawi	2000	cholera	3323	83

Malawi	2001	cholera	40266	1131
Malawi	2002	cholera	773	41
Malawi	2006	cholera	852	20
Malawi	2008	cholera	5269	113
Malawi	2009	measles	11461	62
Malawi	2014	cholera	693	11
Malawi	2017	cholera	450	6
Malaysia	1968	cholera	5	2
Malaysia	1977	typhiod	50	0
Malaysia	1991	dengue and dengue haemorrhagic fever	3750	263
Malaysia	1996	dengue and dengue haemorrhagic fever	5407	13
Malaysia	1997	dengue and dengue haemorrhagic fever	21684	78
Malaysia	1998	encephalitis syndrome (aes)	160	105
Malaysia	2000	enterovirus	988	4
Malaysia	2002	sars	3	2
Maldives	1978	cholera	11258	219
Maldives	2011	dengue and dengue haemorrhagic fever	1289	4
Mali	1969		4023	513
Mali	1979		80	30
Mali	1981		4153	412
Mali	1984	cholera	4502	1022
Mali	1987	yellow fever	305	145
Mali	1988		159	47
Mali	1996	meningitis	2208	345
Mali	1997		9666	1098
Mali	2002		282	33
Mali	2003	cholera	1216	106
Mali	2005	cholera	168	43
Mali	2006		151	9
Mali	2009	meningitis	86	10
Mali	2011	cholera	1190	49
Mali	2014	ebola	7	6
Mauritania	1982		12	5
Mauritania	1987	yellow fever	178	35
Mauritania	1988	cholera	575	38
Mauritania	1998	rift valley fever	344	6
Mauritania	2005	cholera	2585	55
Mauritius	1980	typhiod	108	0
Mauritius	2005	chikungunya	2553	0
Mexico	1991	cholera	5000	52
Mexico	1995	dengue and dengue haemorrhagic fever	6525	16
Mexico	2009	dengue and dengue haemorrhagic fever	41687	0
Moldova	1999		1647	0
Mongolia	1996	cholera	108	8
Mongolia	2002	sars	9	0
Mongolia	2008	enterovirus	3151	0
Morocco	1966	meningitis	2942	200
Mozambique	1980	cholera	200	10

Mozambique	1983	cholera	5679	189
Mozambique	1990	cholera	4000	588
Mozambique	1992	cholera	225673	587
Mozambique	1997	cholera	27201	637
Mozambique	1998	cholera	2600	209
Mozambique	2000		18583	11
Mozambique	2001	cholera	611	7
Mozambique	2002	cholera	2028	17
Mozambique	2003	cholera	24134	159
Mozambique	2006	cholera	5692	27
Mozambique	2007	cholera	7547	78
Mozambique	2008	cholera	19310	155
Mozambique	2009	cholera	19776	198
Mozambique	2010	cholera	3188	44
Mozambique	2011	cholera	325	13
Mozambique	2013	cholera	317	2
Mozambique	2014	cholera	5118	43
Mozambique	2017	cholera	1799	1
Mozambique	2019	cholera	3577	0
Myanmar	1983		800	10
Namibia	2000	meningitis	58	14
Namibia	2001		12098	134
Namibia	2006	poliovirus	47	10
Namibia	2007	cholera	250	7
Namibia	2008	cholera	203	9
Namibia	2013	cholera	518	17
Nepal	1963		5000	1000
Nepal	1967	bubonic	24	17
Nepal	1982		1475	0
Nepal	1990	cholera	3800	150
Nepal	1991	diarrhoeal syndrome	45341	1334
Nepal	1992	diarrhoeal syndrome	50000	640
Nepal	1995	encephalitis syndrome (aes)	772	126
Nepal	1996	encephalitis syndrome (aes)	697	118
Nepal	1997	encephalitis syndrome (aes)	1364	84
Nepal	1998	encephalitis syndrome (aes)	300	52
Nepal	1999	encephalitis syndrome (aes)	944	150
Nepal	2000	encephalitis syndrome (aes)	592	69
Nepal	2001	diarrhoeal syndrome	242	13
Nepal	2009	diarrhoeal syndrome	58874	314
Nepal	2010	diarrhoeal syndrome	5372	73
Netherlands (the)	1999	legionellosis	200	13
New Zealand	2002	sars	1	0
Nicaragua	1967		444	53
Nicaragua	1991	cholera	381	2
Nicaragua	1995	dengue and dengue haemorrhagic fever	13406	18
Nicaragua	1998	cholera	3356	7
Nicaragua	2009	dengue and dengue haemorrhagic fever	2050	8

Nicaragua	2010	leptospirosis	395	16
Nicaragua	2013	dengue and dengue haemorrhagic fever	1310	3
Nicaragua	2019	dengue and dengue haemorrhagic fever	94513	15
Niger (the)	1969	yellow fever	5	2
Niger (the)	1970		2677	319
Niger (the)	1989		1785	186
Niger (the)	1991		90147	2842
Niger (the)	1995		63691	3022
Niger (the)	1996		10475	882
Niger (the)	1997		2156	262
Niger (the)	1999		741	49
Niger (the)	2000		1151	190
Niger (the)	2001		48067	573
Niger (the)	2002	meningitis	3306	316
Niger (the)	2003		1861	195
Niger (the)	2004		20132	154
Niger (the)	2005	cholera	387	44
Niger (the)	2006	meningitis	784	62
Niger (the)	2008	meningitis	2805	173
Niger (the)	2009	meningitis	4513	169
Niger (the)	2010	meningitis	1217	103
Niger (the)	2011	cholera	2130	48
Niger (the)	2012	cholera	4874	97
Niger (the)	2014	meningitis	1639	153
Niger (the)	2015	measles	3370	6
Niger (the)	2016	rift valley fever	78	23
Niger (the)	2017	meningitis	2390	118
Niger (the)	2018	cholera	3824	78
Nigeria	1969	yellow fever	80000	2000
Nigeria	1986	yellow fever	1400	1073
Nigeria	1987		120	100
Nigeria	1989	haemorrhagic fever syndrome	41	29
Nigeria	1991	cholera	11200	7689
Nigeria	1996	cerebro spinal	42586	5539
Nigeria	1998	acute neurological syndrome	211	39
Nigeria	1999	diarrhoeal syndrome	2977	486
Nigeria	2000	cholera	1255	87
Nigeria	2001	cholera	2636	204
Nigeria	2002	diarrhoeal syndrome	3903	229
Nigeria	2004	cholera	1897	172
Nigeria	2005		23873	619
Nigeria	2008	unknown	66	46
Nigeria	2009	meningitis	35255	1701
Nigeria	2010	cholera	43287	1872
Nigeria	2011	cholera	21382	694
Nigeria	2012	haemorrhagic fever syndrome	29	10
Nigeria	2014	cholera	36017	763
Nigeria	2015	cholera	2108	97

Nigeria	2016	meningitis	15432	1287
Nigeria	2017	cholera	1704	11
Nigeria	2018	haemorrhagic fever syndrome	1081	90
Nigeria	2019	measles	22834	98
Nigeria	2020	haemorrhagic fever syndrome	365	47
Pakistan	1968	cholera	1075	37
Pakistan	1998	cholera	9917	83
Pakistan	2000	diarrhoeal syndrome	258	14
Pakistan	2001	leishmaniasis	5000	0
Pakistan	2002	unknown	25	10
Pakistan	2004		100	2
Pakistan	2005	tetanos	111	22
Pakistan	2017	dengue and dengue haemorrhagic fever	2492	25
Pakistan	2019	dengue and dengue haemorrhagic fever	53834	95
Palestine, State of	1983		943	0
Panama	1964		1200	0
Panama	1991	cholera	2057	43
Panama	1995	dengue and dengue haemorrhagic fever	2124	1
Panama	2002	meningitis	173	0
Papua New Guinea	2001		1395	0
Papua New Guinea	2002		2215	122
Papua New Guinea	2009	h1n1	7391	192
Paraguay	1999	dengue and dengue haemorrhagic fever	2273	0
Paraguay	2006	dengue and dengue haemorrhagic fever	100000	17
Paraguay	2008	dengue and dengue haemorrhagic fever	5957	8
Paraguay	2009	dengue and dengue haemorrhagic fever	24	8
Paraguay	2010	dengue and dengue haemorrhagic fever	13681	0
Paraguay	2011	dengue and dengue haemorrhagic fever	16264	44
Paraguay	2020	dengue and dengue haemorrhagic fever	106127	20
Peru	1991	cholera	283353	1726
Peru	1997	cholera	174	1
Peru	1998	cholera	33763	16
Peru	2009	dengue and dengue haemorrhagic fever	14151	0
Peru	2010	dengue and dengue haemorrhagic fever	31703	13
Peru	2012	dengue and dengue haemorrhagic fever	20106	11
Peru	2016	yellow fever	54	26
Philippines (the)	1977		681	57
Philippines (the)	1990		200	21
Philippines (the)	1996	dengue and dengue haemorrhagic fever	1673	30
Philippines (the)	1998	dengue and dengue haemorrhagic fever	11000	202
Philippines (the)	1999	dengue and dengue haemorrhagic fever	402	10
Philippines (the)	2000	diarrhoeal syndrome	664	1
Philippines (the)	2002	sars	12	2
Philippines (the)	2004	meningitis	98	32
Philippines (the)	2010	dengue and dengue haemorrhagic fever	123939	737
Philippines (the)	2011	dengue and dengue haemorrhagic fever	7595	56
Philippines (the)	2012	cholera	3158	30
Philippines (the)	2018	dengue and dengue haemorrhagic fever	79376	519

Philippines (the)	2019	dengue and dengue haemorrhagic fever	129597	825
Romania	1996		527	0
Romania	1999		4743	0
Romania	2002	sars	1	0
Russian Federation	1995		150000	0
Russian Federation	1997	haemorrhagic fever syndrome	4538	0
Russian Federation	1999	west nile fever	765	33
Russian Federation	2000	acute jaundice syndrome	2942	0
Russian Federation	2002	sars	1	0
Rwanda	1978	cholera	2000	0
Rwanda	1991		214	32
Rwanda	1996	cholera	106	10
Rwanda	1998	cholera	2951	55
Rwanda	1999		488	76
Rwanda	2000	meningitis	164	10
Rwanda	2002	meningitis	636	83
Rwanda	2004	typhiod	540	4
Rwanda	2006	cholera	300	35
Sao Tome and Principe	1989	cholera	1063	31
Sao Tome and Principe	2005	cholera	1349	25
Saudi Arabia	2000	rift valley fever	497	133
Saudi Arabia	2001	meningitis	74	35
Senegal	1965	yellow fever	150	60
Senegal	1978	cholera	298	5
Senegal	1985	cholera	3100	300
Senegal	1995	cholera	3031	188
Senegal	1998		2709	372
Senegal	2002		181	18
Senegal	2004	cholera	861	6
Senegal	2005	cholera	23022	303
Senegal	2007	cholera	2825	16
Senegal	2014	ebola	1	0
Seychelles	2005	chikungunya	5461	0
Seychelles	2016	dengue and dengue haemorrhagic fever	253	0
Sierra Leone	1985	cholera	3000	352
Sierra Leone	1996	haemorrhagic fever syndrome	953	226
Sierra Leone	1997	h1n1	2024	51
Sierra Leone	1998	cholera	1770	55
Sierra Leone	1999	dysentery	3228	133
Sierra Leone	2001	meningitis	3	12
Sierra Leone	2003	yellow fever	90	10
Sierra Leone	2004	cholera	633	56
Sierra Leone	2008	cholera	1746	170
Sierra Leone	2012	cholera	23009	300
Sierra Leone	2014	ebola	14124	3956
Singapore	1998	encephalitis syndrome (aes)	11	1
Singapore	2000	enterovirus	2022	2
Singapore	2002	sars	205	33

Singapore	2016	dengue and dengue haemorrhagic fever	13051	0
Solomon Islands	2013	dengue and dengue haemorrhagic fever	6700	8
Solomon Islands	2016	dengue and dengue haemorrhagic fever	1212	0
Somalia	1977		2671	0
Somalia	1985	cholera	4815	1262
Somalia	1986	cholera	7093	1307
Somalia	1994		17000	100
Somalia	1996	cholera	5557	247
Somalia	1997	cholera	1044	0
Somalia	1998	cholera	14564	481
Somalia	1999	cholera	175	15
Somalia	2000	cholera	2490	244
Somalia	2001	meningitis	111	33
Somalia	2002	cholera	1191	63
Somalia	2005	poliovirus	199	0
Somalia	2006		5876	103
Somalia	2007	cholera	35687	1133
Somalia	2008	cholera	663	13
Somalia	2016	cholera	14165	497
Somalia	2017	cholera	13126	302
South Africa	2000	cholera	86107	181
South Africa	2002	cholera	13352	84
South Africa	2004	cholera	174	5
South Africa	2008	cholera	12752	65
South Sudan	2013	poliovirus	3	0
South Sudan	2014	cholera	6486	149
South Sudan	2015	cholera	1818	47
South Sudan	2016	cholera	3826	68
South Sudan	2019	measles	937	7
Spain	1997	meningitis	1383	0
Spain	2001	legionellosis	751	2
Spain	2002	sars	1	0
Sri Lanka	1967		200000	2
Sri Lanka	1977	cholera	728	0
Sri Lanka	1997	cholera	1695	36
Sri Lanka	1999		5936	1
Sri Lanka	2000	dengue and dengue haemorrhagic fever	113	2
Sri Lanka	2004	dengue and dengue haemorrhagic fever	15000	88
Sri Lanka	2009	dengue and dengue haemorrhagic fever	35007	346
Sri Lanka	2011	dengue and dengue haemorrhagic fever	26343	167
Sri Lanka	2017	dengue and dengue haemorrhagic fever	155715	320
Sri Lanka	2019	dengue and dengue haemorrhagic fever	18760	28
Sudan (the)	1940	yellow fever	15000	1500
Sudan (the)	1950		72162	0
Sudan (the)	1965		2300	0
Sudan (the)	1976	ebola	299	150
Sudan (the)	1988		38805	2770
Sudan (the)	1996	cholera	1800	700

Sudan (the)	1998	meningitis	22403	1746
Sudan (the)	1999	cholera	3959	357
Sudan (the)	2000		2363	186
Sudan (the)	2002	leishmaniasis	1281	49
Sudan (the)	2003	yellow fever	178	27
Sudan (the)	2004	hepatitis e	8114	98
Sudan (the)	2005	meningitis	7454	650
Sudan (the)	2006	cholera	28769	1142
Sudan (the)	2007	meningitis	7639	584
Sudan (the)	2008	diarrhoeal syndrome	212	15
Sudan (the)	2012	yellow fever	678	171
Sudan (the)	2016		632	19
Sudan (the)	2017	diarrhoeal syndrome	30762	657
Sudan (the)	2019	cholera	510	24
Swaziland	1992	cholera	2228	30
Swaziland	2000	cholera	1449	32
Sweden	2002	diarrhoeal syndrome	350	0
Switzerland	2002	sars	1	0
Syrian Arab Rep.	1977	cholera	4165	88
Taiwan (Prov. of China)	1998	encephalitis syndrome (aes)	250000	54
Taiwan (Prov. of China)	2002	sars	309	37
Tajikistan	1996	typhiod	7516	0
Tajikistan	1997	typhiod	15618	168
Tajikistan	1999	typhiod	200	3
Tajikistan	2003	typhiod	256	0
Tajikistan	2010	poliovirus	456	21
Tanzania	1977	cholera	6050	500
Tanzania	1985	bubonic	118	10
Tanzania	1987	cholera	500	90
Tanzania	1991		1733	284
Tanzania	1992	cholera	40249	2231
Tanzania	1997	cholera	42350	2329
Tanzania	1998	cholera	40677	2461
Tanzania	1999	diarrhoeal syndrome	529	56
Tanzania	2000		898	37
Tanzania	2001	diarrhoeal syndrome	515	25
Tanzania	2002	meningitis	149	9
Tanzania	2005	cholera	576	6
Tanzania	2006	cholera	1410	70
Tanzania	2007	rift valley fever	284	119
Tanzania	2009	cholera	600	12
Tanzania	2015	cholera	37712	582
Tanzania	2019	cholera	216	3
Thailand	1977	cholera	2800	100
Thailand	2000		1946	89
Thailand	2002	sars	7	2
Thailand	2003	h5n1	4	7
Thailand	2004	h5n1	8	14

Thailand	2010	dengue and dengue haemorrhagic fever	880	2
Thailand	2011	dengue and dengue haemorrhagic fever	37728	27
Timor-Leste	2005	dengue and dengue haemorrhagic fever	336	22
Timor-Leste	2014	dengue and dengue haemorrhagic fever	197	2
Togo	1988		1617	50
Togo	1996		2619	360
Togo	1998	cholera	3669	239
Togo	2001	meningitis	1567	235
Togo	2002		494	95
Togo	2003	cholera	790	40
Togo	2008	cholera	686	6
Togo	2010	meningitis	236	60
Togo	2013	cholera	168	7
Togo	2015	meningitis	324	24
Turkey	1964		2500	19
Turkey	1965		100000	461
Turkey	1968	poliovirus	1975	98
Turkey	1977		100000	0
Turkey	1987	cholera	150	11
Turkey	2004	h5n1	8	4
Turkey	2006	haemorrhagic fever syndrome	222	20
Uganda	1982	plague	153	3
Uganda	1986	plague	340	27
Uganda	1989	meningitis	961	156
Uganda	1990	meningitis	1170	197
Uganda	1997	o'nyongnyong fever	100300	0
Uganda	1998	cholera	600	30
Uganda	1999	cholera	2205	122
Uganda	2000	ebola	723	259
Uganda	2001		9	14
Uganda	2003	cholera	242	35
Uganda	2004	cholera	53	3
Uganda	2005	cholera	726	21
Uganda	2006	meningitis	5702	203
Uganda	2007	hepatitis e	5937	132
Uganda	2008	cholera	388	28
Uganda	2009	cholera	544	17
Uganda	2010	yellow fever	190	48
Uganda	2012	cholera	5980	156
Uganda	2013	cholera	218497	28
Uganda	2018	cholera	1000	31
Ukraine	1994	cholera	1333	71
Ukraine	1995		5336	204
Ukraine	1997		102	0
United Kingdom	1984	salmonella	16	26
United Kingdom	1985	legionellosis	144	34
United Kingdom	2001	meningitis	30	11
United Kingdom	2002	sars	4	0

USA	1990	encephalitis syndrome (aes)	50	3
USA	1993	cryptosporidiosis	403000	100
USA	2002	west nile fever	3653	214
Uzbekistan	1998		148	40
Venezuela	1990	dengue and dengue haemorrhagic fever	9506	74
Venezuela	1991	cholera	967	18
Venezuela	1995	dengue and dengue haemorrhagic fever	32280	0
Venezuela	2010	cholera	118	0
Viet Nam	1964	cholera	10848	598
Viet Nam	1996	dengue and dengue haemorrhagic fever	9706	45
Viet Nam	1998	dengue and dengue haemorrhagic fever	8000	214
Viet Nam	2002	sars	58	5
Viet Nam	2003	h5n1	8	15
Viet Nam	2004	h5n1	51	42
Viet Nam	2005	acute neurological syndrome	83	16
Viet Nam	2016	dengue and dengue haemorrhagic fever	79204	27
Yemen	2000	rift valley fever	289	32
Yemen	2005	poliovirus	179	0
Yemen	2015		3026	3
Yemen	2016	cholera	180	11
Yemen	2017	diphteria	298	35
Yemen	2019	cholera	521028	932
Zambia	1990	yellow fever	667	85
Zambia	1991	cholera	13154	0
Zambia	1992	cholera	11659	0
Zambia	1999	cholera	13083	462
Zambia	2000	cholera	1224	163
Zambia	2001	plague	425	11
Zambia	2003	cholera	3835	179
Zambia	2005	cholera	7615	21
Zambia	2006	cholera	105	5
Zambia	2007	cholera	115	5
Zambia	2008	cholera	8312	173
Zambia	2009	cholera	5198	87
Zambia	2012	cholera	153	2
Zambia	2017	cholera	4371	89
Zimbabwe	1992	cholera	5649	258
Zimbabwe	1996		500000	1311
Zimbabwe	1998	cholera	377	22
Zimbabwe	1999	cholera	462	52
Zimbabwe	2000	cholera	2812	112
Zimbabwe	2002	cholera	452	4
Zimbabwe	2003	cholera	750	40
Zimbabwe	2005	cholera	1183	87
Zimbabwe	2007		10000	67
Zimbabwe	2008	cholera	98349	4276
Zimbabwe	2009	measles	1346	55
Zimbabwe	2010	typhiod	258	8

Zimbabwe	2011	cholera	1140	45
Zimbabwe	2014	cholera	11	0
Zimbabwe	2018	typhiod	5164	12

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