DISCUSSION PAPER SERIES

DP15410
(v. 2)

Civil Liberties in Times of Crisis

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DEVELOPMENT ECONOMICS

PUBLIC ECONOMICS

CEPR

ISSN 0265-8003

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Discussion Paper DP15410
First Published 28 October 2020
This Revision 25 July 2021

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Abstract

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JEL Classification: N/A

Keywords: liberties, redistribution, cross-country surveys, Experiment, Public health

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CIVIL LIBERTIES IN TIMES OF CRISIS[1]

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Abstract

Major crises — from terrorist attacks to outbreaks of disease — bring the trade-off between individual civil liberties and national security or well-being into sharp relief. In this paper, we study to what extent individual preferences for protecting rights and civil liberties are elastic to health insecurity. We design and conduct representative surveys involving approximately 550,000 responses across 15 countries, including China and the United States, during many months of the COVID-19 pandemic, from March 2020 until January 2021. We document significant heterogeneity across countries and demographic groups in willingness to sacrifice rights for public welfare. Citizens disadvantaged by income, education, or race are less willing to sacrifice rights than their more advantaged peers in every country, as are those with prior experience in communist regimes. Leveraging naturally-occurring variation as well as experimental approaches, we estimate that a one standard deviation increase in health security concerns increases willingness to sacrifice civil liberties by approximately 72%-92% of the difference between the average Chinese and U.S. citizen. Stated preferences correlate with observed behavior including demand for tracing apps, donations, and petitions.

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I Introduction

The notion that humans have natural, inalienable rights is the foundation of liberal democracies (Locke 1690; Mill 1859; Rawls 1971). A defining feature of liberal democracies is their respect for and protection of civil liberties — such as due process, freedom of speech, and the right to privacy.[1] Indeed, in liberal democracies, civil liberties are so fundamental that political philosophers sometimes consider them as "sacred values," i.e., "goods" or rights that should not be subject to comparisons or trade-offs (e.g., Aberle et al. 1950; Radcliffe-Brown 1952; Fiske and Tetlock 1997; Tetlock et al. 2000; Tetlock 2003).

Yet when societies confront major crises — from terrorist attacks or devastating natural disasters to outbreaks of disease — trade-offs between individual civil liberties and security become stark. What are citizens willing to sacrifice, and what are they steadfast in supporting no matter what the circumstance? How does this vary across countries, between individuals within countries, and over time? How do threats to health security affect this trade-off, and what does variation in the willingness to sacrifice rights across groups reveal about social inequality?

The global COVID-19 pandemic provides a singular opportunity to answer these questions. Over the time period of our analysis, beginning three months after the new coronavirus was first identified, governments lacked an effective technological fix such as a vaccine or therapeutic. Countries were fighting a common enemy with a limited set of tools that involved regulations on movement, privacy, assembly, and other behaviors. Moreover, it quickly became clear that not all citizens were at equal risk of succumbing to severe disease: epidemiological and medical risk factors clearly mattered. These features of the pandemic allow us to describe the views of citizens around the world concerning a feasible set of restrictions on civil liberties and identify the elasticity in willingness to sacrifice rights in response to health insecurity.

To do so, we conducted two large-scale online surveys with questions designed to specifically capture the relevant trade-off. The first is a longitudinal survey including over half a million responses from about 300,000 unique respondents across 13 countries for each week during eleven months of the pandemic (March 2020 to January 2021). The second is an in-depth cross-sectional survey covering over 13,000 respondents across seven countries between late March and mid-April

[1] Civil liberties, as defined by the International Covenant on Civil and Political Rights, respect individuals' right to life, self-determination, the right to privacy, free movement, free speech, worship, and procedural fairness.

2020. The two instruments are complementary. The longitudinal instrument has greater "breadth" — approximately 1,000 respondents each week were included from each country, with responses collected from individuals in Australia, Canada, France, Germany, India, Italy, Japan, the Netherlands, Singapore, Spain, Sweden, the United Kingdom, and the United States. The data include sociodemographic information on age, sex, income, education, race (in the United States), political affiliation (in the United Kingdom and the United States), and self-reported behaviors and perceived risks associated with COVID-19. Importantly, they also include our core civil liberties trade-off questions, described below. The high frequency and extended time period allow us to explore the evolution of the trade-off over time and across geographies.

Our in-depth survey was fielded in seven countries (China, France, Germany, Italy, South Korea, the United Kingdom, and the United States) chosen to represent a range of systems of government from liberal democratic to autocratic, with varying levels of collectivism and at different points on the epidemic curve early on in the pandemic. We included a module on subjective beliefs about pandemic risk and pertinent medical history after collecting sociodemographic characteristics. In addition, we embedded a randomized experiment which provided information on the public health consequences of unchecked COVID-19 to one-half of the respondents.

One of our contributions is the real-time development of questions focused on the trade-off between civil liberties and societal well-being, deployed simultaneously across multiple countries. The questions were asked in two formats: "lives saved" and "willingness to sacrifice." We assessed understanding and validated the content of the questions with revealed preference measures collected contemporaneously with the survey, including downloading a tracing app. In addition, we developed a cross-validation survey subsequent to our major data collection efforts to provide further evidence on the mapping between survey response and behavior, as well as to confirm that the responses provided were not sensitive to the scale chosen in the initial analysis. The questions covered own and others' rights and specific domains of civil liberties such as privacy, democratic procedures, free movement, and free speech.

We first leverage our data to highlight key patterns across countries, across sociodemographic groups within countries, and over time. Across all countries, at the beginning of the pandemic, 77% of respondents state that they are willing to sacrifice civil liberties. This percentage is highest in China (83%) and lowest in Japan (42%). Furthermore, respondents across a wide range of

countries agree about the relative importance of different core civil liberties — they view respect for privacy as more important than a free press, for instance.

Turning to differences across sociodemographic groups within countries, we find that individuals disadvantaged by education, income, or race (in the United States) are less willing to sacrifice rights than more advantaged individuals. The smaller elasticity of Black Americans with respect to health insecurity may be surprising given the disproportionate impact of COVID-19 on communities of color, but is consistent with a longstanding struggle for equal rights and few substitute means for accessing political power (e.g., lobbying or donations) outside of exercising traditional democratic freedoms. This suggests that the ability to sacrifice rights in times of crisis may be better characterized as a "luxury good" than a sacred value.

We next delineate the relationship between health insecurity and civil liberties. Health insecurity is defined as a concern for own or others' health, as well as concern about health care systems being strained with a pandemic surge. Descriptively, we find that individuals who are more concerned about their health or the health of their community are more likely to be willing to sacrifice generic and specific rights as well as allow the government to infringe on the rights of others. In contrast, there is a weak relationship between civil liberties and financial insecurity.

Making use of our nearly year-long period of longitudinal data, we see that the level of perceived (and actual) health insecurity fluctuates as the virus recedes and returns. However, the elasticity (i.e., the trade-off) between health insecurity and civil liberties remains relatively constant over the time period of our analysis.

To identify whether the relationship between health insecurity and the willingness to sacrifice civil liberties is causal, we leverage both naturally-occurring and experimental variation. Each of these two complementary approaches suggests a robust relationship between health insecurity and the willingness to forego rights. For the former approach, we use our time-series data and variation induced by viral spread over time and across space. Specifically, we instrument for health insecurity using weekly COVID-19 mortality rates in a respondent's region, conditional on week and region fixed effects and controlling for plausible alternative pathways between mortality rates and outcomes of interest other than perceived health risk.[2]

[2]For instance, higher deaths could lead to greater concern over the economy and affect individuals' level of trust in their government; we thus adjust for concerns about pandemic-induced financial stress and beliefs about the effectiveness of the government. Higher deaths could also lead to more restrictive policies; we hence include a measure of

Our estimates reveal that a one standard deviation (sd) increase in health insecurity raises the willingness to sacrifice one's own rights and freedoms by a statistically significant 10.7 percentage points (pp). Results are similar for the willingness to sacrifice a free press (19.8 pp) and weaken privacy protections (13.6 pp). Our core results are robust to including country- or individual-level fixed effects. Identification in the latter specification sweeps away unobservable characteristics of individuals that may confound the relationship between health security and civil liberties.

The pandemic has been not only a health but also an economic crisis. The experimental intervention helped isolate the former channel. It focused on the public health costs of letting COVID-19 spread, explaining exponential growth and showing how social distancing and other tactics could interrupt transmission. The intervention also included photographs of overwhelmed hospitals, as well as graphics demonstrating how flattening the curve can enable a society to avoid surpassing the capacity constraints of its health care system. The information had a "first stage" effect on health-related insecurity and, conditional on health insecurity, we find no statistically significant effects on financial insecurity. This allows us to leverage the experiment to further isolate the effect of health insecurity on our outcomes of interest. Using the assignment to treatment as an instrument for health insecurity, we find results that accord with those that exploit variation in COVID-19 mortality: heightened health insecurity induced by the intervention leads to a statistically significant 17 pp increase in sacrificing own rights. Leveraging the richer set of outcomes in the in-depth survey, we also find that the experiment lowers the minimum lives needed to be saved to support tracking the sick by about 12 (off of a base of 49) and by 15 (off a base of 55) for tracking everyone. Respondents in this condition are also 15.5 pp (approx. 35%) more likely to support relaxing democratic rights and procedures.

Information experiments are sometimes seen as failing to capture actual behavior. We show that the stated preferences we collect using survey questions correlate with actions. Individuals whose health insecurity was increased upon randomization into the public health treatment were 24.1 pp (approximately 51%) more willing to download a contact tracing app. Even though this reaction may have been a short-term one, there are long-term consequences from having an app

time-varying policy stringency and the presence of a lockdown in the respondent's region during the week of the survey (Hale et al. 2021). In addition, we control for one-week lagged cumulative COVID-19 mortality, allowing us to isolate the burden from the current week and not additional mortality. Last, we control for demographic characteristics such as age, sex, income, and a college degree.

monitoring movement on a personal device. In addition, in a validation survey we conduct a year later, we find that responses to our questions correlate with signing petitions to oppose vaccine mandates and lockdowns as well as donating to privacy and free press foundations. Another common concern with information experiments is experimenter demand effects. We believe these are minimal in our case because civil liberties were only discussed *after* randomization into the intervention, and the health module was asked of *both* treatment and control groups. Moreover, we obtain similar results using naturally-occurring variation, providing further evidence that the effects are not mainly driven by experimenter demand or priming.

How do we interpret our finding that individuals are willing to sacrifice civil liberties when they perceive a threat to health? It suggests that many citizens — even in liberal democracies — do not view civil liberties as "sacred values." Rather, they pick interior solutions to the trade-off problem. Conceptually, at least two channels could contribute to a heightened willingness to trade-off civil liberties during the COVID-19 crisis. First, citizens may respond to an increase in either the objective (e.g., actual epidemic burden) or perceived (e.g., salience of the pandemic) health threats due to COVID-19, moving *along* the indifference curve between health security and civil liberties due to changes in "prices."[3] Second, the *shape* of citizens' indifference curves may be altered due to the crisis experience, resulting in a persistent change in the underlying willingness to sacrifice rights and freedoms for a given level of health security. It is worthwhile to note that even transient moves along the indifference curve could result in long-term individual and societal consequences through enduring changes to institutions and norms.

Our work contributes to understanding how crises and collective experience could shape such perceptions and underlying preferences. A series of papers study the effects on preferences of growing up in a recession (Giuliano and Spilimbergo 2014); experiencing macroeconomic shocks (Malmendier and Nagel 2011) or inequality (Roth and Wohlfart 2018); or communism (Alesina and Fuchs-Schündeln 2007). In the specific context of the COVID-19 pandemic, Rees-Jones et al. (2020) find that exposure to the pandemic leads individuals in the U.S. to view government-provided healthcare and unemployment insurance programs more favorably, whereas Marbach et al. (2020) establish a link between lockdown policies implemented from March to May 2020 in

[3]They may also be responding to changes in the perceived efficacy of restrictive public health measures (i.e., the benefits of giving up civil liberties). For a generic theoretical treatment of how security threats affect democracies, see Gratton and Lee (2020).

Europe and civic attitudes. Other papers demonstrate how the pandemic affected views of the incumbent or interacted with partisanship.[4] Many studies aim to identify which factors influence compliance with public health guidance.[5] Our goal, rather than to examine the differences in behaviors across populations, is to understand how elastic preferences for civil liberties are to health insecurity, and whether this varies across individuals, demographic groups, and a relatively long duration throughout various phases of the pandemic. Contrary to the conventional wisdom that crises may make autocratic regimes tumble (Huntington 2009; Acemoglu and Robinson 2006), crises may, in fact, strengthen such regimes as they make citizens more willing to tolerate limits on their rights and freedom.

This paper also relates to research examining the trade-off between civil liberties and other factors such as economic activity and partisanship (Acquisti et al. 2016; Graham and Svolik 2020; Svolik 2020). Similar to the work of Elias et al. (2019), we find that many people are willing to engage in trade-offs even when "sacred values" are considered. Finally, we build off research using online surveys and experiments to elicit people's attitudes and views on a range of policy and fairness issues (Charité et al. 2015; Kuziemko et al. 2015; Fisman et al. 2018; Weinzierl 2014, 2017). We are able to study a very large sample over a long period of time during an unprecedented global crisis, and thus use our experimental survey specifically to complement our analysis exploiting naturally-occurring variation and descriptive work.

The paper proceeds as follows. In Section II, we describe our three surveys, main outcomes, and measures of health insecurity. In Section III, we discuss descriptive evidence. We then present results from our two empirical strategies in Section IV. Finally, we conclude with a discussion on potential normative implications of our results.

II Data Collection

Our analysis relies on two main datasets. The first is from a longitudinal survey that ran weekly from March 2020 to January 2021 (the *longitudinal survey*). The second is from an in-depth survey

[4]See Amat et al. (2020); Arceneaux et al. (2020); and Bol et al. (2020). The voters' responses to strict public health measures during COVID-19 are also reflected in differential policy choices when incumbents face re-election during the pandemic, as documented by Pulejo and Querubín (2020). Campante et al. (2020) examine how public health related fears associated with Ebola outbreaks could generate substantial political consequences in the U.S.

[5]See, among others, Allcott et al. (2020); Bargain and Aminjonov (2020); Barrios et al. (2020); Bazzi et al. (2020); Besley and Dray (2020); Bursztyn et al. (2020); Gitmez et al. (2020); and Simonov et al. (2020).

administered between late March and mid-April 2020 (the *in-depth survey*). Together, they contain about 550,000 survey responses from 15 countries.

The longitudinal and in-depth surveys complement each other and offer different features to exploit in the empirical analysis. The former is shorter but has wide geographic and temporal coverage that can be used for the identification of effects of interest. The latter focused on fewer countries and a briefer time period but allows us to ask detailed questions to understand mechanisms at play and to include an information-provision experiment for further identification. We discuss each survey in detail below. We complement these two surveys with an incentivized experiment to show that our self-reported primary outcome measures are highly correlated with actual behavior (see Section II.B).[6]

The Longitudinal Survey Our longitudinal survey is part of a weekly, multi-country consumer-sentiment survey designed and administered in response to the COVID-19 outbreak by a consumer-research company, Dynata. The survey asked respondents questions related to their concerns and consumption behaviors during the pandemic. Starting on March 30, 2020, we added questions designed by us to this survey (see Section II.B).

The longitudinal survey data contains 534,657 survey responses. Each week, approximately 1,000 respondents were sampled from each of the following 13 countries: Australia, Canada, France, Germany, India, Italy, Japan, the Netherlands, Singapore, Spain, Sweden, the United Kingdom, and the United States.[7] The sample was built by Dynata's weekly consumer-trend survey infrastructure to be representative by age, gender, and region of residence (see Online Appendix Table A.1 for sample summary statistics). Respondents could be sampled multiple times across different weeks; 26.9% of survey respondents were sampled at least twice. We compare the characteristics of our samples for each country to population-wide data in Appendix Table A.2. Our sample is representative along most dimensions.

The In-depth Survey Our in-depth cross-sectional survey features a total of 13,352 respondents and was fielded between March 30 and April 18, 2020 in seven countries: China, France, Ger-

[6]Our analysis also includes ancillary data sources on daily COVID-19 mortality at the regional level, policy restrictions to contain COVID-19, and population statistics described in the Appendix.

[7]The Swedish sample starts only in mid-May 2020.

many, Italy, South Korea, the United Kingdom, and the United States.[8] The survey contained an information-provision experiment, as well as modules eliciting demographic characteristics, health-related behaviors during the COVID-19 pandemic, and outcomes. The in-depth sample characteristics are compared to population characteristics of each country in Appendix Table A.3 and show that our sample is, again, broadly representative along several dimensions.

The goal of the information-provision experiment was to help a randomly-assigned subset of respondents better understand the exponential nature of disease transmission, the consequences that such exponential growth poses to a healthcare system that cannot adjust at the same rate, and the justification for policies aimed at flattening the epidemic curve. The rationale for providing such information is the well-documented finding that people tend to suffer from exponential growth bias: a systematic underestimation of the growth rate of exponential curves.[9] In the context of a pandemic, exponential growth bias should cause people to underestimate the threat that an exponentially-spreading disease poses to the healthcare system. Therefore, we expected the information provided in our treatment to induce the average participant to perceive higher health risk — both to herself and to others — from COVID-19.[10]

The survey was structured as follows. After answering a set of questions about demographics and baseline health-related behaviors, participants were randomized in equal proportions into a treatment and a control group.[11] Participants assigned to the treatment group were shown screens containing the following information: (*i*) a simple graphical explanation of exponential disease spread (see Online Appendix Figure B.1); (*ii*) a description of the threat posed by an exponentially-growing disease to a system with limited hospital capacity (see Online Appendix Figure B.2); and (*iii*) a description of how public health measures can reduce the burden on the healthcare system (see Online Appendix Figures B.3, B.4 and B.5). The full treatment script can be found in Online

[8]The survey was translated into five different languages by native speakers. Further details on the survey sampling and recruitment can be found in Online Appendix D.

[9]Most of the findings on exponential growth bias come from the finance literature, which studies people's (mis)perceptions of exponential growth in the context of compound interest. See, for instance, Wagenaar and Sagaria (1975); Eisenstein and Hoch (2007); Stango and Zinman (2009); Almenberg and Gerdes (2012); and Levy and Tasoff (2016).

[10]Another approach would be to inform study participants of their personalized medical risk for contracting or dying from the virus or the case prevalence in their local area. However, considerable uncertainty was associated with all such estimates at the beginning of the pandemic due to the novelty of the disease and widespread lack of testing. In addition, updating individuals who might have believed themselves at high-risk to low-risk status might have led to risk compensating behavior imposing a negative externality on the broader society.

[11]Participants from China were not randomized into treatment because public health information was essentially irrelevant at the time of the survey as China had contained the COVID-19 outbreak and the new caseload remained low.

Appendix C.[12] Participants in the control group were not given such information.[13]

Following the treatment module, we elicited participants' perceptions of health insecurity and our primary outcome measures, described below.

II.A Measuring Health Insecurity

An important issue is how to best measure health insecurity. We take a broad approach, defining health insecurity as concerns over own or others' health due to COVID-19, as well as about their healthcare system's ability to cope with pandemic-induced strain.

As the longitudinal and in-depth surveys include separate, non-overlapping health modules (the former was designed by the consumer-research company and the latter by us), we use similar but not identical measures of health insecurity for the two surveys. In the longitudinal survey, health insecurity is measured as the average over responses to three questions asking participants how worried they were about: i) their own health, ii) the health of the elderly in the community, and iii) the healthcare system's ability to cope with strain caused by the pandemic. In the in-depth survey, health insecurity is measured as the average level of agreement with two statements: i) COVID-19 is a threat to the health and lives of people in the country, and ii) the country does not have sufficient hospital capacity and medical equipment to deal with a massive virus outbreak. Despite these non-identical health insecurity measures, our results are qualitatively and quantitatively consistent, corroborating the underlying relationship between health insecurity and attitudes towards civil liberties.

Our health insecurity measure is strongly associated with self-reported disease avoidance and social distancing behaviors. As shown in Online Appendix Figure B.6, respondents who exhibit stronger health-related concerns are substantially more likely to wash hands frequently, avoid going to restaurants, and stay at home for work.

[12] Assignment to the treatment and control conditions is balanced across demographic characteristics. Online Appendix Table A.4 presents the balance tests among respondents in the treatment and control groups. Online Appendix Table A.5 shows little attrition overall and little differential attrition across treatment arms.

[13] In an earlier version of this manuscript, we also included results from a second experiment where we emphasized the potential erosion of rights. We omit those results herein to maintain focus on the relationship between health insecurity and rights.

II.B Outcomes

Our primary outcomes rely on survey questions that elicit participants' views of the trade-off between civil liberties and improved public health conditions. We experimentally validate these questions, as described at the end of this section.

The questions that appear in both the longitudinal and the in-depth survey focus on the extent to which respondents agreed with a set of statements regarding the trade-off between civil liberties and public health. For instance, one of the statements read: "I am willing to relax privacy protections and let the government access my personal data during a crisis like the current one, in order to allow the government to make timely and accurate decisions." Participants stated their levels of agreement on a scale from 0 to 10, where 0 indicates complete disagreement and 10 represents complete agreement. The full set of statements is displayed in Table I. Participants in the in-depth survey were shown all the statements described in Table I. Each participant in the longitudinal survey was only shown two of the statements: statement 1 and a randomly chosen statement among the remaining ones.[14] Participants in both surveys were also asked to report on a scale from 0 to 10 the extent to which they worried that the rights and freedom forgone during the COVID-19 pandemic would not be restored after the end of the pandemic.

The in-depth survey allowed us to ask additional questions. One set of questions showed participants various possible interventions aimed at curtailing the spread of COVID-19 and asked them how effective those policies would have to be in order for them to tolerate the associated civil liberties restrictions. Specifically, for each intervention, participants reported the minimum number of lives — out of every 100 people in their country who would have otherwise died due to COVID-19 — that the policy would need to save in order for them to support it. One example question read: "During the epidemic, the government can track smartphone locations and social contact data of the citizens who tested positive for COVID-19." Table II lists the full set of policies participants were asked to evaluate. Note that for many questions, there are more stringent and less stringent conditions (e.g., "the government recommends citizens do not leave their homes" versus "the gov-

[14] In our main tables, we dichotomize these outcomes by coding values larger than 5 as 1 (i.e. willing to sacrifice) and 0 otherwise. This allows us to reduce measurement error and to interpret our treatment effects as increasing or decreasing the fraction of participants willing to give up a certain civil liberty for the sake of improved public health outcomes. Results using the original scale are provided in Online Appendix Tables A.6 and A.7.

ernment arrests citizens who are outside their homes").[15] Another set of questions that appears only in the in-depth survey was taken from the World Value Survey (WVS) and asked participants to report whether they think governance should be delegated to experts, the extent to which they believe their country needs a strong national leader, and their overall support for democratic political systems.[16] We also elicited a revealed-preference measure of privacy-related worries during the pandemic by asking participants whether they wanted to receive a link to download a contact tracing app.[17]

To mitigate concerns about multiple hypothesis testing, the analysis of the in-depth survey groups related outcome variables into families and summarizes them into inverse-covariance-weighted indices (Anderson 2008), with variables oriented in a consistent direction. The families include overall rights and freedoms, protection of privacy, democratic rights and institutions, and rights to movement.

Validation of Primary Outcomes — We validated our primary outcome measures using an incentivized experiment on a separate sample. The validation study is presented in more detail in Online Appendix D.III.

These additional data enable us to relate some of the primary outcomes from our in-depth and longitudinal surveys to incentivized decisions regarding charitable donations and petitions. Regarding donations, we informed respondents that a randomly selected participant would get to decide whether or not to donate $1,000 of the researchers' funds to a not-for-profit organization involved in the protection of civil liberties in the context of the COVID-19 pandemic. For each of the following not-for-profit organizations — Privacy International, Reporters Without Borders, and Freedom House — each participant had to choose whether to donate the $1,000 to the non-profit or whether to leave the funds in the research team's account. With respect to petitions, we asked subjects whether they wanted the research team to disseminate various COVID-19-related

[15] One might worry that the formulation of the question, which does not fix participants' beliefs about the total number of people that would have died in their country due to COVID-19 in the absence of the policy, might make it hard to compare answers across people who might have different beliefs about the mortality rate of COVID-19. In our validation study discussed below, we included two versions of the lives-saved questions: one that, as above, does not fix participants' beliefs about the total number of people that would die because of COVID-19 in the absence of the policy, and one that does. The average correlation between the answers to the two different question formulations is 0.76 (Online Appendix Table A.8).

[16] Some of the questions regarding democracy were not asked in China because of their sensitive nature.

[17] Link to the app: https://privatekit.mit.edu/.

petitions that advocate for civil liberties protections to ten people via advertisements on social media. The first petition demanded that the government not mandate vaccinations, the second demanded that the government not impose curfews during the pandemic, and the third demanded that the government not impose lockdowns during the pandemic. All three petitions were active on Change.org at the time in which respondents took the survey.[18]

We find that the self-reported measures obtained using the questions from our in-depth and longitudinal surveys and the incentivized behaviors in charitable donation and petition choices are highly correlated (see Online Appendix Table A.9).

III Health Insecurities and Civil Liberties Trade-offs Across Countries and People

We begin by providing descriptive evidence on how people navigate the trade-offs between health insecurity and civil liberties. Moving from the macro- to the micro-level, we first analyze overall patterns across countries and then differences across demographic groups and individual characteristics.

III.A Distinct Levels of Trade-offs across Countries

Figure I shows the fraction of respondents by country who are *unwilling* to sacrifice civil liberties in times of crises such as the one caused by COVID-19. As a benchmark, the United States average is shown as the dashed vertical line.

We observe substantial differences across countries. In the top left panel, approximately 40% of respondents in the United States are unwilling to sacrifice their own (general) rights even during a time of major crisis. This share is over twice as high as among respondents from China, where only about 17% of the respondents are unwilling to sacrifice their own rights and freedom. We use the U.S.-China gap as a benchmark to interpret the magnitudes presented in later sections of the paper. Relative to the United States, a smaller share of respondents in the Netherlands, Germany, France, the United Kingdom, Spain, Italy, India, Canada, and Australia are unwilling to

[18]Change.org is a website with more than 265 million users that offers individuals the possibility to create and promote petitions (Change.org 2018). If a sufficient number of signatures is collected for a particular petition, the petition is taken to a decision-maker (e.g., a politician) in the hope of starting a discussion that might lead to policy changes.

sacrifice their own rights; a larger share of respondents in Sweden and Japan is unwilling to do so. Clearly, interpreting cross-country differences is difficult, not the least because different responses may reflect institutional characteristics (e.g., pre-crisis level of civil liberties), diverse populations and their attitudes, or respondents' differential response to the COVID-19 crisis. Nevertheless, we observe similar cross-country differences across the other dimensions of civil liberties that we elicit, and they appear to be ranked in a similar way across countries in terms of respondents' willingness to forego them.

III.B Patterns Within Countries

Within countries, our major finding is a consistent and robust negative relationship between relative economic and social disadvantage and willingness to sacrifice rights. Figure II shows that individuals from less advantaged groups are *less* willing to sacrifice rights than their more advantaged peers. Those who are in the bottom 25th percentile of income are 14 pp less willing to sacrifice their rights compared to those who are in the top 25th percentile of the income distribution. Respondents without a college diploma are 7 pp less willing than college-educated respondents. In Online Appendix Figure B.7, we show that these findings are not driven by differences in *perceived* health insecurity, as similar results are found even when controlling for such perceptions.

These patterns can be seen at different points in time of the pandemic as well. Focusing on the income dimension, Figure III shows the willingness to sacrifice rights month-by-income for individuals above and below their nation's median income, conditional on age and sex for each country. Within all countries, lower-income individuals are less willing to sacrifice their rights.[19]

In the United States, respondents who identify as Black are 8 pp less willing to sacrifice their rights than those identifying as white. The notion that Black Americans are reluctant to sacrifice rights is consistent with their long struggle for such freedoms and an intuitive understanding of the dangers of foregoing civil liberties.[20] Furthermore, the gap between Black and white respondents' willingness to forgo rights is higher when health insecurity is higher (see Online Appendix Figure B.8).

Political attributes also affects respondents' attitudes over the extent to which they are willing

[19] In Spain, the divergence does not appear until the last time period.

[20] Indeed, a historiography documents how Black Americans have served as a "canary in the coal mine" for potential threats to U.S. democratic institutions (Guinier et al. 2009). We thank Cornell Brooks for the reference and comments.

to sacrifice their rights, but in a more subtle manner (Rawls and Duck 2020). Respondents who have the same party affiliation as the party in power (left- *or* right-leaning) are 4 pp more willing to sacrifice their rights, suggesting that political trust plays a role in shaping such attitudes. Those who mistrust the media, on the contrary, are 5 pp less willing to give up rights. In the U.S., Democrats are much more willing to give up rights, at any level of health insecurity (see Online Appendix Figure B.8), but the partisan divide narrows as health insecurity levels increase.

We further find that within countries with strong existing civil liberties protections, the tendency to hold onto rights such as privacy protection is *stronger* among those individuals who have been exposed to regimes where citizens had limited freedom and rights. Among respondents from South Korea, those with exposure to the North Korean regime, as measured by having migrated from North Korea during the Korean War (1950-1953) or having a close family member who did, are substantially less willing to sacrifice their rights (see Figure II). Although estimates for German respondents born in the former East German regime are noisy early in the pandemic, Online Appendix Figure B.9 reveals that residents of East Germany become less willing to sacrifice rights over the course of the pandemic than West German residents.[21,22]

III.C Health Insecurity, Financial Insecurity, and Attitudes Towards Civil Liberties

The COVID-19 pandemic precipitated an economic as well as a health crisis. We investigate correlations in our longitudinal sample between health and economic worries and the willingness to trade-off civil liberties in Figure IV. Health insecurity is as defined in Section II.A, while financial insecurity in the longitudinal survey reflects concerns about the respondent's household financial position in response to the pandemic. Financial insecurity in the in-depth survey refers to the re-

[21] These findings corroborate existing evidence that shows that more general preferences for democracy are influenced by the length of time spent under democracy, such as Fuchs-Schündeln and Schündeln (2015). However, contrary to this existing work, which finds that within a country, the longer an individual has lived under a democratic system, the *stronger* the support for democracy, our findings suggest that within a democratic system, in case of a major crisis, those individuals who have lived in regimes with fewer civil liberties before tend to be *more reluctant* to curtail civil liberties. Relatedly, Schmelz (2021) finds that support for COVID-19 containment measures related to civil liberties (such as contract tracing/reduced privacy and restricted freedom of movement) drops less when comparing a voluntary compliance scenario to a strict government enforcement scenario among individuals who lived in the former GDR compared to those who did not— however, since levels of support are not reported in the paper, it does not speak to whether overall support is larger or smaller among former GDR residents.

[22] These findings – like the ones above – cannot be explained by lower perceived health insecurity among respondents from East German states and respondents with exposure to the North Korean regime (relative to their counterparts from the same country); Online Appendix Figure B.9 for Germany includes a control for perceived health risk, as does Online Appendix Figure B.7.

spondent's agreement with a statement that COVID-19 is a threat to the economy, measured by a scale of 1 (not a serious threat) to 4 (a very serious threat).

We observe a clear pattern: higher levels of health insecurity are strongly associated with a *greater* willingness to curtail civil liberties. On average, a one sd unit increase in one's health-related concerns is associated with approximately a half sd unit increase in one's willingness to sacrifice own rights, suspend democratic procedures, and forego other liberties to combat the crisis. The positive association holds virtually across all countries in the sample (see Online Appendix Figure B.10), despite the aforementioned differences in overall levels that we observe across countries.

The association between financial insecurity and one's willingness to trade-off civil liberties is more muted and nuanced. Conceptually, the trade-off between economic well-being and public health conditions is ambiguous: *a priori*, some individuals may view public health measures as obstacles for economic recovery while others may see such measures as necessary steps to safeguard economic growth. Overall, we find a slight negative correlation between financial insecurity and sacrificing civil liberties.[23]

Finally, we leverage our long pandemic time-series to describe the evolution of the relationship between the willingness to trade off civil liberties, health insecurity, and financial insecurity over ten consecutive months of the pandemic. Citizens around the world became less willing to sacrifice rights and freedoms from March until mid-June 2020 as lockdowns and other policies were adopted, cases dropped, and concerns about health also fell (see Online Appendix Figure B.11 of the evolution of rights by week).[24] By mid-June 2020, respondents' willingness to sacrifice rights had diminished by as much as 20% of one sd unit relative to the end of March.

Despite these shifts, the *relationship* between the willingness to trade off civil liberties and health insecurity remained positive, while the willingness to trade off civil liberties and financial insecurity continued to have a slightly negative or null relationship. Figure V plots regression coefficients on health insecurity (in red) and financial insecurity (in blue) obtained from a regression of the willingness to sacrifice rights by country and week conditional on sex and age group indicator variables. These results indicate that, although the level of concern fluctuated with the disease

[23]Online Appendix Figure B.8 shows the heterogeneity by income, education, gender, race, and political affiliation in the willingness to give up rights for different terciles of the health insecurity and financial insecurity distribution.

[24]The length of pandemic also exceeded initial expectations (see Online Appendix Figure B.12 for revisions of the forecast length).

burden, the underlying elasticity between health insecurity and willingness to sacrifice rights remained relatively constant over time. When averaging across all countries, a one sd increase in health insecurity is associated with a 11.1 pp (p-value <.001) increase in willingness to sacrifice own rights. The elasticity ranges from 4.4 pp in Singapore to 15.3 pp in the United States.

Taken together, the findings above suggest civil liberties are elastic to health insecurity, and that this relationship is fairly stable over nearly a year of observation and across many countries. We next investigate whether this relationship is causal.

IV Empirical Strategies

In our descriptive analysis, health insecurity stood out as a key predictor of willingness to give up rights. In this section, we lay out two approaches to uncover whether this relationship is causal and quantify the trade-off between health insecurity and willingness to sacrifice civil liberties. The two strategies are complementary in that the first has a better claim to external validity, and the second has a better claim to clean identification. The first strategy, based on data from our longitudinal survey, exploits geographic and temporal variation in local COVID-19 mortality spikes as shifters of health insecurity; the second strategy, based on our in-depth survey, exploits experimentally-induced variation in perceptions of health insecurity. The two approaches are laid out in detail below.

IV.A Using COVID-19 Mortality Fluctuations

In our first approach, we instrument for health insecurity using short-term fluctuations in local COVID-19 mortality. The underlying intuition is that local surges in COVID-19 mortality make salient the health risks associated with the disease and thus provide a shifter of individuals' perceived health insecurity in a manner similar to our information treatment. The identifying assumption for this exercise is that conditional on a key set of controls, fluctuations in local, weekly COVID-19 mortality rates are not systematically correlated with other factors hypothesized to influence the willingness to give up civil liberties. In particular, we condition on local COVID-19 cumulative mortality, variation in policies to combat the disease, individual-level time-varying subjective financial insecurity, and views of government effectiveness. Possible issues with this

strategy include the presence of other shocks afflicting these areas at the same times and in the same "direction" and the existence of other pathways through which mortality can affect views on civil freedoms. We address both of these concerns in the robustness section below and also focus on the reduced form in this section.

As a baseline, we estimate the following model using two-stage least-squares:

$$Y_{ik} = \alpha_{j(ik)} + \alpha_{t(ik)} + \gamma_0 \cdot \text{Health insecurity}_{ik} + X'_{ikj(ik)t(ik)}\Omega_0 + \epsilon_{ik} \tag{1}$$

$$\text{Health insecurity}_{ik} = \alpha_{j(ik)} + \alpha_{t(ik)} + \gamma_1 \cdot \text{COVID-19 incidence}_{j(ik)t(ik)} + X'_{ikj(ik)t(ik)}\Omega_1 + \kappa_{ik}, \tag{2}$$

where Y denotes one of our outcomes of interest, i denotes a survey respondent, and k indexes i's survey response in the case participant i was sampled multiple times in the longitudinal survey. Our instrument, *COVID-19 incidence*$_{jt}$, denotes the log of 1000 $\times$ number of COVID-19 deaths in the respondent's region j and the week t divided by the population of the region. Region is defined by administrative division at the first sub-national level — the finest level of geography available for each respondent. Administrative division level one geography corresponds, for example, to states in the United States (51) and Germany (16), and to regions in Italy (20) and France (13). Fixed effects for regions (α_j) and week (α_t) capture overall differences in attitudes across regions and overall time trends respectively, thereby allowing our instrument to exploit short-term variation in disease severity at the local level. *Health insecurity*$_{ik}$ is defined as in subsection II.A.

Besides a constant and indicators for sex, age group, education (indicator for holding a college degree), and income quartile (relative to the respondent's country), we control for a set of key variables in X. These controls includes proxies for public health policy response available at the country-date level (Hale et al. 2021).[25] In addition, we add whether the respondent's region was in a lockdown during the week of the survey.[26] We also condition on the (log) cumulative prevalence of COVID-19 mortality lagged by one week.[27] The policy and lockdown variables capture potential endogeneity of deaths to stringency, which could itself influence attitudes. Cumulative mortality

[25]Stringency is a composite of nine policies including school closures, workplace closures, and travel bans. We construct a three-week moving average at the country-week level.

[26]This variable is generally subnational except for four countries where policies tended to be federal.

[27]Deaths are used as opposed to cases since they tend to be reported more consistently. We show robustness to using ventiles in Online Appendix.

captures local disease severity from the beginning of the pandemic and its attendant effects on local living conditions. X also controls for perceived financial insecurity at the individual level, to account for the possibility that local case spikes influence not only health insecurity but also economic insecurity, and government effectiveness (i.e., the belief that *"the government is taking proper steps to protect the population"*). Standard errors are clustered at the administrative division level one.

Unobserved individual characteristics correlated with health insecurity may affect attitudes. We take advantage of the panel component of the survey that approximately 83,000 respondents participate in multiple survey waves over the sampling period; therefore, in a robustness check, we replace regional with individual fixed effects in Equation 1. We show robustness checks that address additional threats to our identifying assumptions in subsection V.A.

First Stage Table III shows that our instrument has a strong first stage: local COVID-19 mortality significantly affects our health insecurity measure (column (1)), as well as each of its individual components (columns (2), (3) and(4)), in the expected direction. The Kleibergen-Paap F-statistic on our main health-insecurity measure is 148.70.

IV.B Using Variation Induced by the Information Experiment

In our experimental approach, we instrument for health insecurity using random assignment to the information treatment in our in-depth survey. Random assignment to treatment circumvents endogeneity concerns; the targeted nature of the information disseminated in the treatment mitigates concerns about exclusion-restriction violations.

We estimate the following model using two-stage least-squares:

$$Y_i = \alpha_{c(i)} + \alpha_{w(i)} + \alpha_{h(i)} + \gamma_2 \cdot \text{Health insecurity}_i + X'_{ic(i)h(i)w(i)}\Omega_2 + \nu_i \quad (3)$$

$$\text{Health insecurity}_i = \alpha_{c(i)} + \alpha_{w(i)} + \alpha_{h(i)} + \theta \cdot T_i + X'_{ic(i)h(i)w(i)}\Omega_3 + \mu_i \quad (4)$$

where Y_i represents an outcome for individual i, α_c indicates country fixed-effects, α_w indicates week fixed-effects, and α_h indicates a fixed-effect for the variable along which we stratified our

randomization (based on whether a participant in the in-depth survey resided in a region that, by March 2020, had experienced many COVID-19 cases ("hotspot region")). T_i is an indicator for assignment to the information treatment. *Health insecurity*$_i$ is as defined in subsection II.A.

We also adjust for a limited set of demographic characteristics such as sex, age, income, education, and pre-existing medical conditions. Lastly, we control for possible alternative pathways through which the information treatment may influence the outcomes of interest, including concerns about surveillance and financial insecurity from the pandemic-related recession.[28]

First Stage As shown in Table IV, our experimental treatment has a strong first stage: the public health treatment significantly affects our health insecurity measure (column (1)), as well as each of its individual components (columns (2) and (3)), in the expected direction. The Kleibergen-Paap F statistic on our main health-insecurity measure is 57.73.

V Results

V.A Results Using Variation in COVID-19 Mortality

Our results from leveraging short-term fluctuations in local COVID-19 mortality to instrument for health insecurity, based on Equation 1 and Equation 2, are presented in Table V. As a benchmark, we report simple OLS results in Panel A. Panel B presents the reduced form results using our instrument — contemporaneous local COVID-19 mortality — as the right hand side variable, and Panel C reports the associated 2SLS estimates.[29]

We find a positive, sizeable impact of health insecurity on the willingness to give up civil liberties, a finding that holds across all dimensions of civil liberties elicited. The largest impact regards suspending democratic procedures — a one sd unit increase in health insecurity leads to a 24.7 pp increase in the willingness to suspend democratic procedures. The magnitude is larger than our benchmark elasticity for enduring economic losses (15.6 pp). In contrast, we observe an elasticity only half the size of the democratic procedures estimate on willingness to relax privacy and on

[28] Concerns about surveillance refer to the respondent's level of worries about information collected by the government to fight COVID-19 could be stored and used for other reasons later on a scale of 1 (strongly unconcerned) to 5 (strongly concerned).

[29] As discussed in Section II.B, the question regarding willingness to give up one's own rights was asked to all participants in the longitudinal survey; conversely, the other questions were asked to only 1 every 5 participants in the longitudinal survey.

sacrificing one's own rights (13.6 pp and 10.7 pp, respectively). The 2SLS estimates are somewhat larger than the OLS estimates in Panel A.

Online Appendix Table A.10 explores heterogeneity in elasticities of willingness to sacrifice civil liberties with respect to health insecurity. We interact perceived health insecurity with sociodemographic factors and instrument for both using COVID-19 incidence and its interaction with each given factor. The "interaction" F-statistic is weaker than that shown in Table III, but a few patterns are discerned. As per the descriptive analysis using the in-depth sample in Figure II, respondents without a college degree and with low incomes are less willing to give up rights (the main effects for these two factors are negative). The interaction coefficients reveal men are relatively inelastic compared to women vis-a-vis sacrificing liberties in response to health concerns. By contrast, those without a college degree tend to move towards the college educated in the setting of increased health insecurity, and lower income respondents tend to converge to higher income ones when health insecurity is increased. These findings echo the descriptive patterns in Online Appendix Figure B.8, which highlight differential convergences and divergences across social groups as health insecurity increases.

Identification and Robustness Checks — We next turn to providing explanation for and evidence on the validity of our weekly COVID-19 mortality instrument for health insecurity. First, we document that these short-term fluctuations, conditional on cumulative COVID-19 mortality, time, geography, and policy environment, are not systematically correlated with other sociodemographic factors such as age, sex, income, and political leaning, and only slightly with holding a college diploma (see Online Appendix Table A.4). This set of sociodemographic variables previously showed a strong relationship to the willingness to forego civil liberties in Figure II.

Second, we investigate two alternative pathways between current death rates and civil liberties: economic insecurity and government competence in the crisis response. Positive mortality fluctuations may lead citizens to update negatively on the government's effectiveness at protecting the population and dampen their willingness to cede more power to the government. If so, we would observe a negative relationship between deaths, government effectiveness, and civil liberties. Similarly, if deaths increase economic insecurity, then those who are more financially insecure would be less willing to give up rights, based on our findings detailed in the descriptive analysis. Both

alternative pathways could bias our results towards the null. In Online Appendix Table A.11, we indeed show that instrumenting for *either* of these alternative pathways with current deaths conditional on health insecurity produces small, generally statistically insignificant and mainly negative second stage results.

Third, there may still be other possible pathways that we cannot adequately interrogate with specific survey-based measures, such as psychic effects of depression or anxiety when death rates spike. However, these alternative factors would have to co-move systematically with the short-run fluctuations in local death rates, conditional on cumulative deaths and other detailed controls. Furthermore, this exercise is complementary to the experimental identification strategy for which we present results next, providing additional assurance on the mechanism.

In addition to the checks above, we also include individual fixed effects in another robustness test. This test broadly addresses concerns about unobservable individual-level heterogeneity, such as certain individuals being more predisposed to particular reactions. We run this specification for the "sacrifice own rights and freedoms" outcome only, as this question was asked to all respondents in our longitudinal survey and is thus the only outcome sufficiently powered to include individual fixed effects. The reduced form and 2SLS coefficients are of similar magnitude as in the baseline specification for the willingness to sacrifice own rights (column (1) of Online Appendix Table A.12).

We further assessed robustness of our results by including country instead of region fixed effects, employing mortality ventiles as an instrument, using continuous instead of binary outcomes, and executing a Fisher-type permutation test reshuffling the exposure variable. Our results remain largely unchanged across all these robustness checks. Results with country instead of region fixed effects are reported in Online Appendix Table A.12. Relative to the baseline specification, standard errors increase slightly but magnitudes remain similar. Online Appendix Table A.13 presents results using COVID-19 mortality ventiles instead of log mortality as the instrument, and results using the original continuous instead of recoded binary outcomes are reported in Online Appendix Table A.6.[30] Findings remain robust to using the alternative instrument and qualitatively unchanged when continuous outcomes are used. Results from the Fisher-type permutation test,

[30]Results using inverse hyperbolic sine, log (x+.01) or log(x+.001) transformations, or adding 1 to the integer number of deaths in the numerator are very similar.

which reshuffles the COVID-19 incidence instrument 1,000 times in the longitudinal sample and computes reduced form estimates, can be found in Online Appendix Figure B.13. Our baseline reduced form estimates exceed the permuted ones for all outcomes.

V.B Experimental Results

We report results from our experiment-based instrumental variable approach in Table VI. Columns (2) and (3) display OLS estimates and standard errors, and columns (4) and (5) report their 2SLS counterparts. We report results for four separate outcome families related to civil liberties (described in Section II.B), organized into separate panels. The last row of each panel is the standardized inverse-covariance-weighted index (i.e., z-score index) for a given outcome family (Anderson 2008).[31]

Focusing on the z-score indices as our main outcomes of interest, we document large effects of health insecurity on the willingness to curtail civil liberties. A one sd unit increase in health insecurity increases the willingness to curtail democratic rights and institutions by 0.74 sd units. The effect size of health insecurity on the willingness to sacrifice privacy is 0.72 sd units, and for the willingness to sacrifice overall rights and freedoms is 0.37 sd units. To put these magnitudes into perspective, the point estimates amount to about 82% of the baseline average gap in attitudes between Chinese and American respondents.[32] Only the willingness to give up mobility is unaffected by a respondent's perceived health insecurity; for this outcome, we estimate an imprecise zero.

Across a host of outcomes, we find a relatively sizeable OLS-IV gap. For the privacy z-score outcome, for example, the IV estimate is 7$\times$ larger than its OLS counterpart. This gap is consistent with measurement error in our health insecurity measure, downward bias in the OLS estimates, or a LATE versus ATE difference, in the latter case if the compliers in our experiment are individuals who exhibit larger treatment effects of health risk on attitudes compared to the average respondent in the survey.

We next proceed to examine each outcome family in more detail. In terms of overall rights, our 2SLS estimates indicate that greater health insecurity induced participants to report higher will-

[31] Reduced form estimates are reported in Online Appendix Table A.14.

[32] The number is obtained by first dividing the 2SLS estimates for the two z-score outcomes listed in Panels A and B of Table VI by the respective China-U.S. gap listed in column (7), and then averaging across the two resulting values.

ingness to sacrifice their own rights for improved public health conditions. We also find suggestive but imprecise positive effects on willingness to sacrifice the rights of others.

Regarding privacy, our 2SLS estimates imply that a one sd increase in health insecurity raised the average participant's willingness to relax privacy protections by 22.6 pp (or 39%). The treatment also lowered the number of lives that tracking and contact-tracing policies would need to save in order for the average participant to support them. The effect is particularly stark for a contact-tracing policy that tracks the movements of both infected and non-infected people (15 lives off a base of 55 lives). Finally, greater health insecurity increased the average participant's willingness to receive a link to download a contact-tracing app by 24.1 pp (or 51%).

Turning to civil liberties related to democratic rights and institutions, we find that a one sd increase in health insecurity induced by the experiment led individuals to report preferring strong leaders (effect size of approximately 29% of baseline value), preferring delegating governance to experts (approx. 29%) and being willing to suspend democratic procedures during a crisis such as the one caused by COVID-19 (approx. 35%). Note that the OLS coefficient estimates point in the opposite direction relative to the IV coefficients for two out of the six outcomes in this family. This pattern is consistent with selection in the OLS by which individuals with larger health insecurities (that is, individuals who perceive a larger own and public health threat from the pandemic) tend to be types who care more about maintaining democratic procedures and other such liberties.

Comparing Results Between the Empirical Strategies — A comparison of results for outcome variables included in both the longitudinal and in-depth surveys – and thus identifiable by both the COVID-19 mortality variation and experimental variation empirical strategies – reveals broad similarities.

A one sd unit increase in health insecurity results in similar effects on respondent willingness to sacrifice press freedoms (23.7 pp in the in-depth survey using the experimental variation approach versus 19.8 pp in the longitudinal survey using the mortality variation approach). For the outcome of respondent willingness to suspend democratic procedures, the experimental variation approach with the in-depth survey shows a 15.5 pp effect size, compared to a 24.7 pp effect size using the mortality variation approach with the longitudinal survey. Regarding willingness to weaken privacy protections, the in-depth survey results show a 22.6 pp effect from increasing health insecurity

by one sd unit, compared to a 13.6 pp effect seen in the longitudinal survey. Finally, for the willingness to give up one's own rights and freedoms, results from the in-depth survey indicate a 17 pp effect, compared to an 10.7 pp effect in the longitudinal survey.

On average, across all outcomes, estimates using COVID-19 mortality variation are about 2.5 pp smaller than the estimates found using experimental variation. That we find qualitatively and on average quantitatively similar results from both samples and empirical approaches suggests that the underlying relationship between health insecurities and willingness to give up rights is a relatively robust and general pattern.

Secondary Outcomes — In Online Appendix Table A.15, we report results for secondary outcomes in the form of willingness to endure business and school closures, economic harm, and other restrictive containment strategies. Only the willingness to harm the economy is significantly affected by health insecurity, with a relatively large magnitude of 0.42 sd units.

Robustness Checks for the Experimental Approach — We conduct a number of robustness checks on the experimental empirical strategy. First, we re-weight our sample to make it representative with each country's population (Online Appendix Table A.16). Our results overall remain qualitatively and quantitatively unchanged, although power is reduced.

Second, we address potential exclusion-restriction violations. A potential concern is that the information treatment may affect outcomes through channels other than health insecurity. As shown in columns (1) through (3) of Online Appendix Table A.17 (Panel B), being assigned to the treatment group modestly increased the extent to which participants worried about the economy and about possible long-term abuses of the private information shared during the pandemic (with magnitudes for both much smaller in size than those of the effects on health-related worries). While it is impossible to prove that the exclusion restriction holds, columns (4) through (6) should help assuage concerns. In Panel A, we show that the effect of being assigned to the treatment group on health insecurities is still present when controlling for the worries about the economy and about possible future abuses of the information shared during the pandemic. Conversely, Panel B shows that after controlling for the components of our health insecurity measure — namely COVID-19 posing a threat to people's health and to the capacity of the healthcare system

— effects on the non-health-related worries become smaller and insignificant. These findings suggest either that treatment effects on worries related to the economy or to long-term privacy abuses operate through health insecurity (thus making such worries a "bad control"), or that they are not quantitatively important once we account for health insecurity concerns (Angrist and Pischke 2008).

VI Conclusion

Civil liberties, including the protection of privacy, freedom of speech, and freedom of mobility, are the basis of well-functioning liberal democracies. Major crises confront societies and their citizens with a set of fundamental trade-offs between social well-being during times of crisis and the protection of liberties. In this paper, we study how citizens around the world trade off health security and civil liberties throughout one of the most challenging crises in recent history, the COVID-19 pandemic. Motivated by the descriptive patterns across countries and across respondents within countries and over time, we deploy two empirical strategies to estimate the effect of health insecurity on the willingness to give up civil liberties. We find that exposure to health risks during the pandemic leads to a greater willingness to sacrifice rights and freedoms.

Our results are positive and do not study the normative implications of crisis responses. This is a thorny issue, but our findings point to two possible lessons for policy.

First, the effects of our public health treatment that explains the rationale between various measures increase support for individual and public action to curb the pandemic, even if these involve giving up some individual rights. This finding points to giving citizens tools to understand the need for policy intervention. Improved understanding can increase compliance with otherwise hard-to-tolerate policy measures. Special attention and care may be needed when messaging to groups that are socially disadvantaged, as members of these groups were found to be less willing to tolerate restrictions in response to heightened health risk.

Second, for the sake of public health and safety in a crisis such as a pandemic, immediate policy responses that often involve curtailing individual liberties are needed. Yet, our dynamic results — in particular the fact that willingness to sacrifice rights declines as health worries decrease — also point to the need for safeguards that ensure these restrictions are lifted once the crisis subsides.

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Main Tables

Table I: Questions on willingness to sacrifice civil liberties and well-being

To what extent do you agree with the following statements:
Statement 1: I am willing to sacrifice my own rights and freedoms during a crisis like the current one, in order to maintain the health and well-being of the whole society.
Statement 2: I am willing to relax privacy protections and let the government access my personal data during a crisis like the current one, in order to allow the government to make timely and accurate decisions.
Statement 3: I am willing to suspend democratic procedures and give the President [or Prime Minister] more power during a crisis like the current one, in order to ensure swift government actions.
Statement 4: I am willing to support the government controlling the media during a crisis like the current one, in order to ensure effective and uniform communication between the government and citizens.
Statement 5: I am willing to endure substantial economic losses during a crisis like the current one, in order to maintain the health and well-being of society as a whole.
0 = completely disagree; 10 = completely agree

Table II: Lives-saved questions

Out of every 100 people who would have otherwise died in the [respondent's country of residence] because of the COVID-19 pandemic, some will be saved if one of the following policies is implemented. What's the minimum number of people that each of the following policies would need to save in order for you to support it? (Please move the slider to a number from 0 to 100.)
Statement 1: During the epidemic, the government can track smartphone locations and social contact data of the citizens who tested positive for COVID-19.
Statement 2: During the epidemic, the government can track smartphone location and social contact data of all citizens.
Statement 3: During the epidemic, the government rations certain items designated by the government (e.g., masks, food, etc.) so one cannot buy them from the market.
Statement 4: During the epidemic, the government requires everyone to become vaccinated against the coronavirus as soon as an effective vaccine becomes available.
Statement 5: During the epidemic, the government closes the national border to prevent foreigners from entering.
Statement 6: During the epidemic, the government recommends citizens do not leave their homes except for limited, permitted reasons.
Statement 7: During the epidemic, the government arrests citizens who are outside their home if they do not have government permission.
Statement 8: During the epidemic, the government closes restaurants, bars, and entertainment businesses.
Statement 9: During the epidemic, the government closes all non-essential businesses.
Statement 10: During the epidemic, the government closes all schools.
Statement 11: During the epidemic, the government implements a set of public health measures that doubles the unemployment rate.
Statement 12: During the epidemic, the government implements a set of public health measures that triples the unemployment rate.
Statement 13: During the epidemic, the government implements a set of public health measures that cuts the pay of low income workers in half.
0 = Extremely desirable policy; 100 = Extremely undesirable policy

Table III: First stage results using COVID-19 mortality fluctuations (longitudinal survey)

	Health Insecurity	Health of the Elderly	Personal Health	Healthcare Capacity
	(1)	(2)	(3)	(4)
COVID-19 Incidence	0.066***	0.052***	0.030***	0.083***
	(0.005)	(0.005)	(0.004)	(0.008)
Kleibergen-Paap F-statistic	148.700	129.294	66.497	99.446
Mean of Outcome	0.000	0.000	0.000	0.000
Number of Clusters	197	197	197	197
Observations	359380	353966	356655	356843
Controls:				
Demographics	Yes	Yes	Yes	Yes
Financial Insecurity	Yes	Yes	Yes	Yes
Government Effectiveness	Yes	Yes	Yes	Yes
Policy Response	Yes	Yes	Yes	Yes
Lagged COVID-19 Prevalence	Yes	Yes	Yes	Yes
Week Fixed Effects	Yes	Yes	Yes	Yes
Admin Level 1 Fixed Effects	Yes	Yes	Yes	Yes

Notes: Table reports results from estimating Equation 2. Outcome variables are listed in the column headings and are originally on a scale of 1 (not at all worried) to 5 (extremely worried). Health insecurity is an average of three outcome variables in columns (2) to (4). Health of the elderly refers to concerns about the health of the elderly. Personal health refers to concerns about own personal health. Healthcare capacity refers to concerns about healthcare systems being able to cope. The outcome variables and COVID-19 incidence are standardized to mean 0 and sd 1. All regressions include controls for demographics (sex, age group indicators, education (indicator for holding a college degree), and income quartiles (relative to own country)), proxies for public health policy response (three-week moving average of a stringency index and the presence of a lockdown in the respondent's region during the week of the survey), the (log) cumulative prevalence of COVID-19 mortality lagged by one week, survey weeks, financial insecurity (i.e. concern about your household financial position), and government effectiveness (i.e., belief that the government is taking proper steps to protect its population). Kleibergen Paap F-statistics presented are obtained from the sample estimated on the outcome of willingness to sacrifice own rights. Standard errors clustered at the administrative division level 1 are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table IV: First stage results using experimental variation
(in-depth survey)

	Health Insecurity (1)	Threat to People's Health (2)	Healthcare Capacity (3)
Public Health Treatment	0.114***	0.058***	0.128***
	(0.015)	(0.016)	(0.016)
Kleibergen-Paap F-statistic	57.734	13.348	65.043
Mean of Outcome	-0.203	-0.106	-0.225
Observations	13337	13337	13337
Controls:			
Demographics	Yes	Yes	Yes
Strata Fixed Effects	Yes	Yes	Yes
Financial Insecurity	Yes	Yes	Yes
Concerns about Surveillance	Yes	Yes	Yes
Strata Fixed Effects	Yes	Yes	Yes
Survey Week Fixed Effects	Yes	Yes	Yes

Notes: Table reports results from estimating Equation 4 using experimental variation. Health insecurity refers to an average of "threat to people's health" and "healthcare capacity"; threat to people's health measures a level of agreement on a statement that COVID-19 is a threat to the health and lives of people in the country on a scale of 1 (not a serious threat) to 4 (A very serious threat); healthcare capacity measures a level of agreement on that the R's country does not have sufficient hospital capacity and medical equipment to deal with the COVID-19 outbreak on a scale of 1 (strongly disagree) to 5 (strongly agree). The outcome variables are standardized to mean 0 and sd 1. All regressions include the following controls: demographics (sex, age group indicators, education (indicator for holding a college degree), income quartiles (relative to own country), and an indicator for any medical conditions); financial insecurity (i.e., agreement with a statement that COVID-19 is a threat to the economy on a scale of 1 (not a serious threat) to 4 (A very serious threat)); concerns about surveillance (i.e., worries about information collected by the government to fight COVID-19 could be stored and used for other reasons later on a scale of 1 (strongly unconcerned) to 5 (strongly concerned)); strata fixed effects (country and hotspot); and survey week fixed effects. Kleibergen Paap F-statistics presented are obtained from the sample estimated on the outcome of willingness to sacrifice own rights. Unconditional mean of the outcome variable of respondents in the control group is presented. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table V: OLS and 2SLS results using COVID-19 mortality fluctuations
(longitudinal survey)

	Sacrifice Own Rights	Sacrifice Free Press	Relax Privacy Protections	Suspend Demo. Proce.	Endure Econ. Losses
	(1)	(2)	(3)	(4)	(5)
PANEL A: OLS estimates					
Health Insecurity	0.096***	0.057***	0.065***	0.059***	0.095***
	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
PANEL B: Reduced form					
COVID-19 Incidence	0.007***	0.013***	0.010***	0.018***	0.009**
	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)
PANEL C: 2SLS estimates					
Health Insecurity	0.107***	0.198***	0.136***	0.247***	0.156***
	(0.026)	(0.058)	(0.044)	(0.050)	(0.054)
Kleibergen-Paap F-statistic	148.700	69.355	86.449	129.361	46.718
Mean of Outcome	0.750	0.615	0.575	0.575	0.571
Number of Clusters	197	195	194	195	196
Observations	359380	71846	71801	71809	71805
Controls:					
Demographics	Yes	Yes	Yes	Yes	Yes
Financial Insecurity	Yes	Yes	Yes	Yes	Yes
Government Effectiveness	Yes	Yes	Yes	Yes	Yes
Policy Response	Yes	Yes	Yes	Yes	Yes
Lagged COVID-19 Prevalence	Yes	Yes	Yes	Yes	Yes
Week Fixed Effects	Yes	Yes	Yes	Yes	Yes
Admin Level 1 Fixed Effects	Yes	Yes	Yes	Yes	Yes

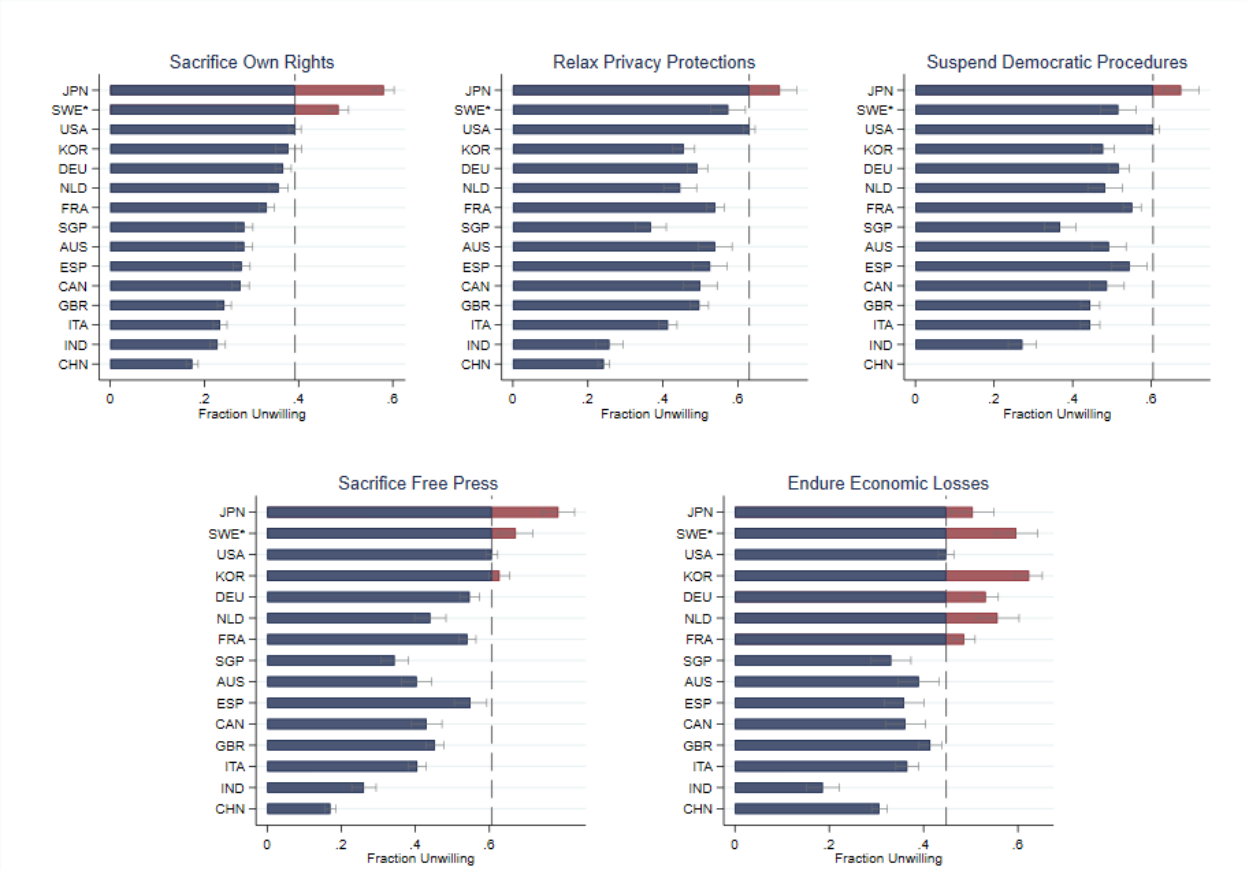
Notes: Table reports estimates of the 2SLS model given by Equation 1 and Equation 2, as well as corresponding OLS estimates. Outcome variables are listed in the column headings and described in Section II.B. Health insecurity is an average of three concerns: personal health, the health of the elderly, and the health care system being unable to cope. The health insecurity and COVID-19 incidence are standardized to mean 0 and sd 1. All regressions include controls for demographics (sex, age group indicators, education (indicator for holding a college degree), and income quartiles (relative to own country)), proxies for public health policy response (three-week moving average of a stringency index and the presence of a lockdown in the respondent's region during the week of the survey), the (log) cumulative prevalence of COVID-19 mortality lagged by one week, survey weeks, financial insecurity (i.e. concern about your household financial position), and government effectiveness (i.e., belief that the government is taking proper steps to protect its population). Standard errors clustered at the administrative division level 1 are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table VI: OLS and 2SLS results using experimental variation
(in-depth survey)

Outcome Variables	Health Insecurity (OLS)		Health Insecurity (2SLS)		Mean of Outcome	Gap btw. China and U.S.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Overall rights and freedom						
Willing to sacrifice own rights	0.063***	(0.005)	0.170**	(0.084)	0.724	0.224
Willing to sacrifice others' rights	0.066***	(0.005)	0.137	(0.084)	0.705	0.203
z-score: willing to sacrifice rights	0.156***	(0.012)	0.369**	(0.185)	0.000	0.512
Panel B: Protection of privacy						
Willing to relax privacy protections	0.033***	(0.006)	0.226**	(0.091)	0.577	0.393
Unwilling to accept: track sick people	-2.114***	(0.422)	-12.475**	(6.150)	48.855	-5.843
Unwilling to accept: track everyone	-1.440***	(0.420)	-15.497**	(6.356)	54.572	-8.957
Contact tracing app	0.036***	(0.006)	0.241***	(0.090)	0.475	0.268
z-score: willing to sacrifice privacy	0.103***	(0.012)	0.715***	(0.190)	0.000	0.778
Panel C: Democratic rights and institutions						
Prefer strong leader	-0.054***	(0.012)	0.762***	(0.210)	2.672	0.614
Prefer delegating to experts	0.102***	(0.012)	0.832***	(0.174)	2.909	-0.058
Willing to sacrifice free press	0.002	(0.006)	0.237**	(0.093)	0.600	0.422
No preference for democratic system	-0.110***	(0.011)	-0.042	(0.125)	1.733	n.a.
Willing to suspend democr. procedures	-0.014**	(0.006)	0.155*	(0.082)	0.446	n.a.
z-score: willing to curtail democracy	0.004	(0.013)	0.743***	(0.183)	-0.001	n.a.
Panel D: Rights to movement						
Unwilling to accept: close national border	-1.111***	(0.423)	4.899	(6.146)	42.655	6.624
Unwilling to accept: recommend stay home	-3.947***	(0.421)	3.452	(6.107)	43.025	7.722
Unwilling to accept: arrest if outside home	-3.135***	(0.429)	-4.352	(6.209)	51.547	-6.984
z-score: willing to give up mobility	0.086***	(0.012)	-0.018	(0.168)	0.000	-0.032

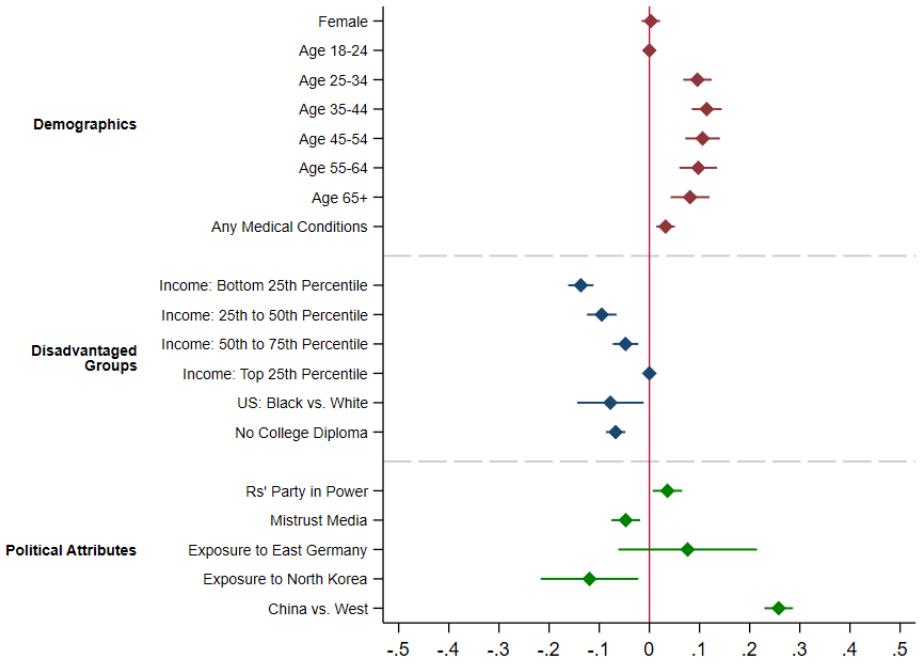
Notes: Table reports OLS and 2SLS results using experimental variation, based on the in-depth survey sample. Health Insecurity refers to an average of (1) COVID-19 is a threat to the health and lives of people in the country; and (2) the country does not have sufficient hospital capacity and medical equipment for a pandemic surge, topics discussed in the public health treatment. Columns (2) to (3) present the OLS estimates and standard errors, and columns (4) to (5) present the 2SLS results from Equation 3. Column (6) reports the unconditional mean of the outcome variable of respondents in the control group. Column (7) reports the difference in the unconditional control group mean of each outcome variable between China and U.S. respondents. Outcomes of "unwilling to accept" measure the minimum lives that need to be saved to implement the given policy on a scale of 0 to 100. Outcomes of "willing to [do]" and contact tracing app are dichotomous. Outcomes of "preference" are on a scale of 1 to 4. The z-score for each family shown at the bottom row of each panel is an inverse-covariance-weighted index as described in Anderson (2008). The health insecurity is standardized to mean 0 and sd 1. All regressions include the following controls: demographics (sex, age group indicators, education (indicator for holding a college degree), income quartiles (relative to own country), and an indicator for any medical conditions); pandemic-related financial insecurity (i.e., agreement with a statement that COVID-19 is a threat to the economy on a scale of 1 (not a serious threat) to 4 (A very serious threat)); concerns about surveillance (i.e., worries about information collected by the government to fight COVID-19 could be stored and used for other reasons later on a scale of 1 (strongly unconcerned) to 5 (strongly concerned)); strata fixed effects (country and hotspot); and survey week fixed effects. The observation count is 13,337 for every regression except the last two in Panel B and last three in Panel C; it is 13,328 for the last two in Panel B and 9,425 for the last three regressions in Panel C. The first stage F-statistics range from 57.73 to 59.25. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Main Figures



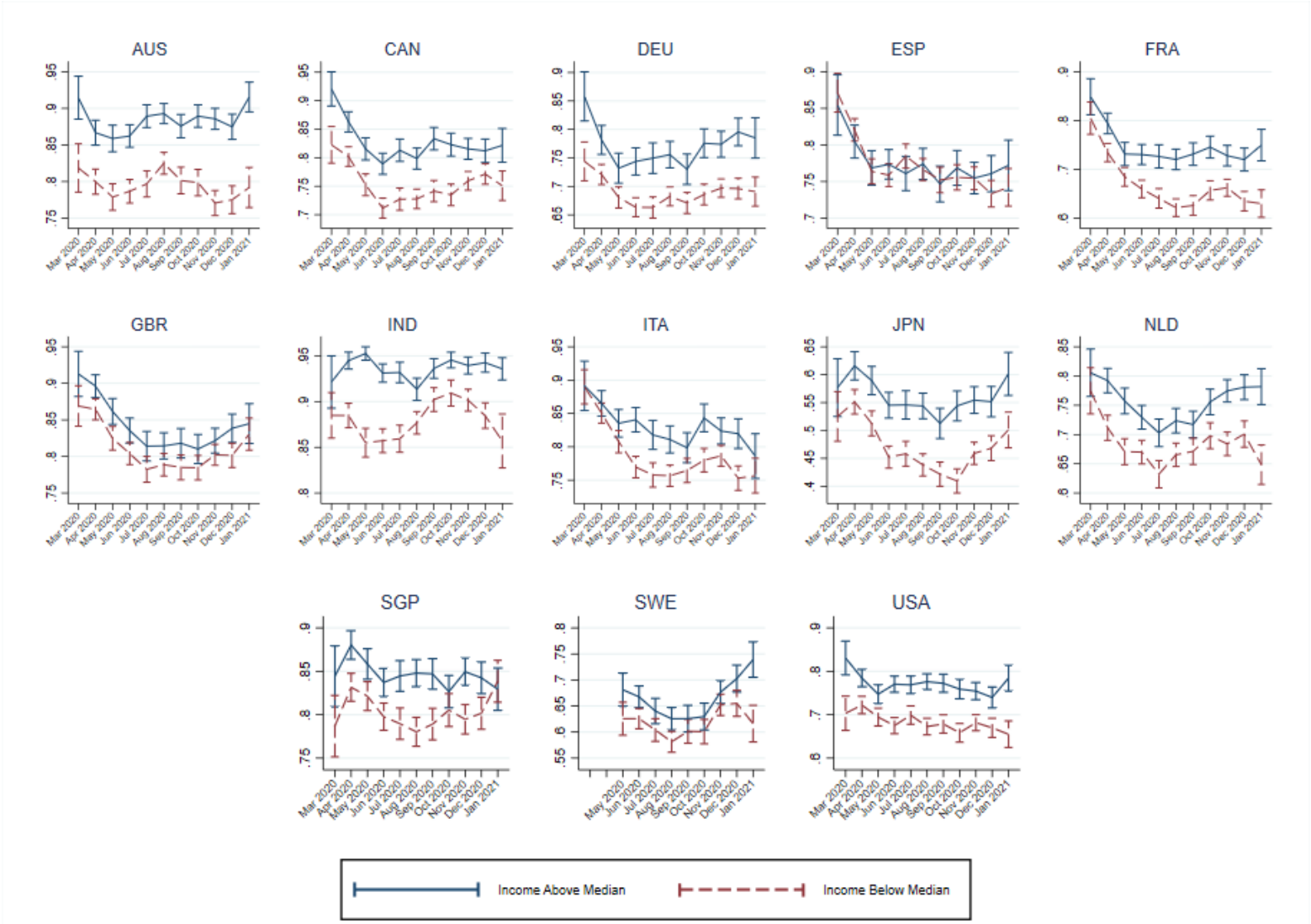
Notes: Figure uses responses from both the longitudinal and in-depth surveys for overlapping weeks (i.e. week of March 30 to week of April 13, 2020). For Sweden, data is used from the week of May 18 to the week of June 1, 2020. Bars represent the country fixed effects plus constant obtained from a regression of the outcome on week, country, and survey (i.e. longitudinal vs. in-depth) fixed effects. Unwillingness to sacrifice a given right is defined as answering "5" or less to questions in the form of "On a scale of 0 (extremely unwilling) to 10 (extremely willing), to what extent do you agree with the following statements: I am willing to [name of each variable on the y-axis]" as described in Section II.B. The dashed lines represent the average of the outcome variable among U.S. respondents. Respondents from China were not asked about the willingness to suspend democratic procedures. 95% confidence intervals are depicted in gray.

Figure I: Cross-country patterns in civil liberties trade-offs
(longitudinal and in-depth survey)



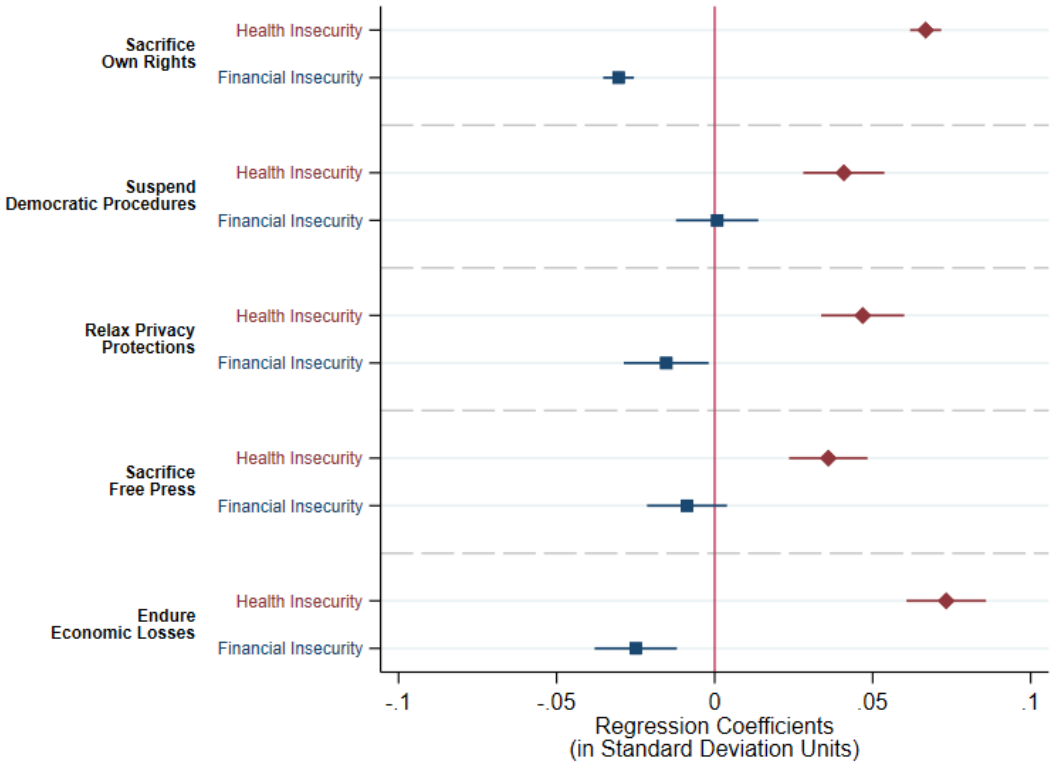
Notes: Figure based on the in-depth survey sample, restricted to the control group. Diamonds denote coefficient estimates obtained from separate OLS regressions of willingness to sacrifice rights (as described in Section II.B) on the given characteristics (y-axis), controlling for a hotspot indicator, survey week and country fixed effects. "China vs. West" denotes the an indicator equal to 1 for respondents from China (and zero for France, U.S., Italy, Germany, and the U.K.). 95% confidence intervals based on robust standard errors are shown.

Figure II: Individual characteristics and sacrificing own rights (in-depth survey)



Notes: Figure is based on the longitudinal survey, plotting marginal predicted values of willingness to sacrifice rights on income by month for each country. Outcome variable is the willingness to sacrifice rights as described in Section II.B. Income is a binary variable, which is equal to 1 if the respondent's income is below the median income, or 0 if above the median income in a given country. The estimates are conditional on age and sex. 95% confidence intervals are shown.

Figure III: Cross-country patterns in the relationship between willingness to sacrifice rights and income over time (longitudinal survey)



Notes: Figure is based on the sample from the longitudinal survey, including weeks from the week of March 30 to the week of April 13, 2020 except for Sweden; data from the week of May 18 to the week of June 1, 2020 are used for Sweden since data collection did not begin until May 18, 2020. Dots reflect coefficient estimates of health insecurity and financial insecurity on the relevant outcome. Health insecurity is the average over concerns about personal health, health of the elderly, and healthcare systems being able to cope. Financial insecurity refers to concerns about one's household financial position. All outcomes are binary variables as described in Section II.B. Insecurity variables are standardized so as to have mean 0 and sd 1. Country-week fixed effects and demographic controls (sex and age groups indicators) are included in the regressions but not reported. 95% confidence intervals based on robust standard errors are also shown.

Figure IV: Association between willingness to sacrifice civil liberties and health and economic insecurities (longitudinal survey)

Notes: Figure is based on the sample from the longitudinal survey, including all weeks from the week of March 30, 2020 to the week of January 18, 2021 and including the following countries: Australia, Canada, France, Germany, India, Italy, Japan, Spain, Sweden, the Netherlands, the United Kingdom, the United States; Sweden is added in the week of May 18, 2020. Outcome variable is the willingness to sacrifice rights as described in Section II.B. Health insecurity is the average over concerns about personal health, health of the elderly, and healthcare systems being able to cope. Financial insecurity refers to concerns about one's household financial position. Dots denote the coefficient estimates obtained from a OLS regression of willingness to sacrifice own rights on health (red) and economic (blue) insecurity by each week and country, conditional on sex and age group indicator variables. 95% confidence intervals based on robust standard errors are shown.

Figure V: Dynamics of health insecurity, financial insecurity and sacrificing own rights (longitudinal survey)

Appendix

Table of Contents

A Appendix Tables

Appendix Table A.1: Summary statistics
(longitudinal survey)

Panel A

	All N=534,657		Australia N=41,551		Canada N=41,499		France N=41,868		Germany N=41,725		India N=41,714		Italy N=41,869	
	Mean (1)	SD (2)	Mean (3)	SD (4)	Mean (5)	SD (6)	Mean (7)	SD (8)	Mean (9)	SD (10)	Mean (11)	SD (12)	Mean (13)	SD (14)
Male	0.502	0.500	0.503	0.500	0.502	0.500	0.500	0.500	0.501	0.500	0.509	0.500	0.500	0.500
Age	45.816	16.639	46.192	16.774	47.300	16.614	47.292	16.770	49.366	16.310	38.243	14.575	40.715	15.296
Employed	0.624	0.484	0.601	0.490	0.584	0.493	0.561	0.496	0.582	0.493	0.835	0.371	0.612	0.487
Unemployed	0.074	0.262	0.086	0.280	0.066	0.248	0.071	0.257	0.044	0.205	0.031	0.175	0.097	0.296
Out of Labor Force/Other	0.302	0.459	0.313	0.464	0.350	0.477	0.368	0.482	0.374	0.484	0.133	0.340	0.292	0.455
College Diploma	0.439	0.496	0.561	0.496	0.421	0.494	0.345	0.475	0.263	0.440	0.705	0.456	0.369	0.483
Income: Bottom 25th Percentile	0.406	0.491	0.319	0.466	0.360	0.480	0.610	0.488	0.492	0.500	0.282	0.450	0.639	0.480
Income: 25th to 50th Percentile	0.186	0.389	0.217	0.413	0.216	0.412	0.000	0.000	0.207	0.405	0.314	0.464	0.000	0.000
Income: 50th to 75th Percentile	0.226	0.418	0.336	0.472	0.176	0.381	0.216	0.411	0.138	0.345	0.206	0.405	0.188	0.391
Income: Income: Top 25th Percentile	0.182	0.386	0.127	0.333	0.248	0.432	0.175	0.380	0.164	0.370	0.197	0.398	0.173	0.378

Panel B

	Japan N=41,714		Netherlands N=41,675		Singapore N=41,742		Spain N=41,898		Sweden N=34,487		U.K. N=42,265		U.S. N=40,650	
Male	0.501	0.500	0.500	0.500	0.501	0.500	0.500	0.500	0.501	0.500	0.502	0.500	0.506	0.500
Age	50.744	16.813	47.804	16.644	39.941	14.373	46.816	15.940	47.387	17.608	47.223	16.722	46.884	16.569
Employed	0.590	0.492	0.578	0.494	0.809	0.393	0.611	0.487	0.536	0.499	0.610	0.488	0.584	0.493
Unemployed	0.139	0.346	0.059	0.235	0.045	0.207	0.090	0.286	0.085	0.279	0.068	0.251	0.088	0.284
Out of Labor Force/Other	0.271	0.444	0.363	0.481	0.146	0.353	0.299	0.458	0.379	0.485	0.323	0.468	0.328	0.469
College Diploma	0.525	0.499	0.174	0.379	0.550	0.498	0.520	0.500	0.371	0.483	0.401	0.490	0.503	0.500
Income: Bottom 25th Percentile	0.332	0.471	0.526	0.499	0.268	0.443	0.252	0.434	0.387	0.487	0.436	0.496	0.379	0.485
Income: 25th to 50th Percentile	0.248	0.432	0.000	0.000	0.284	0.451	0.405	0.491	0.160	0.366	0.159	0.366	0.177	0.381
Income: 50th to 75th Percentile	0.224	0.417	0.243	0.429	0.299	0.458	0.189	0.391	0.214	0.410	0.202	0.402	0.313	0.464
Income: Income: Top 25th Percentile	0.196	0.397	0.231	0.422	0.149	0.356	0.154	0.361	0.239	0.426	0.202	0.401	0.131	0.337

Notes: Tables reports summary statistics of the sample from the longitudinal survey, including all weeks from the week of March 30, 2020 to the week of January 18, 2021 (or from the week of May 18 to the week of January 18, 2021 for Sweden). All variables except age are binary variables.

Appendix Table A.2: Comparison of population and sample characteristics (longitudinal survey)

	Panel A											
	Australia		Canada		France		Germany		India		Italy	
	Sample (N=41,551)	Population	Sample (N=41,499)	Population	Sample (N=41,868)	Population	Sample (N=41,725)	Population	Sample (N=41,714)	Population	Sample (N=41,869)	Population
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Male	0.50	0.49	0.50	0.49	0.50	0.48	0.50	0.49	0.51	0.52	0.50	0.48
18-25 years old	0.14	0.13	0.12	0.12	0.13	0.12	0.10	0.11	0.24	0.21	0.20	0.09
26-30 years old	0.08	0.09	0.08	0.09	0.08	0.07	0.07	0.08	0.12	0.12	0.13	0.06
31-35 years old	0.10	0.10	0.10	0.09	0.09	0.08	0.08	0.08	0.14	0.12	0.12	0.07
36-45 years old	0.19	0.17	0.17	0.16	0.17	0.16	0.16	0.14	0.23	0.20	0.21	0.17
46-55 years old	0.16	0.16	0.19	0.16	0.17	0.17	0.20	0.19	0.11	0.15	0.16	0.19
56-65 years old	0.16	0.15	0.17	0.17	0.17	0.16	0.17	0.16	0.10	0.11	0.11	0.16
66+ years old	0.17	0.19	0.18	0.20	0.19	0.24	0.22	0.24	0.05	0.08	0.08	0.26
Income bracket 1	0.07	0.13	0.06	0.17	0.22	0.35	0.20	0.53	0.10	0.62	0.25	0.42
Income bracket 2	0.12	0.24	0.08	0.26	0.39	0.33	0.29	0.28	0.18	0.30	0.39	0.27
Income bracket 3	0.25	0.22	0.22	0.21	0.22	0.17	0.21	0.11	0.21	0.04	0.19	0.15
Income bracket 4	0.25	0.14	0.39	0.21	0.17	0.15	0.30	0.08	0.51	0.04	0.17	0.16
Income bracket 5	0.31	0.27	0.25	0.15								
Employed	0.60	0.63	0.58	0.62	0.56	0.50	0.58	0.59	0.84	0.47	0.61	0.45
Region 1	0.31	0.32	0.11	0.25	0.28	0.23	0.25	0.23	0.37	0.34	0.45	0.37
Region 2	0.28	0.26	0.04	0.07	0.23	0.18	0.35	0.13	0.24	0.22	0.19	0.16
Region 3	0.19	0.20	0.27	0.39	0.28	0.23	0.12	0.28	0.15	0.24	0.36	0.27
Region 4	0.10	0.10	0.52	0.23	0.21	0.16	0.28	0.16	0.24	0.20		
Region 5	0.12	0.12	0.07	0.06								

Notes: Table reports summary statistics of the sample from the longitudinal survey (in odd columns) alongside nationally representative statistics (in even columns) of each country. Sources for each variable and country are listed in Online Appendix G. Income brackets (annual gross household income) are defined for: (1) Australia (in AUD) as: less than 15,000; 15,000 to 29,999; 30,000 to 59,999; 60,000 to 99,999; 100,000 or above.; (2) Canada (in CAD) as: less than 15,000; 15,000 to 24,999; 25,000 to 49,999; 50,000 to 99,999; 100,000 or above.; (3) France, Italy, Germany, Spain, and Netherlands (in Euros) as: less than 20,000; 20,000–39,999; 40,000–59,999; more than 60,000.; (4) India (in INR) as: less than 100,000; 100,000 to 499,999; 500,000 to 999,999; 10,000,000 or above.; (5) Japan (in JPY) as: less than 1,000,000; 1,000,000 to 1,999,999; 2,000,000 to 2,999,999; 3,000,000 to 4,999,999; 5,000,000 or above.; (6) Singapore (in SGD) as: less than 45,000; 45,000 to 74,999; 75,000 to 99,999; 100,000 to 149,999; 150,000 or above.; (7) Sweden (in SEK) as: less than 199,000; 200,000 to 399,999; 400,000 to 599,999; 600,000 to 799,999; 800,000 or above.; (8) U.K. (in Pound) as: less than 20,000; 20,000–29,999; 30,000–49,999; 50,999-99,999; more than 100,000.; (9) U.S. (in USD) as: less than 24,999; 25,000–49,999; 50,000–74,999; 75,999–99,999; 100,000 or above. Regional brackets are listed in Online Appendix H.

Appendix Table A.2: Comparison of population and sample characteristics (cont'd) (longitudinal survey)

	Panel B													
	Japan		Netherlands		Singapore		Spain		Sweden		U.K.		U.S.	
	Sample (N=41,714)	Population	Sample (N=41,675)	Population	Sample (N=41,742)	Population	Sample (N=41,898)	Population	Sample (N=34,487)	Population	Sample (N=42,265)	Population	Sample (N=40,650)	Population
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Male	0.50	0.48	0.50	0.49	0.50	0.53	0.50	0.49	0.50	0.50	0.50	0.49	0.51	0.48
18-25 years old	0.09	0.09	0.12	0.12	0.19	0.13	0.11	0.09	0.14	0.12	0.13	0.13	0.12	0.14
26-30 years old	0.06	0.06	0.07	0.08	0.13	0.09	0.08	0.06	0.08	0.09	0.08	0.09	0.08	0.09
31-35 years old	0.08	0.07	0.09	0.08	0.13	0.09	0.10	0.07	0.08	0.08	0.10	0.08	0.11	0.09
36-45 years old	0.16	0.16	0.18	0.15	0.20	0.19	0.21	0.20	0.16	0.16	0.17	0.16	0.17	0.16
46-55 years old	0.16	0.17	0.19	0.18	0.17	0.19	0.17	0.19	0.16	0.17	0.18	0.18	0.18	0.17
56-65 years old	0.17	0.14	0.17	0.17	0.12	0.18	0.15	0.16	0.16	0.14	0.16	0.15	0.17	0.16
66+ years old	0.28	0.32	0.19	0.23	0.05	0.13	0.18	0.23	0.21	0.24	0.19	0.21	0.17	0.19
Income bracket 1	0.03	0.14	0.18	0.23	0.27	0.30	0.25	0.57	0.22	0.19	0.24	0.17	0.19	0.30
Income bracket 2	0.02	0.31	0.35	0.34	0.21	0.14	0.41	0.28	0.33	0.33	0.20	0.28	0.19	0.19
Income bracket 3	0.17	0.18	0.24	0.16	0.17	0.09	0.19	0.09	0.21	0.21	0.28	0.26	0.18	0.18
Income bracket 4	0.11	0.19	0.23	0.27	0.20	0.17	0.15	0.06	0.13	0.13	0.23	0.24	0.15	0.12
Income bracket 5	0.67	0.18			0.15	0.30			0.11	0.14	0.05	0.05	0.30	0.20
Employed	0.59	0.61	0.58	0.62	0.81	0.68	0.61	0.50	0.54	0.60	0.61	0.61	0.58	0.60
Region 1	0.40	0.35	0.11	0.10	0.21	0.24	0.29	0.30	0.10	0.09	0.86	0.68	0.24	0.14
Region 2	0.19	0.18	0.20	0.21	0.34	0.24	0.24	0.19	0.19	0.20	0.02	0.04	0.20	0.17
Region 3	0.10	0.11	0.48	0.48	0.19	0.21	0.24	0.28	0.04	0.05	0.08	0.07	0.17	0.19
Region 4	0.16	0.17	0.21	0.21	0.13	0.12	0.10	0.11	0.43	0.43	0.04	0.02	0.39	0.31
Region 5	0.14	0.20			0.13	0.18	0.14	0.13	0.24	0.23				

Notes: Table reports summary statistics of the sample from the longitudinal survey (in odd columns) alongside nationally representative statistics (in even columns) of each country. Sources for each variable and country are listed in Online Appendix G. Income brackets (annual gross household income) are defined for: (1) Australia (in AUD) as: less than 15,000; 15,000 to 29,999; 30,000 to 59,999; 60,000 to 99,999; 100,000 or above.; (2) Canada (in CAD) as: less than 15,000; 15,000 to 24,999; 25,000 to 49,999; 50,000 to 99,999; 100,000 or above.; (3) France, Italy, Germany, Spain, and Netherlands (in Euros) as: less than 20,000; 20,000–39,999; 40,000–59,999; more than 60,000.; (4) India (in INR) as: less than 100,000; 100,000 to 499,999; 500,000 to 999,999; 10,000,000 or above.; (5) Japan (in JPY) as: less than 1,000,000; 1,000,000 to 1,999,999; 2,000,000 to 2,999,999; 3,000,000 to 4,999,999; 5,000,000 or above.; (6) Singapore (in SGD) as: less than 45,000; 45,000 to 74,999; 75,000 to 99,999; 100,000 to 149,999; 150,000 or above.; (7) Sweden (in SEK) as: less than 199,000; 200,000 to 399,999; 400,000 to 599,999; 600,000 to 799,999; 800,000 or above.; (8) U.K. (in Pound) as: less than 20,000; 20,000–29,999; 30,000–49,999; 50,999-99,999; more than 100,000.; (9) U.S. (in USD) as: less than 24,999; 25,000–49,999; 50,000–74,999; 75,999–99,999; 100,000 or above. Regional brackets are listed in Online Appendix H.

Appendix Table A.3: Comparison of population and sample characteristics (in-depth survey)

	U.S.		U.K.		France		Italy		Germany		South Korea		China	
	Sample (N=3,717)	Population	Sample (N=1,161)	Population	Sample (N=1,339)	Population	Sample (N=1,136)	Population	Sample (N=919)	Population	Sample (N=1,166)	Population	Sample (N=3,914)	Population
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Male	0.46	0.48	0.50	0.49	0.51	0.48	0.55	0.48	0.53	0.49	0.51	0.50	0.47	0.51
18-25 years old	0.14	0.14	0.14	0.13	0.11	0.12	0.10	0.09	0.13	0.11	0.18	0.13	0.32	0.18
26-30 years old	0.09	0.09	0.08	0.09	0.09	0.07	0.07	0.06	0.08	0.08	0.11	0.08	0.18	0.10
31-35 years old	0.09	0.09	0.10	0.08	0.09	0.08	0.09	0.07	0.10	0.08	0.10	0.08	0.18	0.10
36-45 years old	0.15	0.16	0.18	0.16	0.19	0.16	0.19	0.17	0.20	0.14	0.22	0.18	0.18	0.23
46-55 years old	0.15	0.17	0.16	0.18	0.22	0.17	0.18	0.19	0.19	0.19	0.19	0.20	0.08	0.17
56-65 years old	0.17	0.16	0.16	0.15	0.17	0.16	0.12	0.16	0.17	0.16	0.11	0.17	0.04	0.12
66+ years old	0.21	0.19	0.18	0.21	0.13	0.24	0.25	0.26	0.12	0.24	0.09	0.16	0.02	0.10
Income bracket 1	0.21	0.30	0.22	0.17	0.22	0.35	0.23	0.42	0.18	0.53	0.27	0.34	0.15	0.20
Income bracket 2	0.20	0.19	0.22	0.28	0.35	0.33	0.35	0.27	0.29	0.28	0.25	0.21	0.16	0.20
Income bracket 3	0.17	0.18	0.28	0.26	0.20	0.17	0.23	0.15	0.20	0.11	0.19	0.16	0.11	0.20
Income bracket 4	0.14	0.12	0.27	0.24	0.22	0.15	0.20	0.16	0.34	0.08	0.17	0.14	0.59	0.40
Income bracket 5	0.27	0.20	0.00	0.05							0.12	0.15		
Employed	0.55	0.60	0.63	0.61	0.65	0.50	0.57	0.45	0.66	0.59	0.71	0.61	0.73	0.65
Region 1	0.20	0.14	0.41	0.35	0.25	0.23	0.55	0.37	0.41	0.23	0.45	0.40	0.55	0.30
Region 2	0.24	0.17	0.42	0.33	0.23	0.18	0.20	0.16	0.28	0.13	0.11	0.11	0.23	0.22
Region 3	0.20	0.19	0.09	0.04	0.25	0.23	0.25	0.27	0.14	0.28	0.08	0.09	0.17	0.21
Region 4	0.36	0.31	0.09	0.07	0.27	0.16			0.17	0.16	0.36	0.20	0.06	0.07
Region 5			0.00	0.02										

Notes: Table reports summary statistics of the sample from the in-depth survey (in odd columns) alongside nationally representative statistics (in even columns) of each country. Detailed sources for each variable and country are listed in Online Appendix G. Income brackets (annual gross household income) are defined for: (1) U.S. (in USD) as: less than 24,999; 25,000–49,999; 50,000–74,999; 75,999–99,999; 100,000 or above.; (2) U.K. (in Pound) as: less than 20,000; 20,000–29,999; 30,000–49,999; 50,999-99,999; 100,000 or above.; (3) France, Italy, and Germany (in Euros) as: less than 20,000; 20,000–39,999; 40,000–59,999; 60,000 or above.; (4) South Korea (in KRW) as: less than 29,999,999; 30,000,000-49,999,999; 50,000,000-69,999,999; 70,000,000-99,999,999; 100,000,000 or above.; (5) China (in Yuan) as: less than 15,000; 15,000-34,999; 35,000-54,999; 55,000 or above. Detailed regional brackets are listed in Online Appendix H.

Appendix Table A.4: Balance checks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	PANEL A: Longitudinal Survey						
	Male	Age Group	HH Income	College	Employed	Black (U.S.)	Democrat (U.S.)
COVID-19 Incidence	-0.001	-0.006	-0.010	0.009***	0.001	-0.002	-0.002
	(0.003)	(0.008)	(0.009)	(0.003)	(0.001)	(0.002)	(0.006)
Mean of Outcome	0.519	3.760	2.188	0.434	0.903	0.092	0.503
Observations	359380	359380	359380	359380	250870	33549	19426
	PANEL B: In-depth Survey						
	Male	Age Group	HH Income	College	Employed	Black (U.S.)	Pol.Aff.: Left
Public Health Treatment	0.001	0.005	0.014	-0.003	-0.003	-0.006	-0.001
	(0.010)	(0.034)	(0.024)	(0.010)	(0.010)	(0.011)	(0.010)
Mean of Outcome	0.495	3.653	2.134	0.501	0.610	0.143	0.353
Observations	9438	9438	9438	9425	9434	3717	9438

Notes: Table reports estimates from an OLS regression of the outcome variable COVID-19 incidence or assignment to public health treatment. COVID-19 incidence is the log of the number of COVID-19 deaths in the respondent's region j and the week t from the longitudinal survey. Public health treatment is from the in-depth survey. Respondents from China are not included in Panel B since they were not randomized to treatment, however, results including China are similar. The outcome variables, from left to right, are sex (indicator for male), age groups, household income quartile (relative to own country), education (indicator for holding a college degree), employment (1 if employed, or 0 if unemployed), race for U.S. respondents (indicator for Black race), and political affiliation (indicator for Democrat for the U.S. respondents only in Panel A, and indicator for leftists in Panel B). COVID-19 incidence in Panel A is standardized to mean 0 and sd 1. Regressions in Panel A control for proxies for public health policy response (three-week moving average of a stringency index and the presence of a lockdown in the respondent's region during the week of the survey), the (log) cumulative prevalence of COVID-19 mortality lagged by one week, survey weeks, financial insecurity (i.e. concern about your household financial position), and government effectiveness (i.e., belief that the government is taking proper steps to protect its population). Regressions in Panel B control for strata fixed effects (country and hotspot). Standard errors clustered at the administrative division level 1 (Panel A) or robust standard errors (Panel B) are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.5: Testing for differential attrition
(in-depth survey)

Variable	(1) Control Mean/SE	(2) Public Health Treatment Mean/SE	T-test P-value (1)-(2)
Completed survey	0.930	0.927	0.471
	(0.004)	(0.004)	
N	5095	5090	

Notes: Table tests differential attrition between the control and public health treatment group from the sample of the in-depth survey. Respondents from China are not included since they were not randomized to treatment, however, results including China are similar. The sample includes participants who reached the randomization stage and passed the quality check. Low quality responses are defined as those in the fastest 1% of the control group in the demographic and health module or of the experimental group in the treatment module. Stratifying variables (i.e., hotspot dummy and country fixed effects) are also controlled for. Column (3) presents p-values of tests of differences in means between the control and public health treatment group. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.6: OLS and 2SLS estimates of the effects of health insecurity on civil liberties using COVID-19 mortality fluctuations
(longitudinal survey, original, continuous outcomes)

	Sacrifice Own Rights	Sacrifice Free Press	Relax Privacy Protections	Suspend Demo. Proce.	Endure Econ. Losses
	(1)	(2)	(3)	(4)	(5)
PANEL A: OLS estimates					
Health Insecurity	0.748***	0.426***	0.521***	0.426***	0.651***
	(0.025)	(0.023)	(0.027)	(0.023)	(0.026)
PANEL B: Reduced form					
COVID-19 Incidence	0.052***	0.076***	0.074***	0.119***	0.055***
	(0.014)	(0.019)	(0.020)	(0.021)	(0.017)
PANEL C: 2SLS estimates					
Health Insecurity	0.790***	1.191***	1.040***	1.614***	0.933***
	(0.177)	(0.311)	(0.281)	(0.287)	(0.277)
Kleibergen-Paap F-statistic	148.700	69.355	86.449	129.361	46.718
Mean of Outcome	7.085	6.105	5.817	5.824	5.938
Number of Clusters	197	195	194	195	196
Observations	359380	71846	71801	71809	71805
Controls:					
Demographics	Yes	Yes	Yes	Yes	Yes
Financial Insecurity	Yes	Yes	Yes	Yes	Yes
Government Effectiveness	Yes	Yes	Yes	Yes	Yes
Policy Response	Yes	Yes	Yes	Yes	Yes
Lagged COVID-19 Prevalence	Yes	Yes	Yes	Yes	Yes
Week Fixed Effects	Yes	Yes	Yes	Yes	Yes
Admin Level 1 Fixed Effects	Yes	Yes	Yes	Yes	Yes

Notes: Table reports estimates of the 2SLS model given by Equation 1 and Equation 2 as well as corresponding OLS estimates using original, continuous outcomes on a scale of 0 to 10. Outcome variables are listed in the column headings. Health insecurity is an average of three concerns: personal health, the health of the elderly in the community, and the health care system being unable to cope. The health insecurity and COVID-19 incidence are standardized to mean 0 and sd 1. All regressions include controls for demographics (sex, age group indicators, education (indicator for holding a college degree), and income quartiles (relative to own country)), proxies for public health policy response (three-week moving average of a stringency index and the presence of a lockdown in the respondent's region during the week of the survey), the (log) cumulative prevalence of COVID-19 mortality lagged by one week, survey weeks, financial insecurity (i.e., concern about your household financial position), and government effectiveness (i.e., belief that the government is taking proper steps to protect its population). Standard errors clustered at the administrative division level 1 are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.7: OLS and 2SLS results using experimental variation
(in-depth survey, original, continuous outcomes)

Outcome Variables	Health Insecurity (OLS)		Health Insecurity (2SLS)		Mean of Outcome	Gap btw. China and U.S.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Overall rights and freedom						
Willing to sacrifice own rights	0.509***	(0.033)	0.729	(0.482)	7.055	1.665
Willing to sacrifice others' rights	0.496***	(0.033)	0.690	(0.469)	6.935	1.479
z-score: willing to sacrifice rights	0.209***	(0.013)	0.295	(0.188)	0.000	0.653
Panel B: Protection of privacy						
Willing to relax privacy protections	0.231***	(0.036)	1.548***	(0.572)	6.018	2.997
Unwilling to accept: track sick people	-2.114***	(0.422)	-12.475**	(6.150)	48.855	-5.843
Unwilling to accept: track everyone	-1.440***	(0.420)	-15.497**	(6.356)	54.572	-8.957
Contact tracing app	0.036***	(0.006)	0.241***	(0.090)	0.475	0.268
z-score: willing to sacrifice privacy	0.105***	(0.012)	0.723***	(0.191)	0.000	0.832
Panel C: Democratic rights and institutions						
Prefer strong leader	-0.054***	(0.012)	0.762***	(0.210)	2.672	0.614
Prefer delegating to experts	0.102***	(0.012)	0.832***	(0.174)	2.909	-0.058
Willing to sacrifice free press	-0.073*	(0.038)	0.995*	(0.603)	6.123	3.261
No preference for democratic system	-0.110***	(0.011)	-0.042	(0.125)	1.733	n.a.
Willing to suspend democr. procedures	-0.138***	(0.043)	1.081**	(0.539)	4.934	n.a.
z-score: willing to curtail democracy	-0.001	(0.013)	0.696***	(0.179)	-0.001	n.a.
Panel D: Rights to movement						
Unwilling to accept: close national border	-1.111***	(0.423)	4.899	(6.146)	42.655	6.624
Unwilling to accept: recommend stay home	-3.947***	(0.421)	3.452	(6.107)	43.025	7.722
Unwilling to accept: arrest if outside home	-3.135***	(0.429)	-4.352	(6.209)	51.547	-6.984
z-score: willing to give up mobility	0.086***	(0.012)	-0.018	(0.168)	0.000	-0.032

Notes: Table reports OLS and 2SLS results using experimental variation from the in-depth survey. Health Insecurity refers to an average of (1) COVID-19 is a threat to the health and lives of people in the country; and (2) the country does not have sufficient hospital capacity and medical equipment for a pandemic surge, topics discussed in the public health treatment. Columns (2) to (3) present the OLS estimates and standard errors, and columns (4) to (5) present the 2SLS results and standard errors from Equation 3. Column (6) reports the unconditional mean of the outcome variable of respondents in the control group. Column (7) reports the difference in the unconditional control group mean of each outcome variable between China and U.S. respondents. Outcomes of "willing to [do]" are original, continuous outcomes on a scale of 0 to 10. Outcomes of "unwilling to accept" measure the minimum lives that need to be saved to implement the given policy on a scale of 0 to 100. Contact tracing app is binary. Outcomes of "preference" are on a scale of 1 to 4. The z-score for each family shown at the bottom row of each panel is an inverse-covariance-weighted index as described in Anderson (2008). The health insecurity is standardized to mean 0 and sd 1. All regressions include the following controls: demographics (sex, age group indicators, education (indicator for holding a college degree), income quartiles (relative to own country), and an indicator for any medical conditions); pandemic-related financial insecurity (i.e., agreement with a statement that COVID-19 is a threat to the economy on a scale of 1 (not a serious threat) to 4 (A very serious threat)); concerns about surveillance (i.e., worries about information collected by the government to fight COVID-19 could be stored and used for other reasons later on a scale of 1 (strongly unconcerned) to 5 (strongly concerned)); strata fixed effects (country and hotspot); and survey week fixed effects. The observation count is 13,337 for every regression except the last two in Panel B and last three in Panel C; it is 13,328 for the last two in Panel B and 9,425 for the last three regressions in Panel C. The first stage F-statistics range from 57.73 to 59.25. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.8: Correlation between proportional and absolute lives saved question

	Correlation
Panel A: Protection of privacy	
Unwilling to accept: track sick people	0.802
Unwilling to accept: track everyone	0.700
Panel B: Rights to movement	
Unwilling to accept: close national border	0.662
Unwilling to accept: recommend stay home	0.728
Unwilling to accept: arrest if outside home	0.666
Panel C: Business and school operation	
Unwilling to accept: close schools	0.776
Unwilling to accept: close restaurants etc.	0.790
Unwilling to accept: close all businesses	0.824
Panel D: Economic well-being	
Unwilling to accept: measures cut income	0.730
Unwilling to accept: measures 2x unemp. rate	0.788
Unwilling to accept: measures 3x unemp. rate	0.779
Panel E: Other restrictive policies	
Unwilling to accept: ration goods	0.740
Unwilling to accept: mandate vaccinations against COVID-19	0.855
Overall average	0.757

Notes: Table reports the correlation between the proportional (as used in the in-depth survey) and absolute versions of the lives-saved questions as described in Section II.B from the sample of validation survey. The proportional version refers to the questions that do not fix participants' beliefs about the total number of people that would have died because of COVID-19 in the absence of the given policy. Sample wording of the question is: "*Out of every 100 people who would have otherwise died in the [...] because of the COVID-19 pandemic, some will be saved if one of the following policies is implemented. What's the minimum number of people that each of the following policies would need to save in order for you to support it?*" The absolute version refers to the questions that fix the beliefs. Sample wording of the question is: "*Around 530,000 people already died in the U.S. due to COVID-19. Suppose that, if going forward, no policy to curtail the spread of the virus will be in place, an additional 100,000 people will die. What's the minimum number of people, out of those 100,000 people, that each of the following policies would need to save in order for you to support it?*" The bottom row presents the overall average correlation.

Appendix Table A.9: Relationship between attitudes and behaviors

Attitudes (1)	Behaviors (2)	Correlation Coefficient (3)
Panel A: Attitudes and petitioning behaviors		
Unwilling to accept: mandatory vaccine	Disseminating anti-mandatory vaccine petition	0.629
Unwilling to accept: recommend stay home	Disseminating anti-lockdown petition	0.523
Unwilling to accept: recommend stay home	Disseminating anti-curfew petition	0.328
z-score: attitudes corresponding to petitioning behaviors	*z-score: petitions*	0.525
Panel B: Attitudes and donating behaviors		
Unwilling to relax privacy protections	Donating to a privacy organization	0.336
Unwilling to sacrifice free press	Donating to a free media organization	0.058
Unwilling to suspend democratic procedures	Donating to a pro-democracy organization	0.100
z-score: attitudes corresponding to donating behaviors	*z-score: donation*	0.215
Panel C: Attitudes and self-reported behaviors		
Unwilling to accept: mandatory vaccine	(r) Vaccination behavior	0.493
Unwilling to suspend civic duties	Voting behavior	0.309
Unwilling to suspend civic duties	Voting behavior - 2020 U.S. Presidential Election	0.319
Unwilling to accept: recommend stay home	(r) Mask-wearing behavior	0.291
Unwilling to accept: recommend stay home	Failure of social distancing	0.170
z-score: attitudes corresponding to self-reported behaviors	*z-score: self-reported behaviors*	0.363

Notes: Table reports results from an OLS estimation of practicing or willingness to practice a given behavior on attitudes. The results are based on the sample from the COVID-19 and Validation Survey. The "z-score" at the bottom of each panel is an inverse-covariance-weighted index as described in Anderson (2008), which combines all variables in the panel. "(r)" indicates that the scale of the variable is reversed. The number of observations is 220 for all variables; 213 for the last variable in Panel A. Standard errors are in parentheses.

Appendix Table A.10: Heterogeneity: 2SLS estimates of health insecurity on civil liberties (longitudinal survey)

	Outcome: Willingness to Sacrifice Own Rights				
	Male	Low Income	Age 65+	No College Diploma	U.S. Only: Republican vs. Democrat
	(1)	(2)	(3)	(4)	(5)
X_i * Health Insecurity	-0.140**	0.053*	-0.116*	0.084***	0.094
	(0.056)	(0.029)	(0.059)	(0.025)	(0.173)
Health Insecurity	0.161***	0.078**	0.133***	0.072***	-0.029
	(0.036)	(0.034)	(0.031)	(0.025)	(0.186)
X_i	-0.009	-0.034***	0.029***	-0.043***	-0.184**
	(0.007)	(0.005)	(0.008)	(0.004)	(0.069)
Kleibergen-Paap F-statistic	74.891	71.348	78.168	75.625	2.037
Mean of Outcome	0.750	0.750	0.750	0.750	0.761
Observations	359380	359380	366618	359380	19426

Notes: Table reports 2SLS results using naturally-occurring variation in COVID-19 mortality, interacting the endogenous variable and instrument with each demographic characteristic described in the column headings. Outcome variable is willingness to sacrifice own rights as listed in Section II.B. Health insecurity is an average of three concerns: personal health, the health of the elderly, and the health care system being unable to cope. The demographic variables, from left to right, are sex (indicator for male), low income (indicator for income below median relative to own country), age 65+ (indicator for age 65 or above), education (indicator for holding no college degree), political affiliation (1 if Republican or 0 if Democrat for the U.S. respondents). The health insecurity is standardized to mean 0 and sd 1. All regressions include controls for demographics (sex, age group indicators, education (indicator for holding a college degree), and income quartiles (relative to own country)), proxies for public health policy response (three-week moving average of a stringency index and the presence of a lockdown in the respondent's region during the week of the survey), the (log) cumulative prevalence of COVID-19 mortality lagged by one week, survey weeks, financial insecurity (i.e. concern about your household financial position), government effectiveness (i.e., belief that the government is taking proper steps to protect its population), and the indicated demographic characteristic. Standard errors clustered at the administrative division level 1 are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.11: 2SLS results using COVID-19 mortality fluctuations: alternative pathways (longitudinal survey)

	Sacrifice Own Rights	Sacrifice Free Press	Relax Privacy Protections	Suspend Demo. Proce.	Endure Econ. Losses
	(1)	(2)	(3)	(4)	(5)
Panel A: 2SLS, Instrumenting For Health Insecurity					
Health Insecurity	0.107***	0.198***	0.136***	0.247***	0.156***
	(0.026)	(0.058)	(0.044)	(0.050)	(0.054)
Kleibergen-Paap F-statistic	148.700	69.355	86.449	129.361	46.718
Panel-Specific Controls:					
Financial Insecurity	Yes	Yes	Yes	Yes	Yes
Government Effectiveness	Yes	Yes	Yes	Yes	Yes
Panel B: 2SLS, Instrumenting for Financial Insecurity					
Financial Insecurity	-0.062	-0.506*	-0.189	-0.571***	-0.190
	(0.083)	(0.265)	(0.122)	(0.195)	(0.166)
Kleibergen-Paap F-statistic	36.934	7.311	21.160	15.746	14.578
Panel-Specific Controls:					
Health Insecurity	Yes	Yes	Yes	Yes	Yes
Government Effectiveness	Yes	Yes	Yes	Yes	Yes
Panel C: 2SLS, Instrumenting for Government Effectiveness					
Government Effectiveness	0.068	-0.169	-0.068	-0.250*	-0.100
	(0.069)	(0.155)	(0.136)	(0.133)	(0.203)
Kleibergen-Paap F-statistic	14.538	11.419	6.230	16.786	4.088
Panel-Specific Controls:					
Health Insecurity	Yes	Yes	Yes	Yes	Yes
Financial Insecurity	Yes	Yes	Yes	Yes	Yes
Mean of Outcome	0.750	0.615	0.575	0.575	0.571
Number of Clusters	197	195	194	195	196
Observations	359380	71846	71801	71809	71805
Controls:					
Demographics	Yes	Yes	Yes	Yes	Yes
Policy Response	Yes	Yes	Yes	Yes	Yes
Lagged COVID-19 Prevalence	Yes	Yes	Yes	Yes	Yes
Week Fixed Effects	Yes	Yes	Yes	Yes	Yes
Admin Level 1 Fixed Effects	Yes	Yes	Yes	Yes	Yes

Notes: Table reports 2SLS results using naturally-occurring variation in COVID-19 mortality. Outcome variables are listed in the column headings and described in Section II.B. Financial insecurity refers to an concern about your household financial position on a scale of 1 to 5. Government effectiveness refers to attitude towards the the government's COVID-19 response (i.e., belief that the government is taking proper steps to protect its population) on a scale of 1 to 5. The health insecurity, financial insecurity, and government effectiveness are standardized to mean 0 and sd 1. In addition to the panel-specific controls, all regressions include controls for demographics (sex, age group indicators, education (indicator for holding a college degree), and income quartiles (relative to own country)), proxies for public health policy response (three-week moving average of a stringency index and the presence of a lockdown in the respondent's region during the week of the survey), the (log) cumulative prevalence of COVID-19 mortality lagged by one week, survey weeks, and administrative division level 1 fixed effects. Standard errors clustered at the administrative division level 1 are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.12: OLS and 2SLS estimates of the effects of health insecurity on civil liberties using COVID-19 mortality fluctuations (country and individual fixed effects) (longitudinal survey)

	Sacrifice Own Rights		Sacrifice	Relax Privacy	Suspend	Endure
	Indiv FEs	*Country FEs*	Free Press	Protections	Demo. Proce.	Econ. Losses
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: OLS Estimates						
Health Insecurity	0.023***	0.096***	0.057***	0.065***	0.059***	0.095***
	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
Panel B: Reduced Form						
COVID-19 Incidence	0.007***	0.006***	0.012***	0.008**	0.021***	0.007*
	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.004)
Panel C: 2SLS Estimates						
Health Insecurity	0.107***	0.094***	0.202***	0.122**	0.302***	0.128**
	(0.028)	(0.031)	(0.064)	(0.047)	(0.056)	(0.058)
Kleibergen-Paap F-statistic	115.656	104.300	54.007	65.218	88.432	39.053
Mean of Outcome	0.747	0.750	0.615	0.575	0.575	0.571
Number of Unique FEs	65313	197	196	197	197	196
Observations	230089	359380	71847	71804	71811	71805
Controls:						
Demographics	No	Yes	Yes	Yes	Yes	Yes
Financial Insecurity	Yes	Yes	Yes	Yes	Yes	Yes
Government Effectiveness	Yes	Yes	Yes	Yes	Yes	Yes
Policy Response	Yes	Yes	Yes	Yes	Yes	Yes
Lagged COVID-19 Prevalence	Yes	Yes	Yes	Yes	Yes	Yes
Week Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	No	Yes	Yes	Yes	Yes	Yes
Individual-Level Fixed Effects	Yes	No	No	No	No	No

Notes: Table reports OLS and 2SLS results using naturally-occurring variation in COVID-19 mortality. Outcome variables are listed in the column headings and described in Section II.B. Health insecurity is an average of three concerns: personal health, the health of the elderly, and the health care system being unable to cope. Column (1) includes individual-level fixed effects instead of administrative division level 1 fixed effects, while columns (2) to (6) include country-level fixed effects. The health insecurity and COVID-19 incidence are standardized to mean 0 and sd 1. All regressions include proxies for public health policy response (three-week moving average of a stringency index and the presence of a lockdown in the respondent's region during the week of the survey), the (log) cumulative prevalence of COVID-19 mortality lagged by one week, survey weeks, financial insecurity (i.e. concern about your household financial position), and government effectiveness (i.e., belief that the government is taking proper steps to protect its population). Columns (2) to (6) also include controls for demographics (sex, age group indicators, education (indicator for holding a college degree), and income quartiles (relative to own country)). Standard errors clustered at the administrative division level 1 are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.13: OLS and 2SLS estimates of the effects of health insecurity on civil liberties using COVID-19 mortality fluctuations
(longitudinal survey, ventiles of COVID-19 incidence)

	Sacrifice Own Rights	Sacrifice Free Press	Relax Privacy Protections	Suspend Demo. Proce.	Endure Econ. Losses
	(1)	(2)	(3)	(4)	(5)
PANEL A: OLS estimates					
Health Insecurity	0.095***	0.057***	0.067***	0.060***	0.095***
	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
PANEL B: Reduced form					
COVID-19 Incidence	0.009***	0.014***	0.010***	0.019***	0.009***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
PANEL C: 2SLS estimates					
Health Insecurity	0.134***	0.197***	0.142***	0.249***	0.149***
	(0.023)	(0.055)	(0.041)	(0.044)	(0.049)
Kleibergen-Paap F-statistic	140.989	77.871	99.916	129.945	49.841
Mean of Outcome	0.750	0.619	0.575	0.574	0.571
Observations	409182	81895	81670	81770	81787
Controls:					
Demographics	Yes	Yes	Yes	Yes	Yes
Financial Insecurity	Yes	Yes	Yes	Yes	Yes
Government Effectiveness	Yes	Yes	Yes	Yes	Yes
Policy Response	Yes	Yes	Yes	Yes	Yes
Lagged COVID-19 Prevalence	Yes	Yes	Yes	Yes	Yes
Week Fixed Effects	Yes	Yes	Yes	Yes	Yes
Admin Level 1 Fixed Effects	Yes	Yes	Yes	Yes	Yes

Notes: Table reports OLS and 2SLS results using naturally-occurring variation in COVID-19 mortality. The instrument used for the estimates is COVID-19 mortality ventiles. Outcome variables are listed in the column headings and described in Section II.B. Health insecurity is an average of three concerns: personal health, the health of the elderly, and the health care system being unable to cope. The health insecurity and COVID-19 incidence are standardized to mean 0 and sd 1. All regressions include controls for demographics (sex, age group indicators, education (indicator for holding a college degree), and income quartiles (relative to own country)), proxies for public health policy response (three-week moving average of a stringency index and the presence of a lockdown in the respondent's region during the week of the survey), the ventiles of cumulative prevalence of COVID-19 mortality lagged by one week, survey weeks, financial insecurity (i.e. concern about your household financial position), and government effectiveness (i.e., belief that the government is taking proper steps to protect its population). Standard errors clustered at the administrative division level 1 are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.14: Reduced form of the effects of public health treatment on civil liberties (in-depth survey)

Outcome Variables	Public Health Treatment		Mean of Outcome	Gap btw. China and U.S.
(1)	(2)	(3)	(4)	(5)
Panel A: Overall rights and freedom				
Willing to sacrifice own rights	0.019**	(0.010)	0.724	0.224
Willing to sacrifice others' rights	0.016	(0.010)	0.705	0.203
z-score: willing to sacrifice rights	0.042**	(0.021)	0.000	0.512
Panel B: Protection of privacy				
Willing to relax privacy protections	0.026***	(0.010)	0.577	0.393
Unwilling to accept: track sick people	-1.426**	(0.690)	48.855	-5.843
Unwilling to accept: track everyone	-1.772**	(0.699)	54.572	-8.957
Contact tracing app	0.028***	(0.010)	0.475	0.268
z-score: willing to sacrifice privacy	0.082***	(0.020)	0.000	0.778
Panel C: Democratic rights and institutions				
Prefer strong leader	0.087***	(0.020)	2.672	0.614
Prefer delegating to experts	0.095***	(0.017)	2.909	-0.058
Willing to sacrifice free press	0.027***	(0.010)	0.600	0.422
No preference for democratic system	-0.005	(0.016)	1.733	n.a.
Willing to suspend democr. procedures	0.020**	(0.010)	0.446	n.a.
z-score: willing to curtail democracy	0.095***	(0.020)	-0.001	n.a.
Panel D: Rights to movement				
Unwilling to accept: close national border	0.560	(0.696)	42.655	6.624
Unwilling to accept: recommend stay home	0.395	(0.690)	43.025	7.722
Unwilling to accept: arrest if outside home	-0.498	(0.713)	51.547	-6.984
z-score: willing to give up mobility	-0.002	(0.019)	0.000	-0.032

Notes: Table reports reduced form results using experimental variation from the in-depth survey. Columns (2) to (3) present the regression results of the effects of public health treatment on outcomes. Column (4) reports the unconditional mean of the outcome variable of respondents in the control group. Column (5) reports the difference in the unconditional control group mean of each outcome variable between China and U.S. respondents. Outcomes of "unwilling to accept" measure the minimum lives that need to be saved to implement the given policy on a scale of 0 to 100. Outcomes of "willing to [do]" and contact tracing app are dichotomous. Outcomes of "preference" are on a scale of 1 to 4. The z-score for each family shown at the bottom row of each panel is an inverse-covariance-weighted index as described in Anderson (2008). All regressions include the following controls: demographics (sex, age group indicators, education (indicator for holding a college degree), income quartiles (relative to own country), and an indicator for any medical conditions); pandemic-related financial insecurity (i.e., agreement with a statement that COVID-19 is a threat to the economy on a scale of 1 (not a serious threat) to 4 (A very serious threat)); concerns about surveillance (i.e., worries about information collected by the government to fight COVID-19 could be stored and used for other reasons later on a scale of 1 (strongly unconcerned) to 5 (strongly concerned)); strata fixed effects (country and hotspot); and survey week fixed effects. The observation count is 13,337 for every regression except the last two in Panel B and last three in Panel C; it is 13,328 for the last two in Panel B and 9,425 for the last three regressions in Panel C. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.15: OLS and 2SLS estimates of the effects of health insecurity on civil liberties (in-depth survey, additional outcomes)

Outcome Variables	Health Insecurity (OLS)		Health Insecurity (2SLS)		Mean of Outcome	Gap btw. China and U.S.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Business and school operation						
Unwilling to accept: close schools	-3.482***	(0.433)	-0.445	(6.219)	42.853	8.686
Unwilling to accept: close restaurants etc.	-3.624***	(0.417)	0.722	(5.999)	42.612	5.969
Unwilling to accept: close all businesses	-3.941***	(0.412)	-1.708	(5.887)	44.021	5.060
z-score: willing to limit operations	0.109***	(0.012)	0.015	(0.168)	0.000	-0.196
Panel B: Economic well-being						
Unwilling to accept: measures cut income	-1.263***	(0.404)	-14.503**	(6.231)	59.612	-6.195
Unwilling to accept: measures 2x unemp. rate	-3.404***	(0.394)	-5.017	(5.693)	52.047	3.729
Unwilling to accept: measures 3x unemp. rate	-3.595***	(0.404)	-2.922	(5.898)	56.316	3.308
Willing to endure economic losses	0.074***	(0.006)	0.147*	(0.088)	0.588	0.125
z-score: willing to harm economy	0.159***	(0.012)	0.415**	(0.178)	0.000	0.181
Panel C: Other restrictive policies						
Unwilling to accept: ration goods	-1.892***	(0.406)	-10.879*	(5.975)	51.632	-0.096
Unwilling to accept: mandate vaccinations against COVID-19	-2.918***	(0.438)	-5.242	(6.334)	46.576	4.247
z-score: willing to accept restrictive policies	0.076***	(0.012)	0.264	(0.169)	0.000	-0.063

Notes: Table reports OLS and 2SLS results using experimental variation, based on the in-depth survey. Health Insecurity refers to an average of (1) COVID-19 is a threat to the health and lives of people in the country; and (2) the country does not have sufficient hospital capacity and medical equipment for a pandemic surge, topics discussed in the public health treatment. Columns (2) to (3) present the OLS estimates and standard errors, and columns (4) to (5) present the 2SLS results from equation 3. Column (6) reports the unconditional mean of the outcome variable of respondents in the control group. Column (7) reports the difference in the unconditional control group mean of each outcome variable between China and U.S. respondents. Outcomes of "unwilling to accept" measure the minimum lives that need to be saved to implement the given policy on a scale of 0 to 100. Outcomes of "willing to [do]" are dichotomous. The z-score for each family shown at the bottom row of each panel is an inverse-covariance-weighted index as described in Anderson (2008). The health insecurity is standardized to mean 0 and sd 1. All regressions include the following controls: demographics (sex, age group indicators, education (indicator for holding a college degree), income quartiles (relative to own country), and an indicator for any medical conditions); pandemic-related financial insecurity (i.e., agreement with a statement that COVID-19 is a threat to the economy on a scale of 1 (not a serious threat) to 4 (A very serious threat)); concerns about surveillance (i.e., worries about information collected by the government to fight COVID-19 could be stored and used for other reasons later on a scale of 1 (strongly unconcerned) to 5 (strongly concerned)); strata fixed effects (country and hotspot); and survey week fixed effects. The observation count is 13,337 for every regression. The first stage F-statistic is 57.73. Robust standard errors are in parentheses. * p < 0.1, ** p < 0.05, *** p < 0.01.

Appendix Table A.16: 2SLS estimates of the effects of health insecurity on civil liberties (in-depth survey, nationally representative weights)

Outcome Variables	Health Insecurity (OLS)		Health Insecurity (2SLS)		Mean of Outcome	Gap btw. China and U.S.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Overall rights and freedom						
Willing to sacrifice own rights	0.058***	(0.006)	0.157*	(0.095)	0.724	0.224
Willing to sacrifice others' rights	0.061***	(0.006)	0.108	(0.095)	0.705	0.203
z-score: willing to sacrifice rights	0.143***	(0.014)	0.318	(0.209)	0.000	0.512
Panel B: Protection of privacy						
Willing to relax privacy protections	0.026***	(0.007)	0.209**	(0.103)	0.577	0.393
Unwilling to accept: track sick people	-2.486***	(0.528)	-11.840*	(7.071)	48.855	-5.843
Unwilling to accept: track everyone	-1.586***	(0.523)	-13.953*	(7.192)	54.572	-8.957
Contact tracing app	0.038***	(0.007)	0.251**	(0.101)	0.475	0.268
z-score: willing to sacrifice privacy	0.104***	(0.014)	0.692***	(0.212)	0.000	0.778
Panel C: Democratic rights and institutions						
Prefer strong leader	-0.053***	(0.015)	0.734***	(0.234)	2.672	0.614
Prefer delegating to experts	0.123***	(0.015)	0.875***	(0.202)	2.909	-0.058
Willing to sacrifice free press	0.002	(0.007)	0.222**	(0.105)	0.600	0.422
No preference for democratic system	-0.102***	(0.011)	0.085	(0.144)	1.733	n.a.
Willing to suspend democr. procedures	-0.009	(0.007)	0.142	(0.093)	0.446	n.a.
z-score: willing to curtail democracy	0.017	(0.014)	0.850***	(0.214)	-0.001	n.a.
Panel D: Rights to movement						
Unwilling to accept: close national border	-1.418***	(0.524)	9.502	(7.224)	42.655	6.624
Unwilling to accept: recommend stay home	-4.070***	(0.522)	5.478	(7.105)	43.025	7.722
Unwilling to accept: arrest if outside home	-3.563***	(0.529)	-0.248	(7.126)	51.547	-6.984
z-score: willing to give up mobility	0.096***	(0.015)	-0.142	(0.196)	0.000	-0.032

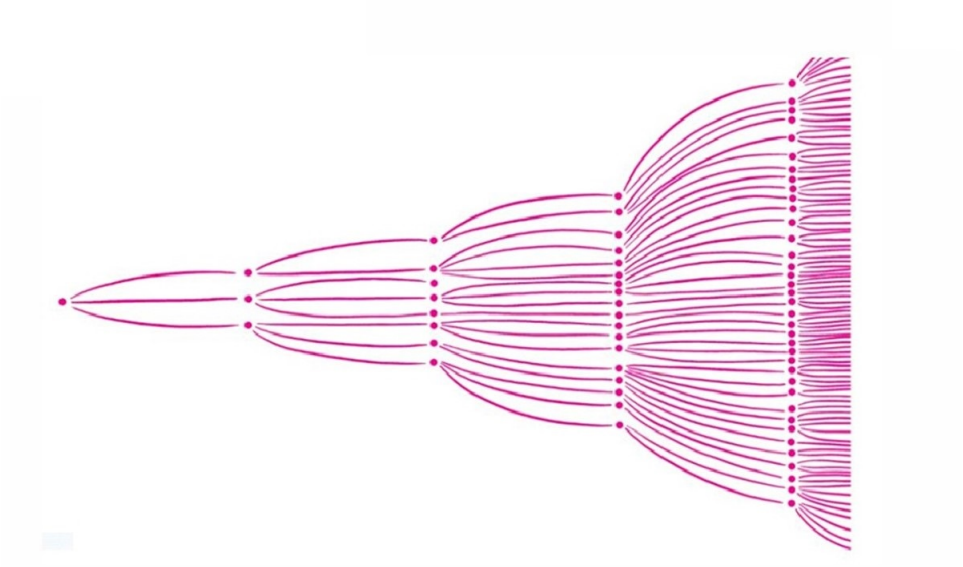
Notes: Table reports OLS and 2SLS results using experimental variation from the in-depth survey with nationally representative sampling weights. Health Insecurity refers to an average of (1) COVID-19 is a threat to the health and lives of people in the country; and (2) the country does not have sufficient hospital capacity and medical equipment for a pandemic surge, topics discussed in the public health treatment. Columns (2) to (3) present the OLS estimates and standard errors, and columns (4) to (5) present the 2SLS results from equation 3. Column (6) reports the unconditional mean of the outcome variable of respondents in the control group. Column (7) reports the difference in the unconditional control group mean of each outcome variable between China and U.S. respondents. Outcomes of "unwilling to accept" measure the minimum lives that need to be saved to implement the given policy on a scale of 0 to 100. Outcomes of "willing to [do]" and contact tracing app are dichotomous. Outcomes of "preference" are on a scale of 1 to 4. The z-score for each family shown at the bottom row of each panel is an inverse-covariance-weighted index as described in Anderson (2008). The health insecurity is standardized to mean 0 and sd 1. All regressions include the following controls: demographics (sex, age group indicators, education (indicator for holding a college degree), income quartiles (relative to own country), and an indicator for any medical conditions); pandemic-related financial insecurity (i.e., agreement with a statement that COVID-19 is a threat to the economy on a scale of 1 (not a serious threat) to 4 (A very serious threat)); concerns about surveillance (i.e., worries about information collected by the government to fight COVID-19 could be stored and used for other reasons later on a scale of 1 (strongly unconcerned) to 5 (strongly concerned)); strata fixed effects (country and hotspot); and survey week fixed effects. The observation count is 13,337 for every regression except the last two in Panel B and last three in Panel C; it is 13,328 for the last two in Panel B and 9,425 for the last three regressions in Panel C. The first stage F-statistics range from 44.90 to 45.76. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.17: Potential exclusion-restriction violations due to cross-learning (in-depth survey)

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Insecurity Related to Health						
	Health Insecurity	Threat to People's Health	Healthcare Capacity	Health Insecurity	Threat to People's Health	Healthcare Capacity
Public Health Treatment	0.140***	0.082***	0.147***	0.114***	0.058***	0.128***
	(0.017)	(0.019)	(0.016)	(0.015)	(0.016)	(0.016)
Kleibergen-Paap F-statistic	65.697	19.031	79.650	57.734	13.348	65.043
Mean of Outcome	-0.203	-0.106	-0.225	-0.203	-0.106	-0.225
Observations	13337	13337	13337	13337	13337	13337
Panel-Specific Controls:						
Financial Insecurity	No	No	No	Yes	Yes	Yes
Concerns about Surveillance	No	No	No	Yes	Yes	Yes
Panel B: Other Insecurities						
	Rights Insecurity	Financial Insecurity	Concerns about Surveillance	Rights Insecurity	Financial Insecurity	Concerns about Surveillance
Public Health Treatment	0.067***	0.036**	0.065***	0.001	-0.019	0.021
	(0.018)	(0.018)	(0.020)	(0.016)	(0.015)	(0.019)
Kleibergen-Paap F-statistic	13.752	4.180	11.123	0.004	1.590	1.149
Mean of Outcome	-0.142	-0.142	-0.073	-0.142	-0.142	-0.073
Observations	13337	13337	13337	13337	13337	13337
Panel-Specific Controls:						
Threat to People's Health	No	No	No	Yes	Yes	Yes
Healthcare Capacity	No	No	No	Yes	Yes	Yes

Notes: Table reports first-stage results using the experimental variation both on the health insecurity-related measures and on the rights insecurity-related measures. Health insecurity refers to an average of "threat to people's health" and "healthcare capacity"; threat to people's health measures a level of agreement on a statement that COVID-19 is a threat to the health and lives of people in the country on a scale of 1 (not a serious threat) to 4 (A very serious threat); healthcare capacity measures a level of agreement on that the R's country does not have sufficient hospital capacity and medical equipment to deal with the COVID-19 outbreak on a scale of 1 (strongly disagree) to 5 (strongly agree). Rights insecurity refers to an average of "financial insecurity" and "concerns about surveillance"; financial insecurity measures a level of agreement on a statement that COVID-19 is a threat to the economy in the country on a scale of 1 (not a serious threat) to 4 (A very serious threat); concerns about surveillance measures a level of worries about information collected by the government to fight COVID-19 could be stored and used for other reasons later on a scale of 1 (strongly unconcerned) to 5 (strongly concerned). The outcome variables are standardized to mean 0 and sd 1. All regressions include the following controls in addition to the panel-specific controls indicated at the bottom of the table: demographics (sex, age group indicators, education (indicator for holding a college degree), income quartiles (relative to own country), and an indicator for any medical conditions); strata fixed effects (country and hotspot); and survey week fixed effects. Kleibergen-Paap F-statistics presented are obtained from the estimate on the outcome of willingness to sacrifice own rights. Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

B Appendix Figures

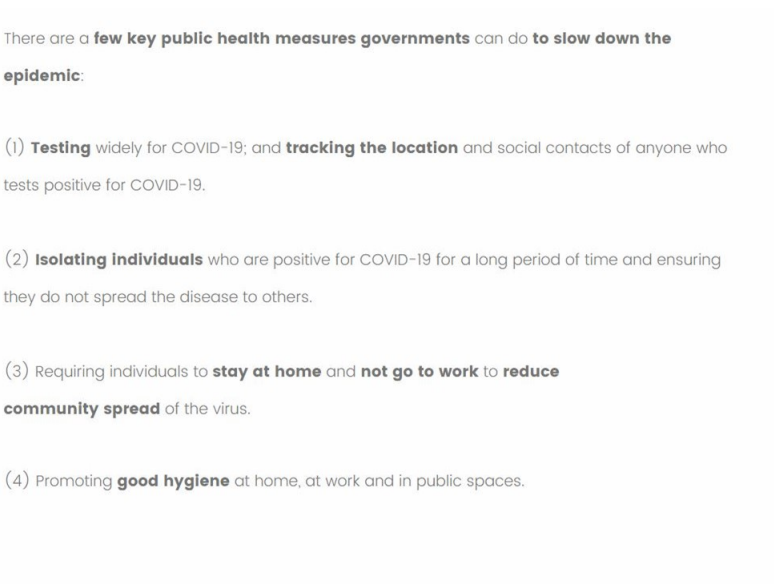


Notes: Figure shows exponential-disease-spread exhibit presented in the public health treatment. Participants in the experiment were shown a dynamic version of the figure above: from the root node of the tree, the disease sequentially spread to each set of downstream nodes.

Appendix Figure B.1: Information treatment: exponential disease spread

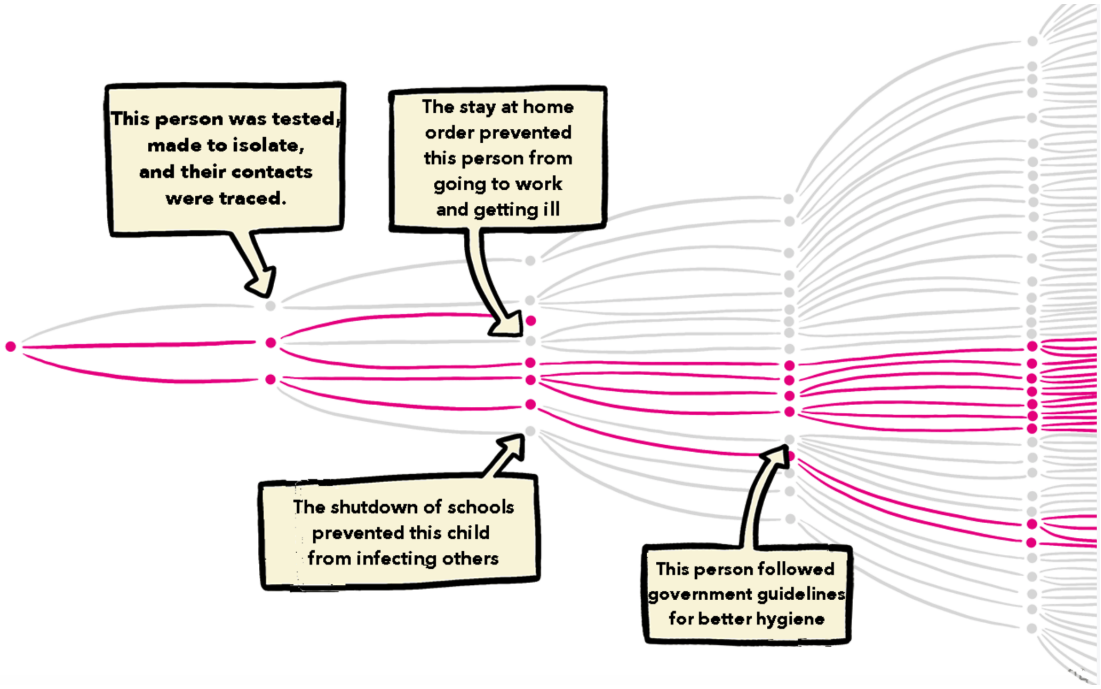
Notes: Figure shows health-care-strain exhibit presented in the public health treatment.

Appendix Figure B.2: Information treatment: health care strain



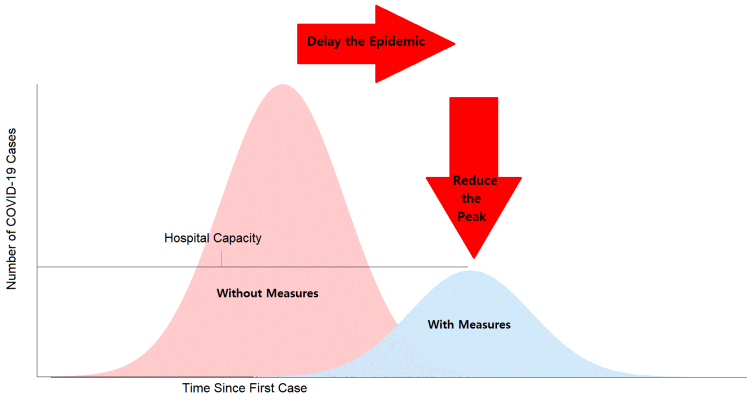
Notes: Figure shows key-health-measures exhibit presented in the public health treatment.

Appendix Figure B.3: Information treatment: key health measures



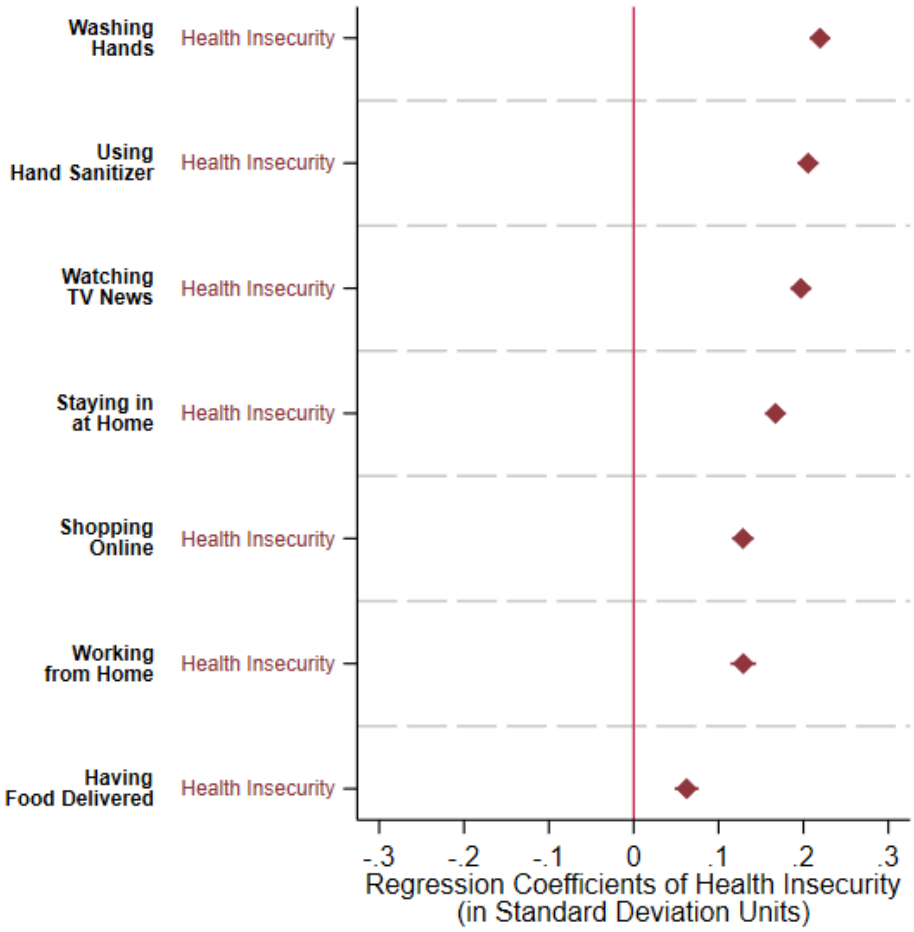
Notes: Figure shows importance-of-containment-measures exhibit presented in the public health treatment.

Appendix Figure B.4: Information treatment: importance of containment measures



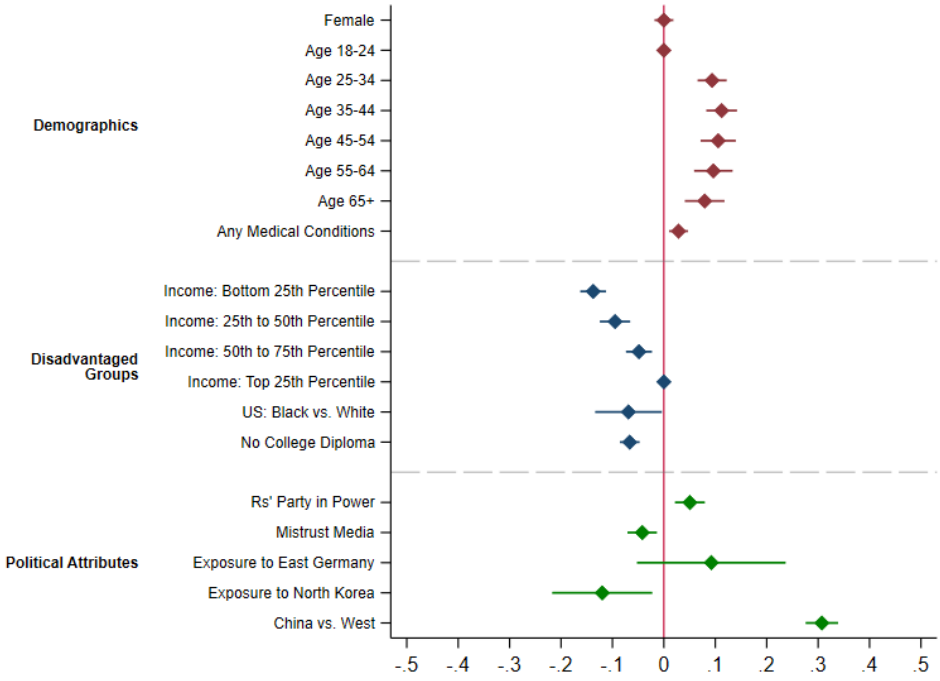
Notes: Figure shows flattening-the-curve exhibit presented in the public health treatment.

Appendix Figure B.5: Information treatment: flattening the curve



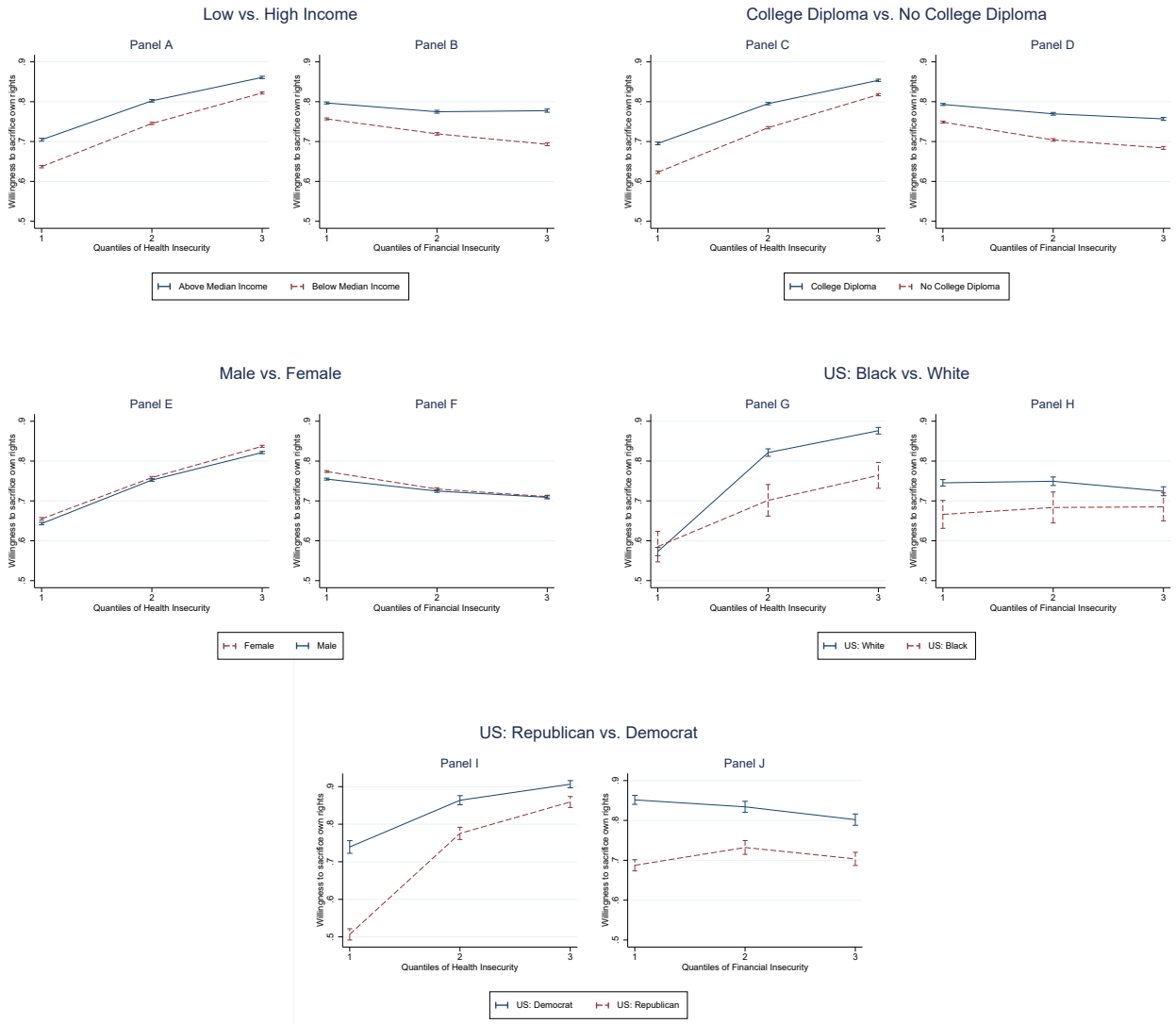
Notes: Figure is based on the sample from the longitudinal survey, including weeks from the week of March 30 to the week of April 13, 2020. Sweden period slightly delayed due to later entry into survey. Dots reflect coefficient estimates of health insecurity on the relevant outcome (y-axis). Health insecurity is the average over concerns about personal health, health of the elderly, and healthcare systems being able to cope. All outcomes and indexes are standardized to have mean 0 and sd 1. Regressions include but do not report country-week fixed effects, financial insecurity (i.e. concerns about one's household financial position), and demographic controls (age and sex). 95% confidence intervals based on robust standard errors are also shown.

Appendix Figure B.6: Relationship between health insecurity and self-reported behaviors



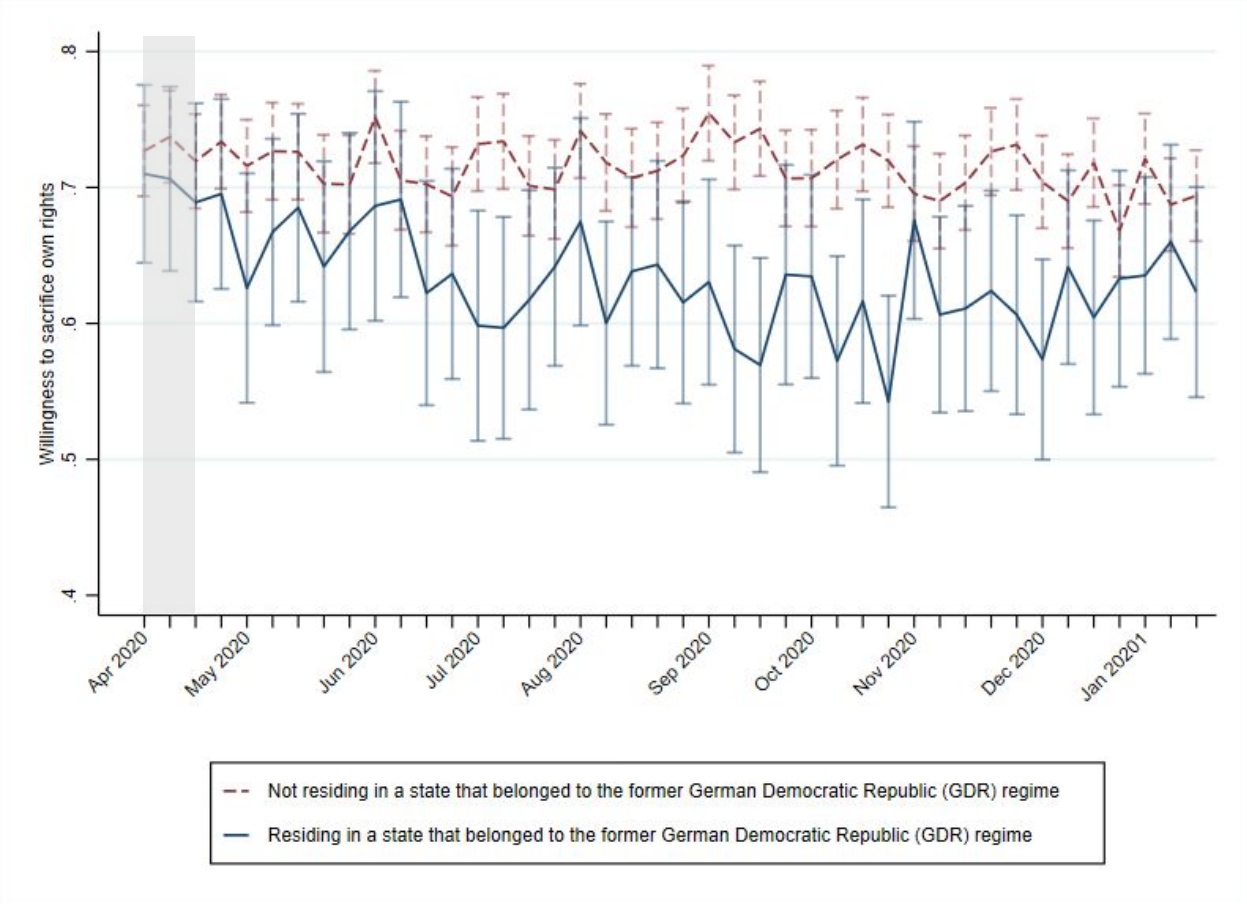
Notes: Figure based on in-depth survey sample, restricted to the control group. Diamonds denote coefficient estimates obtained from separate OLS regressions of willingness to sacrifice rights (as described in Section II.B) on the given characteristics (y-axis), controlling for perceived health insecurity, a hotspot indicator, survey week and country fixed effects. "China vs. West" denotes the an indicator equal to 1 for respondents from China (and zero for France, U.S., Italy, Germany, and the U.K.). 95% confidence intervals based on robust standard errors are shown.

Appendix Figure B.7: Individual characteristics and sacrificing own rights, controlling for perceived health insecurity
(in-depth survey)



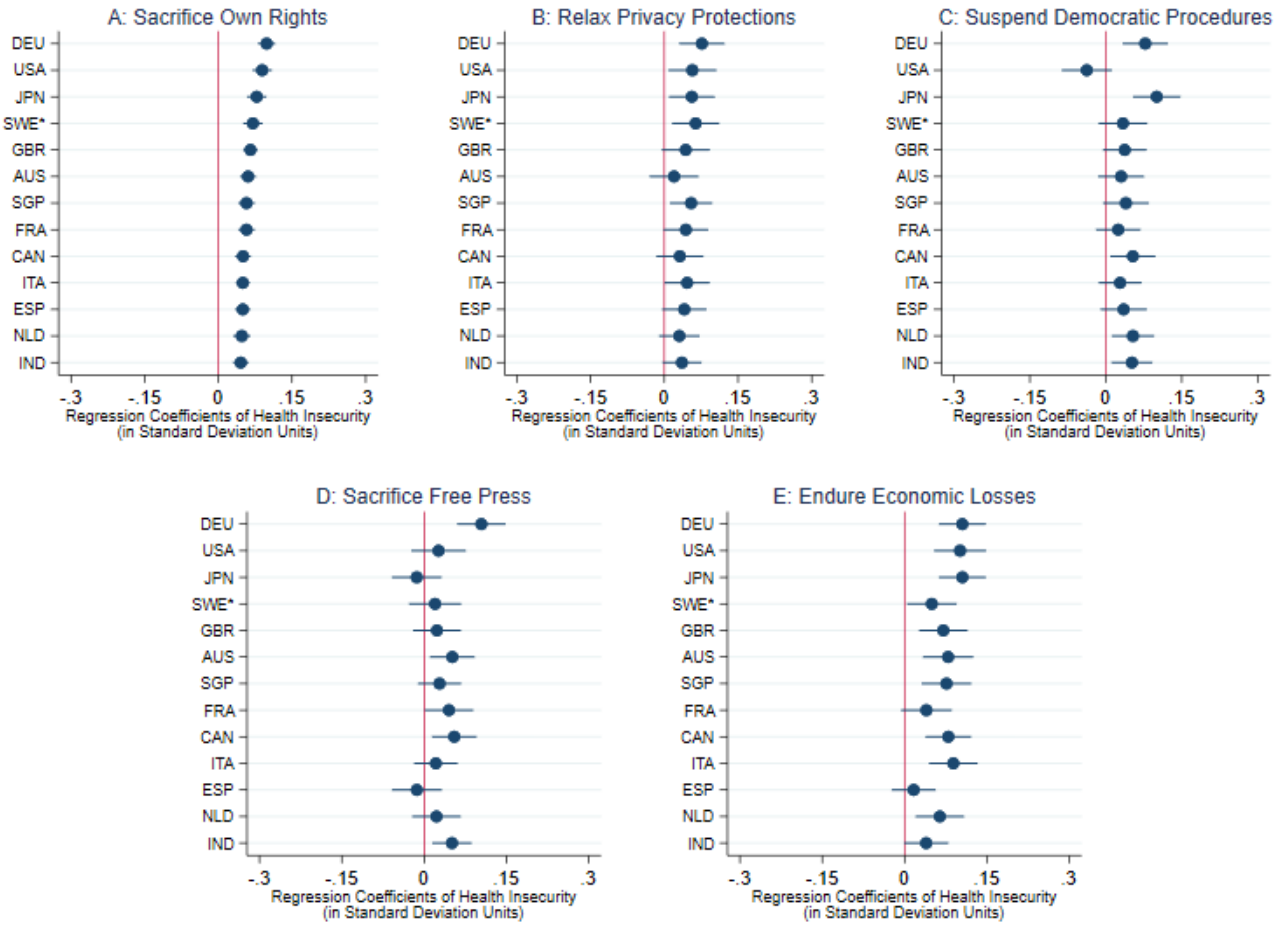
Notes: Figure is based on the longitudinal survey, plotting marginal predicted values of willingness to sacrifice rights (described in Section II.B) on the terciles of health (Panels A, C, E, G, and I) and financial insecurity (Panels B, D, F, H, and J) by demographic characteristics. The estimates are conditional on country and week fixed effects, indicators for age group and sex, and (for the comparisons in the U.S.) party affiliation and race. The plot by political affiliation does not control for political affiliation; the plot by race does not control for race.

Appendix Figure B.8: Relationship between health insecurity, financial insecurity and sacrificing rights across demographic groups (longitudinal survey)



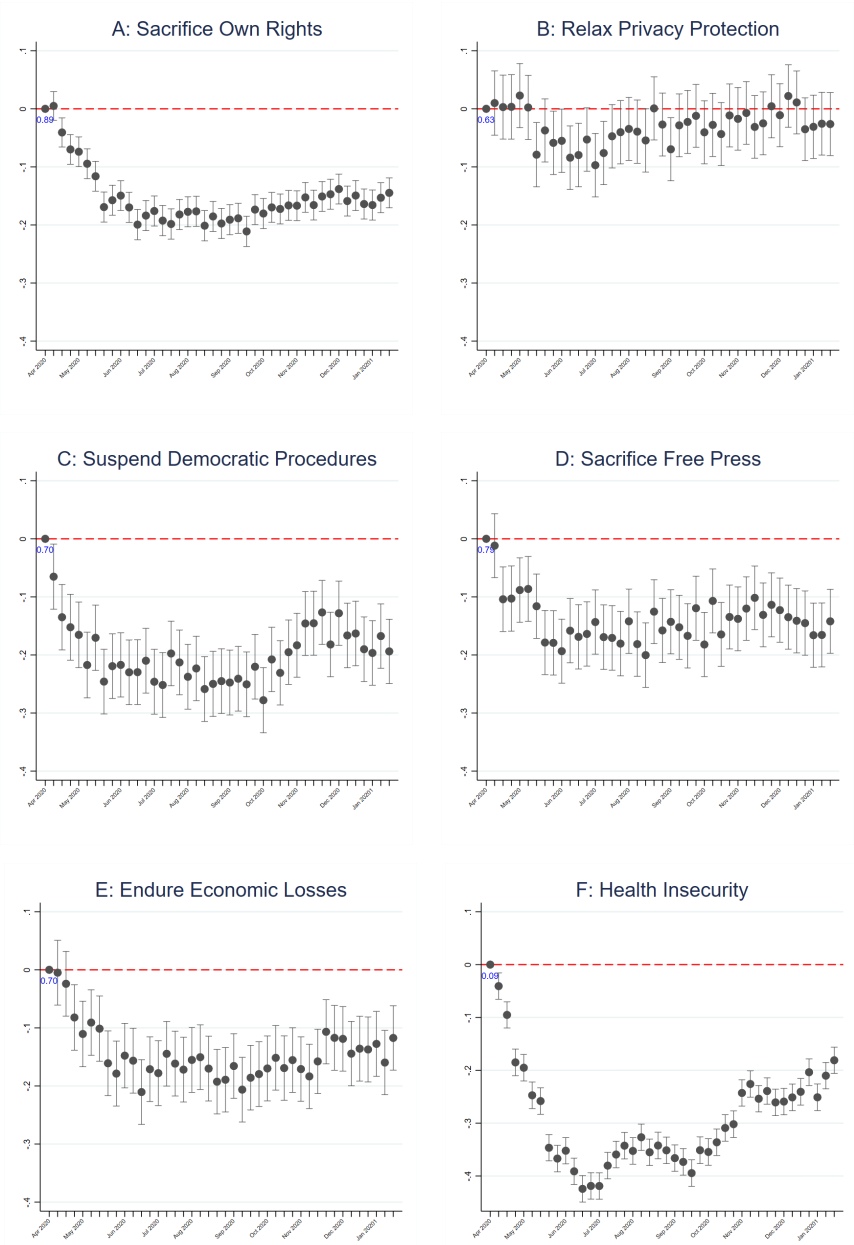
Notes: Figure is based on the longitudinal survey sample and plots marginal predicted values of willingness to sacrifice rights on residing in a state that belonged to the former German Democratic Republic (GDR) regime conditional on week fixed effects. Willingness to sacrifice rights is binary with 1 indicating more willingness and 0 indicating less willingness. The shaded gray area indicates the first three weeks of data collection early in the pandemic. The regression also controls for perceived health insecurity. 95% confidence intervals based on standard errors are shown.

Appendix Figure B.9: Willingness to sacrifice rights and residing in the former German Democratic Republic (GDR) regime



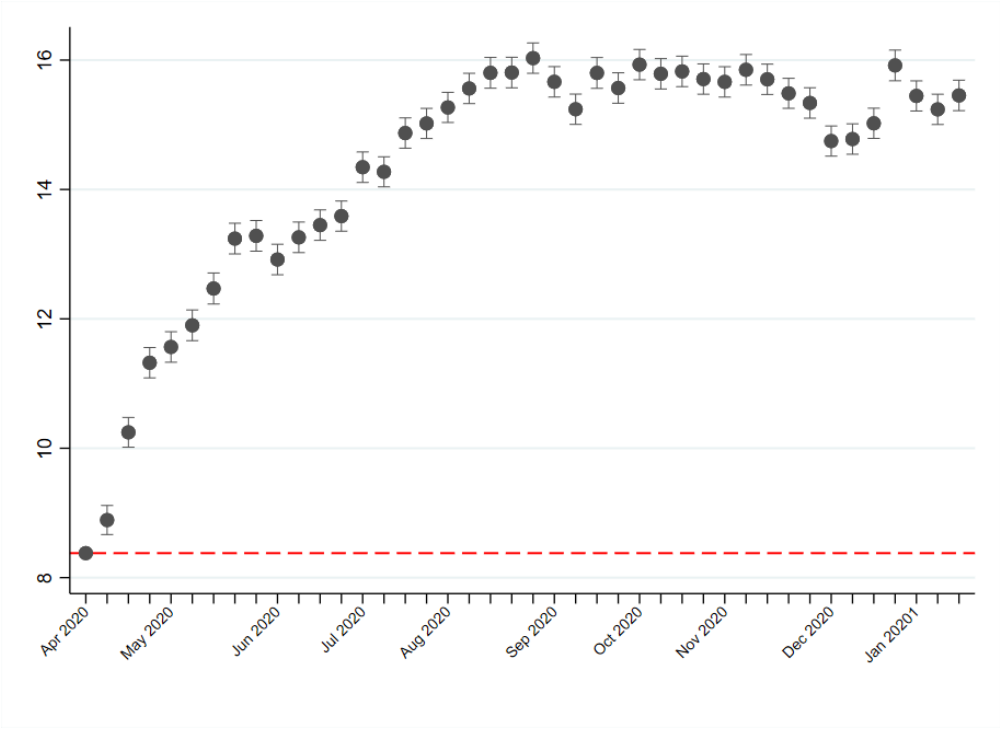
Notes: Figure is based on the sample from the longitudinal survey, including weeks from the week of March 30 to the week of April 13, 2020 except for Sweden; data from the week of May 18 to the week of June 1, 2020 are used for Sweden since data collection did not begin until May 18, 2020. The sample includes the following countries: Australia (AUS), Canada (CAN), France (FRA), Germany (DEU), India (IND), Italy (ITA), Japan (JPN), Singapore (SGP), Spain (ESP), the Netherlands (NLD), the United Kingdom (GBR), Sweden (SWE), and the United States (USA). Dots denote coefficient estimates from separate OLS regressions of our five main outcome variables on health insecurity by country. Outcome variables are binary with 1 indicating more willingness and 0 indicating less willingness. Health insecurity is the average over concerns about personal health, health of the elderly, and healthcare systems being able to cope. Insecurity indices are standardized so as to have mean 0 and sd 1 in the given country sample. Regressions include but do not report demographic controls (age and sex), financial insecurity (i.e. concerns about one's household financial position), and week fixed effects. 95% confidence intervals based on robust standard errors are also shown.

Appendix Figure B.10: Relationship between willingness to forego civil liberties and health insecurity by country



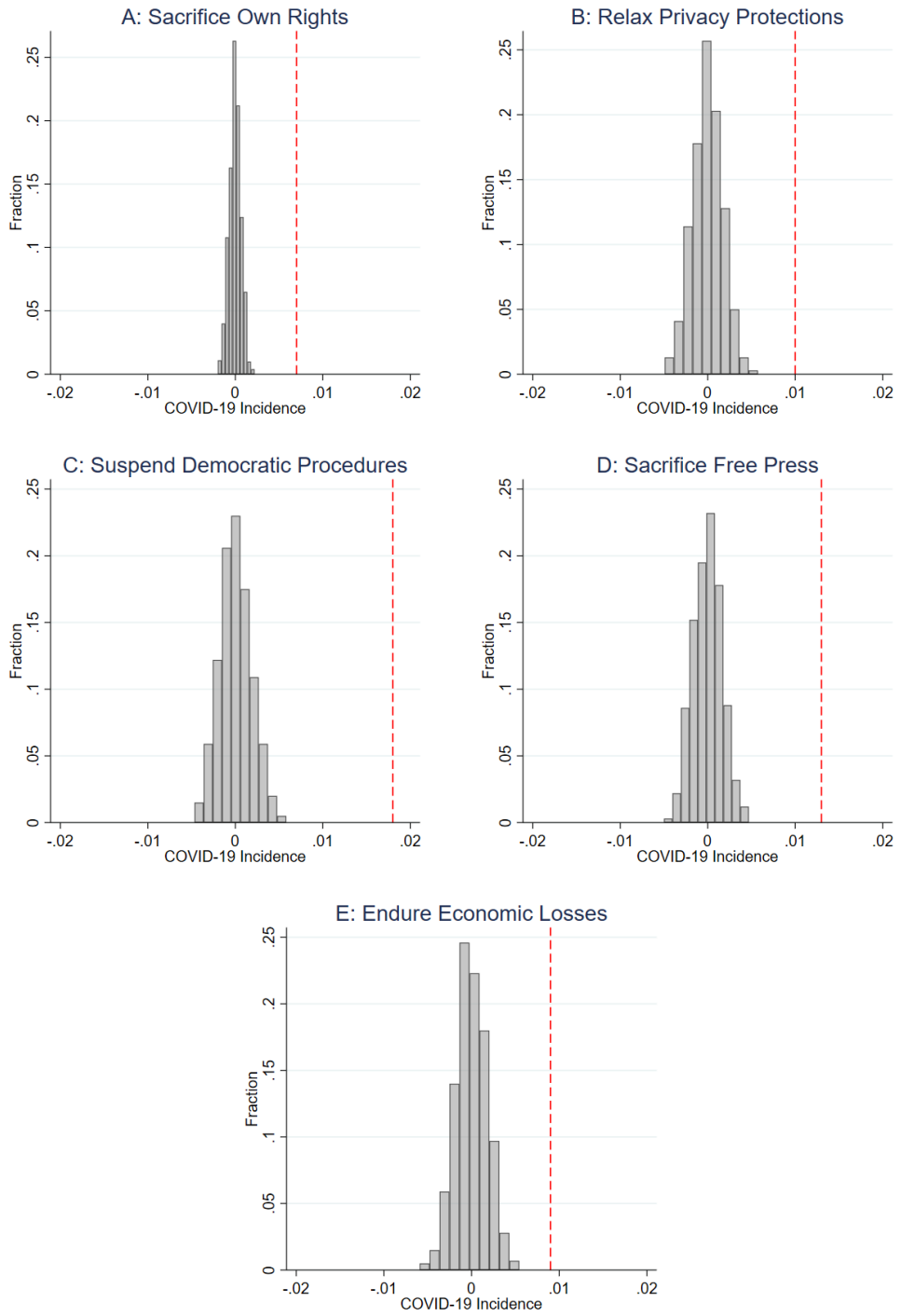
Notes: Figure is based on the longitudinal survey, including all weeks from the week of March 30, 2020 to the week of January 18, 2021 and including the following countries: Australia, Canada, France, Germany, India, Italy, Japan, Singapore, Spain, Sweden, the Netherlands, the United Kingdom, the United States; Sweden is added in the week of May 18, 2020. Dots represent coefficient estimates obtained from OLS regression of each outcome of interest on week fixed effects. Outcome variables except Panel F are binary with 1 indicating more willingness and 0 indicating less willingness; health insecurity in Panel F is the average over concerns about personal health, health of the elderly in the community, and healthcare systems being able to cope. All outcomes are standardized based on mean and sd as of the week of March 30, 2020 except Swedish data; outcomes of Swedish data are standardized based on the week of March 30, 2020 data from European countries (i.e. France, Germany, Italy, Spain, the Netherlands, and the United Kingdom) due to the absence of weekly data from the week of March 30 to the week of May 11, 2020. Numbers in blue under the first dot in each subfigure indicate the constant term obtained from the same regression specification but with unstandardized outcome: 0.89 for Panel A; 0.63 for Panel B; 0.70 for Panel C; 0.79 for Panel D; 0.70 for Panel E; 0.09 for Panel F. Country fixed effects are included in the regressions but not reported. 95% confidence intervals based on robust standard errors are also shown.

Appendix Figure B.11: Evolution of willingness to forego civil liberties and health insecurity over time



Notes: Figure is based on the longitudinal survey, including all weeks from the week of March 30, 2020 to the week of January 18, 2021 and including the following countries: Australia, Canada, France, Germany, India, Italy, Japan, Singapore, Spain, Sweden, the Netherlands, the United Kingdom, the United States; Sweden is added in the week of May 18, 2020. Dots represent coefficient estimates obtained from OLS regression of outcome of interest on week fixed effects and country fixed effects. Outcome of interest is the respondent's belief over months to end of pandemic; y-axis denotes the number of months. The week of March 30, 2020 is the omitted category; mean of the week of March 30, 2020 is added to coefficients. 95% confidence intervals based on robust standard errors are shown.

Appendix Figure B.12: Beliefs over pandemic duration



Notes: The figure shows the results of a permutation test based on the sample of the longitudinal survey. Specifically, each histogram shows the distribution of estimates of coefficient γ_1 from $Y_{ik} = \alpha_{j(ik)} + \alpha_{t(ik)} + \gamma_1 \cdot \text{COVID-19 incidence}_{j(ik)t(ik)} + X'_{ikj(ik)t(ik)}\Omega_1 + \kappa_{ik}$ obtained from 1,000 simulations in which the COVID-19 incidence (i.e. the log of the death rate from COVID-19) is randomly permuted across observations. The COVID-19 incidence is normalized to mean 0 and sd 1. See Section IV.A for detailed descriptions of parameters and indices in the equation. The dashed red line shows the coefficient estimate obtained from estimating on the actual data and reported in Panel B of Table V.

Appendix Figure B.13: Reduced form: permutation test (longitudinal survey)

C Public Health Treatment Script

COVID-19 is a respiratory virus without a cure or a vaccine. Respiratory viruses are highly contagious. On average, each individual who has COVID-19 will infect about two to three more people. That might not sound like a big number, but the key is the number is bigger than one, and that can lead to a lot of spread in a short amount of time. The animation on the next screens illustrates this.

[Page break]

Each pink dot represents a person who has the COVID-19 infection. The first infected person quickly infects 3 more people...

[Graph showing a simple graphical explanation of exponential disease spread.]

[Page break]

... then the infection quickly spreads:

[Graph showing a simple graphical explanation of exponential disease spread.]

[Page break]

A big problem with infections occurring so fast is that many people will get very sick at the same time.

[Page break]

This is a huge problem because hospitals will quickly be overwhelmed.
This is shown below in the epidemic curve. The epidemic curve plots the number of COVID-19 cases on the vertical axis and time on the horizontal axis.
At the height of the epidemic curve, the number of patients who need care far exceeds the capacity of hospitals.

[Graph showing epidemic curves]

This strain on our healthcare system affects not only COVID-19 patients but anyone who needs planned or unplanned acute medical care.

[Page break]

This is what overcrowding and strain in hospitals looks like - it leads to shortages and preventable deaths.
Critically ill patients crowded in improvised spaces in Italy.
[Picture showing a hospital with limited hospital capacity]
Patients waiting on the floor in a hospital in Spain.
[Picture showing a hospital with limited hospital capacity]

[Page break]

Many people with other medical problems will not be able to get the care they need.
Many doctors and nurses may get the virus and therefore cannot take care of patients.
Those in the hospital may die without family members around because of fear of contagion.

[Page break]

There are a few key public health measures governments can do to slow down the epidemic:

- (1) Testing widely for COVID-19; and tracking the location and social contacts of anyone who tests positive for COVID-19.
- (2) Isolating individuals who are positive for COVID-19 for a long period of time and ensuring they do not spread the disease to others.
- (3) Requiring individuals to stay at home and not go to work to reduce community spread of the virus.
- (4) Promoting good hygiene at home, at work and in public spaces.

[Page break]

[Graphic showing how public health measures such as social distancing can prevent exponential disease spread.]

[Page break]

These measures can help reduce the number of people who are sick at the same time and they can delay the epidemic.

[Graphic showing how public health measures such as social distancing can flatten the epidemic curve and reduce the burden on the healthcare system.]

[Page break]

Delaying the epidemic is important because it allows time for researchers to develop vaccines and cures and hospitals to get more equipment to treat those who are ill.

[Page break]

D Survey Instrument Details

D.I In-depth Survey

The in-depth sample is representative on first moments of age, gender and geographic location of residence. The sampling frame is built based on Dynata's weekly consumer trend survey infrastructure.

We pre-specified to collect 20% of data from "hotspot" areas. In most countries, one singular location clearly stood out as the area of major concern. In China, we selected the city of Wuhan as the hotspot; in Germany, the city of Munich; in France, the city of Paris; in the U.K., the city of London; in South Korea, the city of Daegu. At the time of our survey, no single location in Italy and the United States could easily be pinpointed as the hotspot; as a consequence, we selected multiple locations in each country. For Italy, we selected the cities of Milan and Bergamo; for the United States, we selected the cities of New York City, Seattle, New Orleans, and Detroit. Our choices of COVID-19 hotspots in the U.S. also coincide with various reports. For example, Kaiser News reports that "the first surge of cases was concentrated in a handful of 'hot spot' cities such

as New York, Detroit, Seattle and New Orleans" (Farmer et al. 2020). These definitions of COVID-19 hotspots were pre-registered before the survey was administrated. We aimed to recruit 1,200 individuals from each country other than the United States, and 3,600 individuals from the United States. Since some of the demographic quotas proved hard to fill, the total number of participants recruited was larger than originally planned. We use the unweighted results in our main analysis and provide nationally representative weights in the appendix.

D.II Links for the In-depth Survey

Translation was performed into Italian, French, German, Korean and Mandarin by native speakers. Translation was checked by co-authors of the paper who also speak these languages.

- China: https://harvard.az1.qualtrics.com/jfe/form/SV_2c0SRKwIGEfVj81
- France: https://harvard.az1.qualtrics.com/jfe/form/SV_6sXcgDCMVdzSNVP
- Germany: https://harvard.az1.qualtrics.com/jfe/form/SV_7WiqYkDdtox8dtr
- Italy: https://harvard.az1.qualtrics.com/jfe/form/SV_0j13oABN2JkTXcF
- South Korea: https://harvard.az1.qualtrics.com/jfe/form/SV_6lfAmljZLrfDDMh
- U.K.: https://harvard.az1.qualtrics.com/jfe/form/SV_3WRX8EiwURC15cN
- U.S.: https://harvard.az1.qualtrics.com/jfe/form/SV_1Rgpg6xivuwVeHb

D.III Validation Survey

For our Validation Survey, we recruited 102 individuals from the United States using survey-company Prolific. The survey was run in April 2021. After answering a set of demographic questions and questions about pandemic-related behaviors, participants were asked our core civil-liberties questions—the questions from Tables I and II. As in the in-depth survey, the order of the statements was randomized within each question block.

Next, we asked incentivized questions about donations and petitions related to civil liberties in the context of the COVID-19 pandemic. We achieved incentive compatibility by informing participants that one respondent to the survey, and one of the incentivized questions, would be

selected at random, and that that respondent's decision for the chosen question would be implemented.[33]

In the donations block, we first elicited preferences over whether or not to make donations to three not-for-profit organizations engaged in the protection of civil liberties during the COVID-19 pandemic. The three civil-liberties-related not-for-profit organizations were Privacy International, Reporters without Borders and Freedom House. For each organization, we listed a COVID-19-specific cause supported by the organization (protection of privacy, media freedom, and democratic procedures, respectively). In one question per organization, participants decided whether or not to donate $1,000 of the researchers' funds to the organization. Next, participants were asked to rank five not-for-profit organization—three of which were the civil-liberties-related organizations above and two of which were not-for-profit organizations that were not involved in the protection of civil liberties. Participants were informed that— were this question to be randomly selected— the ranking of a randomly selected participant would determine the probability with which $1,000 would be donated to one of the organizations. Specifically, the first organization in the ranking would have a 5/15 chance of receiving the $1,000, the second organization a 4/15 chance, the third organization a 3/15 chance, and so on.

Next, participants were asked incentivized questions about whether or not they wanted the research team to disseminate each of three petitions advocating for civil liberties protections during the COVID-19 pandemic. Participants were informed that, if one of the petition questions was randomly selected, the research team would or would not disseminate the petition to 10 people via advertisements on social media depending on the decision of the randomly selected participant. All three petitions were active on Change.org at the time in which the respondents took the survey and, conditional on gathering enough signatories, might be sent to government officials.[34] The first petition demanded that the government not mandate vaccinations, the second demanded that the government not impose curfews during the pandemic, and the third demanded that the government not impose lockdowns during the pandemic. Participants were also asked to rank five petitions—three of which were the civil-liberties-related petitions above and two of which were petitions about topics other than civil liberties. In a manner similar to the

[33]For a randomly selected question, the decision of a randomly selected participant was indeed eventually implemented.

[34]The petitions were not created by the research team; they already existed on Change.org.

donation-ranking question, participants were informed that the ranking of a randomly selected participant would determine the probability with which the research team would disseminate each petition to 10 people via advertisements on social media.

Lastly, we included an additional validation block aimed at testing how elastic answers to the "lives saved" questions (listed in Table II) are to a respondent's belief over the severity of the pandemic. Participants were asked a version of the questions in which we fixed participants' beliefs about the total number of people that would die in their country due to COVID-19 in the absence of the policy stated in the question.[35] Specifically, participants were asked to imagine that, in the absence of any policies to curtail the spread of COVID-19, an additional 100,000 people would die in the United States due to the disease. Then they were asked to report the minimum number of people, out of those 100,000, that each policy would need to save in order for them to support it.

D.IV Links for the Validation Survey

- https://crctrr190.fra1.qualtrics.com/jfe/form/SV_exGrf4yfNiXaibQ

E Data Sources: Administrative Records of COVID-19 Mortality

- Australia: "Coronavirus map Australia: tracking new and active cases, Covid stats and live data by state" from the Guardian (Evershed et al. 2021)
- Canada: "Coronavirus disease (COVID-19): Outbreak update" from (Government of Canada 2021)
- France: "COVID19 epidemic french national data" from (OpenCOVID19 France 2021)
- Germany: "COVID-19 case numbers for Germany" from (Gehrcke 2021)
- India: "DDL COVID India" from (Asher and Novosad 2021)
- Italy: "Italian COVID-19 data" from (Dipartimento della Protezione Civile 2021)
- Japan: "COVID-19 dataset in Japan" from (Takaya 2021)

[35] The version asked in the in-depth survey did not fix those beliefs.

- Netherlands: "Covid-19 aantallen per gemeente per publicatiedatum" from (The National Institute for Public Health and the Environment 2021)
- Spain: "Evolution of the historical series of cases, deaths, hospitalizations and ICU admissions by Autonomous Community" from (DATADISTA 2021)
- Sweden: "Coronavirus Statistics" from (C19.SE 2021)
- U.K.
  - England: "Coronavirus (COVID-19) in the UK" from (Public Health England 2021)
  - Scotland: "Coronavirus (COVID-19): trends in daily data" from (Public Health Scotland 2021)
  - Wales: "Public Health Wales Rapid COVID-19 Surveillance" from (Public Health Wales Health Protection 2021)
  - Northern Ireland: "Daily dashboard updates on COVID-19 - April 2021" from (Department of Health 2021)
- U.S.: "Coronavirus (Covid-19) Data in the United States" from (The New York Times 2021)

F Data Sources: Lockdown Policies

- Australia
  - Victoria: The Straits Times 2020; Murray-Atfield 2021; ABC News 2020; Garda World 2020.
  - South Australia: The Straits Times 2020; Murray-Atfield 2021; Siebert and Brice 2020; Dillon and Boisvert 2020.
  - New South Wales, Queensland, and Other: The Straits Times 2020; Murray-Atfield 2021.
  - Western Australia: The Straits Times 2020; Murray-Atfield 2021; BBC News 2021c; Laschon 2021.
- Canada

  - Quebec: Québec 2020a; Québec 2020b; le Soleil 2021; Labbé 2021.
  - Ontario: Davidson 2021; Yelich and Hilkene 2021.
  - Newfoundland and Labrador: Department of Health and Community Services - Newfoundland and Labrador 2020; VOCM 2020.
  - Alberta: Bench 2020; Pearson 2021.
  - British Columbia: Kotyk 2021; Migdal 2021.
- France
  - Auvergne-Rhône-Alpes, Bourgogne-Franche-Comté, Bretagne, Centre-Val de Loire, Corse, Grand Est, Hauts-de-France, Île-de-France, Normandie, Nouvelle-Aquitaine, Occitanie, Pays de la Loire, and Provence-Alpes-Côte d'Azur: Marianne 2020; Le Monde 2020; Légifrance 2020; La Tribune 2020.
- Germany
  - Baden-Württemberg, Bayern, Berlin, Brandenburg, Bremen, Hamburg, Hessen, Mecklenburg-Vorpommern, Niedersachsen, Nordrhein-Westfalen, Rheinland-Pfalz, Saarland, Sachsen, Sachsen-Anhalt, Schleswig-Holstein, and Thüringen: Die Bundesregierung 2020a; Seythal and Carrel 2020; Die Bundesregierung 2020b; DW 2021.
- India
  - Delhi: Gettleman and Schultz 2020; Financial Express Online 2020; Upadhyay 2020.
  - North (outside Delhi), Chennai, South (outside Chennai), Kolkata, East (outside Kolkata), Mumbai, and West (Outside Mumbai): Gettleman and Schultz 2020; Financial Express Online 2020.
- Italy
  - Lombardia: Faina 2020; Ciriaco et al. 2020; Guerzoni et al. 2020; Cottone 2020; Gazzetta Ufficiale 2020; Gazzetta Ufficiale 2021.

  - Piemonte, and Calabria: Faina 2020; Ciriaco et al. 2020; Guerzoni et al. 2020; Cottone 2020; Gazzetta Ufficiale 2020.
  - Sicilia: Faina 2020; Ciriaco et al. 2020; Gazzetta Ufficiale 2020; Gazzetta Ufficiale 2021.
  - Abruzzo: Faina 2020; Ciriaco et al. 2020; la Repubblica 2020; Gazzetta Ufficiale 2020.
  - Basilicata, Friuli-Venezia Giulia, Lazio, Liguria, Marche, Molise, Puglia, Sardegna, Tentino-Alto Adige, Umbria, and Veneto: Faina 2020; Ciriaco et al. 2020; Gazzetta Ufficiale 2020.
  - Campania, and Emilia-Romagna: Faina 2020; Ciriaco et al. 2020; Itzkowitz 2020; Stanizzi 2020; Gazzetta Ufficiale 2020.
  - Toscana: Faina 2020; Ciriaco et al. 2020; The Florentine editorial staff 2020; Stanizzi 2020; Gazzetta Ufficiale 2020.
- Netherlands:
  - Groningen, Friesland, Drenthe, Overijssel, Flevoland, Gelderland, Utrecht, North Holland, South Holland, Zeeland, North Brabant, and Limburg: Darroch 2020; Government of the Netherlands 2020a; Government of the Netherlands 2020b.
- Singapore:
  - Central, South East, South West, North East, and North West: Singapore Statutes Online 2020; GOV.SG 2020.
- Spain
  - Andalucia, Aragon, Principado de Asturias, Ceuta, Castilla y Leon, Castilla-La Mancha, Islas Canarias, Extremadura, Islas Baleares, Region de Murcia, Comunidad de Madrid, Melilla, Navarra, Pais Vasco, La Rioja, and Comunidad Valenciana: Hernández 2020; Eldiario.es 2020.
  - Cantabria, Cataluna: Hernández 2020; Noticias 2020.
  - Galicia: Hernández 2020; Cadena Ser 2020.
- U.K.

  - East Midlands, East of England, Inner Greater London, North East: GOV.UK 2020; The Guardian 2020; Merrick 2020; GOV.UK 2021; BBC News 2021f.
  - North West, South East, West Midlands, and Yorkshire and the Humber: GOV.UK 2020; The Guardian 2020; Merrick 2020; BBC News 2020a; BBC News 2021f.
  - South West: GOV.UK 2020; The Guardian 2020; Merrick 2020; BBC News 2021d; BBC News 2021f.
  - Northern Ireland: GOV.UK 2020; BBC News 2020d; BBC News 2020c; BBC News 2021a.
  - Scotland: GOV.UK 2020; BBC News 2021b; BBC News 2020e; BBC News 2020f; BBC News 2021e.
  - Wales: GOV.UK 2020; BBC News 2020b; BBC News 2020h; BBC News 2020g; Bannon 2021.
- U.S.
  - Alabama: Gore 2020.
  - Alaska: Grove and Hanlon 2020; State of Alaska 2020.
  - Arizona: State of Arizona 2020a; State of Arizona 2020b.
  - California: Executive Department State of California 2020; Ho 2020.
  - Colorado: State of Colorado 2020a; Swidler and Hill 2020.
  - Delaware: State of Delaware 2020a; State of Delaware 2020b.
  - District of Columbia: Government of the District of Columbia 2020.
  - Florida: State of Florida 2020c.
  - Georgia: State of Florida 2020a; State of Florida 2020b.
  - Hawaii: State of Hawaii 2020b; State of Hawaii 2020a.
  - Idaho: State of Colorado 2020b; State of Colorado 2020c.
  - Illinois: State of Illinois 2020a; State of Illinois 2020b.
  - Indiana: State of Indiana 2020a; State of Indiana 2020b.
  - Kansas: State of Kansas 2020a; State of Kansas 2020b.

- Louisiana: State of Louisiana 2020b; State of Louisiana 2020a.
- Maine: State of Maine 2020.
- Maryland: Hartner and Moore 2020.
- Michigan: State of Michigan 2020b; State of Michigan 2020a.
- Minnesota: State of Minnesota 2020a; State of Minnesota 2020b.
- Mississippi: State of Mississippi 2020a; State of Mississippi 2020b.
- Missouri: State of Missouri 2020a; State of Missouri 2020b.
- Montana: State of Montana 2020b; State of Montana 2020a.
- Nevada: State of Nevada 2020.
- New Hampshire: State of New Hampshire 2020a; State of New Hampshire 2020b.
- New Jersey: State of New Jersey 2020a; State of New Jersey 2020b.
- New York: State of New York 2020b; State of New York 2020a.
- North Carolina: State of North Carolina 2020a; State of North Carolina 2020b; State of North Carolina 2020c; State of North Carolina 2021.
- Ohio: State of Ohio 2020a; State of Ohio 2020b; State of Ohio 2020c; State of Ohio 2021.
- Oregon: State of Oregon 2020a; State of Oregon 2020b.
- Pennsylvania: Commonwealth of Pennsylvania 2020a; Commonwealth of Pennsylvania 2020b.
- Rhode Island: State of Rhode Island and Providence Plantations 2020a; State of Rhode Island and Providence Plantations 2020b.
- South Carolina: State of South Carolina 2020a; State of South Carolina 2020b.
- Tennessee: State of Tennessee 2020a; State of Tennessee 2020b.
- Texas: State of Texas 2020a; State of Texas 2020b.
- Vermont: State of Vermont 2020b; State of Vermont 2020a.
- Virginia: Commonwealth of Virginia 2020; Beaujon 2020.
- Washington: State of Washington 2020a; State of Washington 2020b.

- West Virginia: State of West Virginia 2020b; State of West Virginia 2020a.
- Wisconsin: State of Wisconsin 2020; Singh 2020.

G Data Sources: Population Statistics

- Australia: Data on sex is from "Male population by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on age is from "Total population (both sexes combined) by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on income is from "World Inequality Database". Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from "National, state and territory population: Statistics about the population and components of change (births, deaths, migration) for Australia and its states and territories" collected by *Australian Bureau of Statistics*.
- Canada: Data on sex is from "Male population by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on age is from "Total population (both sexes combined) by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on income is from "World Inequality Database". Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from "Population estimates, quarterly" collected by *Statistics Canada*.
- China: Data on sex and age is from Population by age, sex and urban/rural residence, Demographic Statistics Database collected by the United Nations Statistics Division. Data on income is from China Family Panel Studies. Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is Statistical Yearbook of the National Bureau of Statistics of China.
- France: Data on sex and age is from Population by age, sex and urban/rural residence, Demographic Statistics Database collected by the United Nations Statistics Division. Data

on income is from "World Inequality Database". Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from Population des régions et taux d'évolution de la population collected by INSEE.

- Germany: Data on sex and age is from Population by age, sex and urban/rural residence, Demographic Statistics Database collected by the United Nations Statistics Division. Data on income is from "World Inequality Database". Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from the Federal Statistical Office of Germany.

- India: Data on sex is from "Male population by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on age is from "Total population (both sexes combined) by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on income is from "World Inequality Database". Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from "Ministry of Statistics and Programme Implementation - 2011" collected by *Unique Identification Authority of India*.

- Italy: Data on sex and age is from Population by age, sex and urban/rural residence, Demographic Statistics Database collected by the United Nations Statistics Division. Data on income is from "World Inequality Database". Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from Regioni italiane collected by Tuttitalia.

- Japan: Data on sex is from "Male population by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on age is from "Total population (both sexes combined) by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on income is from

"World Inequality Database". Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from "JAPAN: Prefectures and Major Cities" collected by *Statistics Bureau Japan*.

- Netherlands: Data on sex is from "Male population by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on age is from "Total population (both sexes combined) by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on income is from "World Inequality Database". Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from "Regionale kerncijfers Nederland" collected by *Statistics Netherlands*.

- Singapore: Data on sex is from "Male population by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on age is from "Total population (both sexes combined) by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on income is from "Table 8. Resident Households by Monthly Household Income from Work (Including Employer CPF Contributions), 2000 - 2020" collected by *Singapore Department of Statistics*. Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from "2020 Parliamentary General Election Results" collected by *Elections Department Singapore*.

- South Korea: Data on sex and age is from Population by age, sex and urban/rural residence, Demographic Statistics Database collected by the United Nations Statistics Division. Data on income and region is from Korean Statistical Information Service (KOSIS). Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*.

- Spain: Data on sex is from "Male population by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on age is from "Total population (both sexes combined) by single age, region, subregion and country,

annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on income is from "World Inequality Database". Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from "Población por comunidades y ciudades autónomas y tamaño de los municipios" collected by *Instituto Nacional de Estadística*.

- Sweden: Data on sex is from "Male population by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on age is from "Total population (both sexes combined) by single age, region, subregion and country, annually for 1950-2100 (thousands)" collected by *the United Nations*. Data on income is from "World Inequality Database". Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from "Population in the country, counties and municipalities on 31 December 2020 and Population Change in 2020" collected by *Statistics Sweden*.

- U.K.: Data on sex and age is from Population by age, sex and urban/rural residence, Demographic Statistics Database of the United Nations Statistics Division. Data on income is from Gross household income, UK, financial year ending 2018 collected by the Office for National Statistics. Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland collected by the Office for National Statistics.

- U.S.: Data on sex and age is from Population by age, sex and urban/rural residence, Demographic Statistics Database collected by the United Nations Statistics Division. Data on income is from U.S. Census Bureau, Current Population Survey. Data on employment is from "Employment-to-population ratio by sex and age – ILO modelled estimates" collected by *International Labor Organization*. Data on region is from Resident Population by Census Division, Annual collected by Federal Reserve Bank of St. Louis.

H Detailed Regional Brackets

- Australia
  - Region 1: New South Wales
  - Region 2: Victoria
  - Region 3: Queensland
  - Region 4: Western Australia
  - Region 5: South Australia and Other
- Canada
  - Region 1: Alberta and British Columbia
  - Region 2: Manitoba and Saskatchewan
  - Region 3: Ontario
  - Region 4: Quebec
  - Region 5: New Brunswick, Newfoundland and Labrador, Nova Scotia, and Prince Edward Island
- China
  - Region 1: Shanghai, Fujian, Beijing, Tianjin, Shandong, Guangdong, Jiangsu, Hebei, and Zhejiang
  - Region 2: Hainan, Shanxi, Jiangxi, Anhui, Henan, Hunan, and Hubei
  - Region 3: Neimenggu [Inner-Mongolia], Gansu, Ningxia, Xinjiang, Xizang [Tibet], Guizhou, Yunnan, Guangxi, Sichuan, Chongqing, Shaanxi, and Qinghai
  - Region 4: Liaoning, Jilin, and Heilongjiang
- France
  - Region 1: Auvergne-Rhône-Alpes, Provence-Alpes-Côte d'Azur, and Occitanie
  - Region 2: Burgundy-Franche-Comté, Grand Est, and Hauts-de-France

  - Region 3: Brittany, Nouvelle-Aquitaine, Normandie, Pays de la Loire, and Centre-Val de Loire
  - Region 4: Île-de-France
- Germany
  - Region 1: Bayern, and Baden-Württemberg
  - Region 2: Nordrhein-Westfalen, Hessen, Rheinland-Pfalz, and Saarland
  - Region 3: Niedersachsen, Schleswig-Holstein, Bremen, Hamburg
  - Region 4: Sachsen-Anhalt, Thüringen, Mecklenburg-Vorpommern, Brandenburg, Sachsen, and Berlin
- India
  - Region 1: Delhi and North (outside Delhi) [Uttar Pradesh, Rajasthan, Punjab, Haryana, Delhi, Jammu Kashmir, Uttarakhand, Himachal Pradesh, Chandigarh, Ladakh]
  - Region 2: Chennai and South (outside Chennai) [Tamil Nadu, Karnataka, Andhra Pradesh, Telangana, Kerala, Puducherry, Lakshadweep]
  - Region 3: Kolkata and East (outside Kolkata) [Bihar, West Bengal, Odisha, Jharkhand, Andaman and Nicobar Islands]
  - Region 4: Mumbai and West (Outside Mumbai) [Maharashtra, Karnataka, Gujarat, Goa, Dadra Nagar Haveli and Daman Diu]
- Italy
  - Region 1: Liguria, Lombardia, Piemonte, Valle d'Aosta, Emilia-Romagna, Friuli-Venezia Giulia, Trentino-Alto Adige, and Veneto
  - Region 2: Lazio, Marche, Toscana, and Umbria
  - Region 3: Abruzzo, Basilicata, Calabria, Campania, Molise, Puglia, Sardegna, and Sicilia
- Japan

  - Region 1: Kanto
  - Region 2: Kinki
  - Region 3: Hokkaido, and Tohoku
  - Region 4: Chubu, and Hokuriku
  - Region 5: Chugoku, Kyushu, Okinawa, and Shikoku
- Netherlands
  - Region 1: Drenthe, Friesland, and Groningen
  - Region 2: Flevoland, Gelderland, and Overijssel
  - Region 3: North Holland, South Holland, Utrecht, and Zeeland
  - Region 4: Limburg, and North Brabant
- Singapore
  - Region 1: Central
  - Region 2: North East
  - Region 3: North West
  - Region 4: South East
  - Region 5: South West
- South Korea
  - Region 1: Seoul, Gyeonggi, and Incheon
  - Region 2: North Chungcheong, South Chungcheong, Daejeon, Sejong, and Gangwon
  - Region 3: North Jeolla, South Jeolla, Gwanggju, and Jeju
  - Region 4: South Gyeongsang, North Gyeongsang, Daegu, Busan, and Ulsan
- Spain
  - Region 1: Cataluña, Comunidad Valenciana, and Islas Baleares
  - Region 2: Castilla-La Mancha, and Comunidad de Madrid

  - Region 3: Andalucía, Ceuta (Ciudad Autónoma), Extremadura, Islas Canarias, Melilla (Ciudad Autónoma), and Región de Murcia
  - Region 4: Aragón, Cantabria, La Rioja, Navarra, and País Vasco
  - Region 5: Castilla y León, Galicia, and Principado de Asturias
- Sweden
  - Region 1: Dalarnas län, Gävleborgs län, Jämtlands län, and Västernorrlands län
  - Region 2: Gotlands län, Södermanlands län, Uppsalas län, Värmlands län, Västmanlands län, Örebro län, and Östergötlands län
  - Region 3: Norrbottens län, and Västerbottens län
  - Region 4: Blekinge län, Hallands län, Jönköpings län, Kalmar län, Kronobergs län, Skåne län, and Västra Götalands län
  - Region 5: Stockholms län
- U.K. (for Appendix Table A.2)
  - Region 1: England
  - Region 2: Northern Ireland
  - Region 3: Scotland
  - Region 4: Wales
- U.K. (for Appendix Table A.3)
  - Region 1: Cambridgeshire, Cheshire, Cumbria, Derbyshire, Durham, East Riding of Yorkshire, Greater Manchester, Herefordshire, Lancashire, Leicestershire, Lincolnshire, Merseyside, Norfolk, North Yorkshire, Northamptonshire, Northumberland, Nottinghamshire, Rutland, Shropshire, South Yorkshire, Staffordshire, Suffolk, Tyne and Wear, Warwickshire, West Midlands, West Yorkshire, and Worcestershire
  - Region 2: Bedfordshire, Berkshire, Bristol, Buckinghamshire, Cornwall, Devon, Dorset, East Sussex, Essex, Gloucestershire, Greater London, Hampshire, Hertfordshire, Isle of Wight, Kent, Oxfordshire, Somerset, Surrey, West Sussex, and Wiltshire

  - Region 3: Northern Ireland
  - Region 4: Scotland
  - Region 5: Wales
- U.S.
  - Region 1: Northeast Region
  - Region 2: Midwest Region
  - Region 3: West Region
  - Region 4: South Region

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