CIVIL LIBERTIES IN TIMES OF CRISIS[1]

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Abstract

Major crises — from terrorist attacks to epidemic outbreaks — bring the trade-off between individual civil liberties and societal well-being into sharp relief. In this paper, we study how willing citizens are to restrict civil liberties to improve public health conditions in the context of the COVID-19 pandemic. 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 68%-83% 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 democratic institutions is their respect for and protection of civil liberties — such as due process, freedom of speech, and the right to privacy.[1] Indeed, civil liberties are so fundamental that many political philosophers and social scientists sometimes consider them as "sacred values," i.e., "goods" or rights that should not be subject to comparisons or trade-offs (e.g., Aristotle 1935; Aberle et al. 1950; Radcliffe-Brown 1952; Raz 1986; 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 study 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 how people navigate the trade-off between civil liberties and public welfare as a function of perceived health insecurity.[2]

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 re-

[1] Civil liberties, as defined by the International Covenant on Civil and Political Rights (United Nations, 1966a), respect individuals' right to self-determination (Article 1), free movement (Article 12), privacy (Article 17), free media (Article 20), and free assembly (Article 21).

[2] During the early stages of the COVID-19 pandemic, there was a prevalent view among public media in the US and Europe against the Chinese government's draconian response to the COVID-19 outbreak, often stating that aggressive policies such as full lockdown and travel restrictions were neither desirable nor politically feasible in liberal democracies (Markel 2020; Mahbubani 2020; Gollom 2020; Brueck et al. 2020; Feng and Cheng 2020).

sponses 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 2020. The two surveys are complementary. The longitudinal survey 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 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 covered own and others' rights as well as specific domains of civil liberties such as privacy, democratic procedures, free movement, and free speech. The questions were asked in two different formats. 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 primary 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.

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, on average 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 on 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 disadvantaged individuals in terms of education, income, or race (in the United States) are less willing to sacrifice rights than more advantaged counterparts. The smaller willingness of Black Americans to sacrifice their rights in exchange for improved health conditions 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.

We next delineate the extent to which people are willing to sacrifice civil liberties in response to health insecurity. 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 much more willing to sacrifice generic and specific rights as well as allow the government to infringe on the rights of others.

To identify whether the relationship between health insecurity and the willingness to sacrifice civil liberties is causal, we leverage both naturally-occurring and experimental variations. 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.[3] Our estimates reveal that a one standard deviation increase in health insecurity raises the willingness to sacrifice one's own rights and freedoms by a statistically significant 10.5 percentage points (pp). Results are similar for the willingness to sacrifice a free press (17.4

[3]Since higher deaths could also lead to more restrictive policies; we include a measure of 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. Our results are robust to including a reduced set of controls.

pp) and weaken privacy protections (12.9 pp). Our core results are robust to including country- or individual-level fixed effects, which absorb unobservable characteristics of individuals that may confound the relationship between health security and civil liberties.

We complement the analysis that leverages naturally-occurring variation with an experiment that provides cleaner identification. The experimental intervention focused on the public health costs of letting COVID-19 spread (e.g., included photographs of overwhelmed hospitals), explaining exponential growth, and showing how social distancing and other tactics could interrupt transmission (e.g., 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 raising health-related insecurity, allowing us to isolate the effect of health insecurity on our outcomes of interest.[4] Using the assignment to treatment as an instrument for health insecurity, we find results consistent with those that exploit variation in COVID-19 mortality: heightened health insecurity induced by the experiment leads to a statistically significant 16 pp increase in willingness to sacrifice 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 11 (off of a base of 49) and by 14 (off a base of 55) for tracking everyone. Respondents in this condition are also 13.8 pp (approx. 31%) more likely to support relaxing democratic rights and procedures. Importantly, we show that the stated preferences elicited using survey questions correlate with actions. Individuals whose health insecurity was increased upon randomization into the public health treatment were 22.2 pp (approximately 47%) 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 monitoring movement on a personal device. In addition, in a validation survey we conduct a few months after the end of our data collection for the longitudinal survey, 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.

How do we interpret these findings? Conceptually, suppose that each person i is willing to give up civil liberty in dimension j to fight a pandemic when perceived health risk R_i crosses some

[4]One may be concerned about the 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 purely driven by experimenter demand or priming.

threshold of severity c_{ij}. Such threshold could differ for different types of civil liberties j: as we see in our analysis, respondents are more willing to give up certain rights over others.[5] The outcome we study is whether respondent i is willing to give up civil liberty j, i.e., $Y_{ij} = 1[R_i > c_{ij}]$. We are interested in how the share of respondents willing to give up a given civil liberty, $Pr[R_i > c_{ij}]$, is affected by health insecurity (as well as how it varies across specific groups). The finding that individuals are substantially willing to sacrifice civil liberties for improved public health conditions suggests that many citizens — even in liberal democracies — do *not* view civil liberties as "sacred values." This can occur either because of differences or changes in either perceived health risk R_i (i.e., moving along the indifference curve) or in the tolerable severity threshold c_{ij} (i.e., changed preferences and shifted indifference curve), or a mix of both. We do not attempt to disentangle these two channels, but this would be important direction for future work.

Our work contributes to understanding of people's preferences in times of crises. We complement a growing body of work showing changes in preferences due to the experiences of crises or major shocks. A series of papers study the long-run effects on preferences of growing up in a recession (Giuliano and Spilimbergo 2014), experiencing macroeconomic shocks (Malmendier and Nagel 2011), severe 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 Europe and civic attitudes. Other papers demonstrate how the pandemic affected views of the incumbent or interacted with partisanship.[6] Many studies aim to identify which factors influence compliance with public health guidance.[7] Our primary goal, rather than to examine the differences in behaviors across populations, is to understand how people trade off civil liberties for public welfare as a function of perceived health insecurity, and we show that exposure to crises, such as the COVID-19 pandemic, could affect citizens' views over the fundamental rights guaranteed under a liberal

[5]We thank Chris Walters for suggesting this simple model.

[6]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.

[7]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).

democracy. Contrary to the conventional wisdom that crises may make autocratic regimes tumble (Huntington 2009; Acemoglu and Robinson 2006), our findings suggest that 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 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 administered between late March and mid-April 2020 (the *in-depth survey*). Together, they contain about 550,000 survey responses from 15 countries.[8]

The longitudinal and in-depth surveys complement each other and offer different features for

[8]Respondents from both are from Dynata's pools of respondents but they were sampled and conducted independently. For both surveys, the target population consists of more than 67 million potential respondents from Dynata's pool of respondents. These respondents are invited in a targeted way so as to achieve a nationally representative sample. Invitations are sent conditionally on the targeted dimensions (e.g., age, gender, income, and region of residence), but randomly within these dimensions, thus achieving randomized stratified sampling. The pool of respondents is diverse, recruited through loyalty programs (e.g., retail frequent shopper programs), partnerships with social media platforms, and a broad set of websites including schools and communities. Respondents are rewarded through points or miles (relevant to the program source in the case in which they are recruited through loyalty programs) or through reward points to redeem for cash, prizes, or gift cards.

the empirical analyses. The former is shorter but has wider 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.C).[9]

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.C).

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.[10] The sample was built by Dynata's weekly consumer-trend survey infrastructure to be representative by age, sex, and region of residence (see Online Appendix Table A.1 for sample summary statistics and Appendix E for further details on the survey structure). 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. However, due to the online nature of the survey, very low income respondents tend to be under-represented in most countries, especially so in middle-income countries.[11] To address such under-representativeness, we re-weigh our sample to match population characteristics along the dimensions of sex, age, income, and region of residence. Our results are not meaningfully affected by this re-weighing (shown in Online Appendix Table A.3).

[9] 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 Online Appendix Section F.

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

[11] This is a common feature of online surveys, see Dechezleprêtre et al. (2022).

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, Germany, Italy, South Korea, the United Kingdom, and the United States.[12] The sample was built to be representative by age, sex, income, and region of residence. 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 Online Appendix Table A.4 and show that our sample is, again, broadly representative along several dimensions. Similar to the longitudinal survey, very low-income respondents tend to be under-represented. Our results are not significantly affected if we re-weigh the sample to match population characteristics along the dimensions of sex, age, income, and region of residence (see Online Appendix Table A.5).

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 systematic underestimate the growth rate of exponential curves.[13] 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.

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.[14] Participants assigned to the treatment group were shown screens containing the following information: (*i*) a simple graphical explanation of exponential disease

[12]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 E.

[13]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).

[14]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.

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 Appendix D.[15] Participants in the control group were not given such information.[16]

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 component of the study is to 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

[15] Assignment to the treatment and control conditions is balanced across demographic characteristics. Online Appendix Table A.6 presents the balance tests among respondents in the treatment and control groups. Online Appendix Table A.7 shows little attrition overall and little differential attrition across treatment arms.

[16] 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.

stronger health-related concerns are substantially more likely to wash hands frequently, avoid going to restaurants, and stay at home for work.

II.B Measuring Financial Insecurity

Although the primary goal of this paper is to investigate the relationship between *health* insecurity and willingness to trade off civil liberties for public welfare, our descriptive evidence includes a brief discussion of the relationship between financial insecurity as a point of reference; we further use financial insecurity as an additional control in our robustness checks for the causal analyses.

Our preferred measure of financial insecurity in the longitudinal survey concerns a respondent's pandemic-related worries concerning their own financial position. It is based on the response to the question: *"When thinking about COVID-19, how worried, if at all, are you personally about your household's financial position?"* As a supplementary measure of financial insecurity in the longitudinal survey, we use a respondent's worry about the economy in their country, replacing *"your household's financial position"* with *"the economy in your country"* in the question above. We use an equivalent measure of financial insecurity in the in-depth survey, given by the answer to the survey question *"How serious of a threat do you believe COVID-19 is to the economy in your country?"*[17]

II.C Outcomes

Our primary outcomes rely on survey questions that elicit respondents' 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.

Our questions fall broadly into four families. One set of questions relates to willingness to give up overall rights and freedom in exchange for public welfare, one set relates specifically to the protection of privacy, one set relates to democratic rights and institutions, and one set relates to rights to movement. The questions that comprise each family can be found in Table I. The in-depth survey contains all the questions listed in the table. The longitudinal survey contains only a subset

[17]Since the longitudinal survey questions were developed by Dynata and the in-depth survey questions were developed by our research team, there is a slight discrepancy in the way the questions are asked across these surveys. For example, we did not elicit a respondent's pandemic-related worries about their own economic position in the in-depth survey. However, results are robust to various ways of defining financial insecurity in the longitudinal data (see the robustness subsection of Section V.A and associated Appendix Table A.8). We use the financial insecurity measure based on the in-depth survey solely for robustness checks related to the exclusion restriction in our instrumental variable estimation, described in Section V.B and presented in Appendix Table A.9 and Appendix Table A.10.

of the questions, as highlighted in column 6. 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 questions that appear in both the longitudinal and the in-depth surveys focus on the extent to which respondents agreed with a set of statements regarding the trade-off between civil liberties and public health conditions. For instance, one of the statements reads: "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."[18] Due to strict limit in the number of questions we could add to the longitudinal survey, we randomized questions across participants. Specifically, we asked each participant in the longitudinal survey the question from row 1 of Table I, and a randomly chosen question among the ones from rows 3, 9, and 11.[19]

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 reads: "During the epidemic, the government can track smartphone locations and social contact data of the citizens who tested positive for COVID-19." Policies participants were asked to evaluate are shown in rows 4, 5, 12, 13, and 14 of Table I. For many policy domains, there are more stringent and less stringent conditions (e.g., "the government recommends citizens do not leave their homes" versus "the government arrests citizens who are outside their homes"). 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,

[18] Participants stated their levels of agreement on a scale from 0 to 10, where 0 indicates complete disagreement and 10 represents complete agreement. In our main analysis, 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.11 and A.12.

[19] The set of statements included one additional question unrelated to civil liberties, but related to the economy, which we analyze as a secondary outcome. It reads, "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." We report the associated results in Appendix C.

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 explicitly compare 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.13).

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.[20] 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.[21]

To mitigate concerns about multiple hypothesis testing, the analysis of the in-depth survey summarizes the outcome variables in each family into an inverse-covariance-weighted index (Anderson 2008), with variables re-oriented so they reflect attitudes and behaviors in a consistent direction.

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 E.IV.

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 policy 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

[20] Some of the questions regarding democracy were not asked in China because of their sensitive nature.
[21] Link to the app: https://privatekit.mit.edu/.

asked subjects whether they wanted the research team to disseminate various COVID-19-related 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.[22]

We find that the answers in the self-reported 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.14).

III Trade-offs Between Health Insecurity and Civil Liberties 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

We begin by plotting, in Figure I, the fraction of respondents by country who are willing 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 61% of respondents in the United States are willing to sacrifice their own (general) rights during a time of major crisis. This share is substantially less than among respondents from China, where more than 80% of the respondents are willing 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 larger share of respondents in the Netherlands, Germany, France, the United

[22]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.

Kingdom, Spain, Italy, India, Canada, and Australia are willing to sacrifice their own rights; and a smaller share of respondents in Sweden and Japan is willing to do so. Interestingly, 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. Many factors could contribute to the cross-country differences we observe, such as institutional characteristics (e.g., pre-crisis level of civil liberties), diverse populations and their attitudes, or respondents' differential response to the COVID-19 crisis.

III.B Patterns Within Countries

Within countries, we find a consistent and robust pattern that relative economic and social disadvantage is *negatively* associated with one's 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 14pp 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 7pp 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 for individuals above and below their nation's median income, conditional on age and sex for each country. Within all countries (except for Spain), lower-income individuals are substantially less willing to sacrifice their rights throughout the sampling period.

In the United States, respondents who identify as Black are 8pp less willing to sacrifice their rights than those identifying as white.[23] 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.[24] Furthermore, the gap between Black and white respon-

[23]We find a consistent Black-white gap in the outcomes associated with civil liberties that have arguably more vs. less economic impact: privacy infringement and movement restrictions. Online Appendix Table A.15 demonstrates that Black respondents, as compared to white respondents, are about 20% less willing to relax privacy protections, and are willing to accept about 11% more deaths to avoid tracking of COVID-19-infected people (Panel A). We observe larger racial gap in responses to movement restrictions, but the pattern continues to hold (Panel B). Racial gap is no longer observed for more extreme policies (i.e., tracking everyone and arresting people who are outside the home).

[24]Indeed, a historiography documents how Black Americans have served as a "canary in the coal mine" for potential

dents' willingness to forgo rights is higher when health insecurity is higher (see Online Appendix Figure B.8).

Political attributes also affect respondents' attitudes over the extent to which they are willing 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 past exposure to regimes with 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). Among German respondents, those born in the former East German regime become less willing to sacrifice rights over the course of the pandemic as compared to their West German counterparts (see Online Appendix Figure B.9).[25]

III.C Health 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.[26]

As far as health insecurity is concerned, we observe a clear pattern: higher levels of health insecurity are strongly associated with a *greater* willingness to curtail civil liberties. On average, a

threats to U.S. democratic institutions (Guinier et al. 2009). We thank Cornell Brooks for the reference and comments.

[25]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 in times of a major crisis, those individuals who have previously lived in regimes with fewer civil liberties 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 among individuals who lived in the former GDR compared to those who did not.

[26]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.

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. Consistent with the idea that economically and socially disadvantaged individuals are less willing to sacrifice civil liberties, we find a small negative correlation between financial insecurity and willingness to trade off civil liberties for public welfare.

Moreover, 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. 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. 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).[27] 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 and appeared relatively constant over time, while the willingness to trade off civil liberties and financial insecurity continued to have a slightly negative or null relationship. A one sd increase in health insecurity is associated with a 11.1 pp (p-value $<.001$) increase in willingness to sacrifice own rights when averaging across all countries. Such increase ranges from 4.4 pp in Singapore to 15.3 pp in the United States.

Taken together, the findings above suggest that willingness to give up civil liberties for public welfare is strongly associated with health insecurity. Although the level of health concern fluctuated with the disease burden throughout the pandemic, this relationship is fairly stable over nearly a year of observations and across many countries. We next investigate whether this relationship is

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

causal.

IV Empirical Strategies

As shown above, health insecurity stood out as a key predictor of willingness to give up rights. In this section, we lay out two approaches to examine 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.

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 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, 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:

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

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

where Y_{ik} 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).[28] In addition, we add whether the respondent's region was in a lockdown during the week of the survey.[29] We also condition on the (log) cumulative prevalence of COVID-19 mortality lagged by one week.[30] The policy and lockdown variables capture potential endogeneity of deaths to stringency, which could itself influence attitudes. Cumulative mortality captures local disease severity from the beginning of the pandemic and its attendant effects on local living conditions. X also includes perceived 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.

[28]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.

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

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

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

First Stage Table II 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 117.45.

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 defined in subsection II.A.

We also control 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 con-

cerns about surveillance and worries over the pandemic-related recession.[31]

First Stage As shown in Table III, 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 56.12.[32]

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 IV. 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.

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 is observed in the dimension of suspending democratic procedures — a one sd unit increase in health insecurity leads to a 22.9 pp increase in the willingness to suspend democratic procedures. In contrast, we observe an effect only about half the size on willingness to relax privacy and on sacrificing one's own rights (12.9 pp and 10.5 pp, respectively). The 2SLS estimates are somewhat larger than the OLS estimates in Panel A. Online Appendix Table A.3 shows our results based on Equation 1 and Equation 2 with nationally representative sampling weights. We observe a similar magnitude of the impact of health insecurity on the willingness to give up civil liberties, although F-statistics are somewhat reduced and significance on willingness to sacrifice free press is lost.

Online Appendix Table A.16 explores heterogeneity across sociodemographic factors. We interact perceived health insecurity with the full set of sociodemographic factors and instrument

[31] 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).

[32] Online Appendix Table A.17 shows the first-stage results by different demographic groups or country. We consistently find positive and significant first stage results, indicating that our public health treatment caused respondents in all subgroups and countries to perceive higher health risk, on average.

for both using COVID-19 incidence and its interaction with each given factor; thus, the estimated health insecurities are allowed to vary by the sociodemographic factors that we focus on. The "interaction" F-statistic is weaker than that shown in Table II, but a few patterns can be discerned. Consistent with the descriptive analysis using the in-depth sample (shown in Figure II), we again observe that 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 also reveal men are relatively less willing to sacrifice liberties in response to health concerns than women. 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.6). 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 COVID-19 mortality 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.8, 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 (Panels A-C). Similarly, adding a control for financial insecurity to our baseline specification does not alter our results (Panel D).

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. 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.18). Furthermore, the exercise presented in this section is complementary to the experimental identification strategy for which we present results next, providing additional assurance on the mechanism.

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.18. Relative to the baseline specification, standard errors increase slightly but magnitudes remain similar. We also present results using a *reduced* set of controls in Online Appendix Table A.19, and our baseline results are largely unchanged. Online Appendix Table A.20 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.11.[33] Findings remain robust to using the alternative instrument and qualitatively unchanged when continuous outcomes are used. Results from the Fisher-type permutation test, which reshuffles the COVID-19 incidence instrument 1,000 times in

[33]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.

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 V. 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.C), 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).[34]

Focusing first 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 0.65 sd units. The effect size of health insecurity on the willingness to sacrifice privacy is 0.65 sd units, and for the willingness to sacrifice overall rights and freedoms is 0.35 sd units. To put these magnitudes into perspective, the point estimates amount to about 76% of the baseline average gap in attitudes between Chinese and American respondents.[35] 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 willingness to sacrifice their own rights for improved public health conditions. We also find positive

[34] Reduced form estimates are reported in Online Appendix Table A.21.

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

but more imprecise 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 20.3 pp (or 35%). 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 (14 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 22.2 pp (or 47%).

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 25% of baseline value), preferring delegating governance to experts (approx. 26%) and being willing to suspend democratic procedures during a crisis such as the one caused by COVID-19 (approx. 31%). Note that the OLS coefficient estimates point in the opposite direction relative to the IV coefficients for four 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.

Secondary Outcomes — In Online Appendix Table A.22, we report results for secondary outcomes not directly related to civil liberties, 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 0.364 sd units. See Appendix C for a more detailed description of these results.

Robustness Checks for the Experimental Approach — We conduct a number of robustness checks on the experimental empirical strategy. First, we again re-weight our sample to make it representative with each country's population (Online Appendix Table A.5). Our results overall remain qualitatively and quantitatively unchanged, although power is somewhat reduced.

Second, we address potential exclusion-restriction violations. One may be concerned 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.9, 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. 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 (Panel A). Conversely, after controlling for health insecurities — 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 (Panel B). 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).[36]

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 (21.1 pp in the in-depth survey using the experimental variation approach versus 17.4 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 13.8 pp effect size, compared to a 22.9 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 20.3 pp effect from increasing health insecurity by one sd unit, compared to a 12.9 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 16

[36]For completeness, we report results from our baseline 2SLS specification amended with additional controls for financial insecurity and worries about post-pandemic surveillance in Appendix Table A.10. Magnitudes and statistical significance levels remain essentially unchanged.

pp effect, compared to an 10.5 pp effect in the longitudinal survey.

On average, across all four outcomes, estimates using COVID-19 mortality variation are about 1.9 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.

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: Main outcomes from the longitudinal and in-depth surveys

Row (1)	Outcome Family (2)	Outcome Name (3)	Question Wording (4)	Scale (5)	Outcome Reoriented When Constructing Index (6)	Survey (7)
1	Overall rights and freedom	Willing to sacrifice own rights	To what extent do you agree with the following statement: 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.	0 (completely disagree) to 10 (completely agree)	No	Longitudinal and In-depth surveys
2		Willing to sacrifice others' rights	To what extent do you agree with the following statement: I am willing to impose strict limits to the rights and freedom of other people during a crisis like the current one, in order to maintain the health and well-being of the whole society.	0 (completely disagree) to 10 (completely agree)	No	Longitudinal and In-depth surveys
3	Protection of privacy	Willing to relax privacy protections	To what extent do you agree with the following statement: 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.	0 (completely disagree) to 10 (completely agree)	No	Longitudinal and In-depth surveys
4		Unwilling to accept: track sick people	What's the minimum number of people [out of every 100 people who would have otherwise died in your country because of the COVID-19 pandemic] that each of the following policies would need to save in order for you to support it? "During the epidemic, the government can track smartphone locations and social contact data of the citizens who tested positive for COVID-19."	0 to 100	Yes	In-depth survey only
5		Unwilling to accept: track everyone	What's the minimum number of people [out of every 100 people who would have otherwise died in your country because of the COVID-19 pandemic] that each of the following policies would need to save in order for you to support it? "During the epidemic, the government can track smartphone location and social contact data of all citizens."	0 to 100	Yes	In-depth survey only
6		Contact tracing app	Recently, several apps have been developed that help track who has been infected with COVID-19, and that help contact those who have been in close contact with infected individuals. The Massachusetts Institute of Technology (MIT) has developed such an app. Are you interested in finding out more about it?	Binary	No	In-depth survey only

Table I: Main outcomes from the longitudinal and in-depth surveys (cont'd)

Row (1)	Outcome Family (2)	Outcome Name (3)	Question Wording (4)	Scale (5)	Outcome Reoriented When Constructing Index (6)	Survey (7)
7	Democratic rights and institutions	Prefer strong leader	Would you say it is a very good, fairly good, fairly bad or very bad way of governing the [R's country]?: Having a strong national leader who does not have to bother with Congress and elections	1 (very bad) to 4 (very good)	No	In-depth survey only
8		Prefer delegating to experts	Would you say it is a very good, fairly good, fairly bad or very bad way of governing the [R's country]?: Having experts, not the government, make decisions according to what they think is best for the country	1 (very bad) to 4 (very good)	No	In-depth survey only
9		Willing to sacrifice free press	To what extent do you agree with the following statement: 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.	0 (completely disagree) to 10 (completely agree)	No	Longitudinal and In-depth surveys
10		Preference for democratic system	Would you say it is a very good, fairly good, fairly bad or very bad way of governing the [R's country]?: Having a democratic political system	1 (very bad) to 4 (very good)	Yes	In-depth survey only
11		Willing to suspend democr. procedures	To what extent do you agree with the following statement: 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.	0 (completely disagree) to 10 (completely agree)	No	Longitudinal and In-depth surveys
12	Rights to movement	Unwilling to accept: close national border	What's the minimum number of people [out of every 100 people who would have otherwise died in your country because of the COVID-19 pandemic] that each of the following policies would need to save in order for you to support it? "During the epidemic, the government closes the national border to prevent foreigners from entering."	0 to 100	Yes	In-depth survey only
13		Unwilling to accept: recommend stay home	What's the minimum number of people [out of every 100 people who would have otherwise died in your country because of the COVID-19 pandemic] that each of the following policies would need to save in order for you to support it? "During the epidemic, the government recommends citizens do not leave their homes except for limited, permitted reasons."	0 to 100	Yes	In-depth survey only
14		Unwilling to accept: arrest if outside home	What's the minimum number of people [out of every 100 people who would have otherwise died in your country because of the COVID-19 pandemic] that each of the following policies would need to save in order for you to support it? "During the epidemic, the government arrests citizens who are outside their home if they do not have government permission."	0 to 100	Yes	In-depth survey only

Table II: 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	0.073***	0.057***	0.038***	0.088***
	(0.007)	(0.005)	(0.005)	(0.009)
Kleibergen-Paap F-statistic	117.451	110.641	50.633	96.762
Mean of Outcome	0.000	0.000	0.000	0.000
Number of Clusters	197	197	197	197
Observations	364735	358735	361146	361533
Controls:				
Demographics	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, administrative division level 1 fixed effects, 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 III: First stage results using experimental variation
(in-depth survey)

	Health Insecurity (1)	Threat to People's Health (2)	Healthcare Capacity (3)
Public Health Treatment	0.128***	0.076***	0.133***
	(0.017)	(0.019)	(0.016)
Kleibergen-Paap F-statistic	56.124	16.405	66.964
Mean of Outcome	-0.203	-0.106	-0.225
Observations	13337	13337	13337
Controls:			
Demographics	Yes	Yes	Yes
Strata Fixed Effects	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); 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 IV: OLS and 2SLS results using COVID-19 mortality fluctuations
(longitudinal survey)

	Sacrifice Own Rights	Sacrifice Free Press	Relax Privacy Protections	Suspend Demo. Proce.
	(1)	(2)	(3)	(4)
PANEL A: OLS estimates				
Health Insecurity	0.083***	0.061***	0.066***	0.061***
	(0.003)	(0.003)	(0.003)	(0.003)
PANEL B: Reduced form				
COVID-19 Incidence	0.008***	0.013***	0.010***	0.019***
	(0.002)	(0.003)	(0.003)	(0.004)
PANEL C: 2SLS estimates				
Health Insecurity	0.105***	0.174***	0.129***	0.229***
	(0.023)	(0.052)	(0.041)	(0.046)
Kleibergen-Paap F-statistic	117.451	53.116	67.071	110.548
Mean of Outcome	0.748	0.614	0.573	0.574
Number of Clusters	197	195	194	195
Observations	364735	72929	72892	72901
Controls:				
Demographics	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

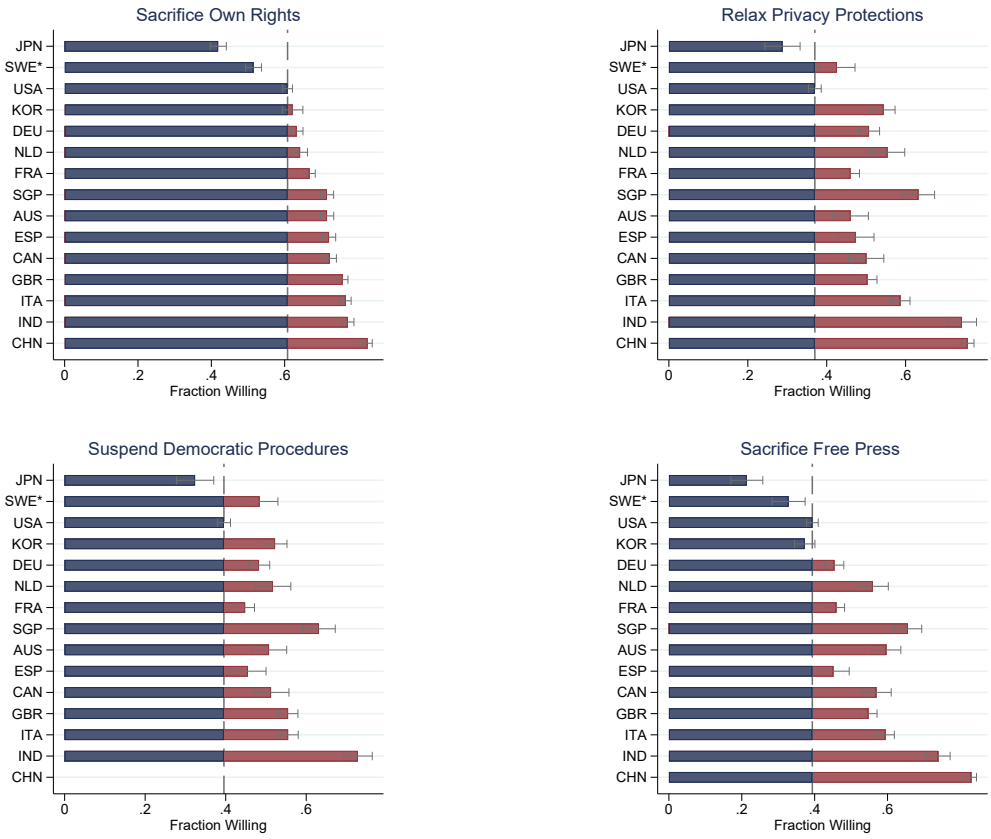
Notes: Table reports estimates of the 2SLS model given by Equation 1 and Equation 2, as well as corresponding OLS estimates. Outcome variables are listed in the column headings and described in Section II.C. Health insecurity is an average of three concerns: personal health, the health of the elderly, 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, administrative division level 1 fixed effects, 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 V: 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	0.065***	(0.005)	0.160**	(0.075)	0.724	0.224
Willing to sacrifice others' rights	0.068***	(0.005)	0.130*	(0.075)	0.705	0.203
z-score: willing to sacrifice rights	0.160***	(0.010)	0.348**	(0.165)	0.000	0.512
Panel B: Protection of privacy						
Willing to relax privacy protections	0.028***	(0.005)	0.203**	(0.081)	0.577	0.393
Unwilling to accept: track sick people	-1.861***	(0.363)	-11.259**	(5.506)	48.855	-5.843
Unwilling to accept: track everyone	-0.673*	(0.364)	-13.662**	(5.716)	54.572	-8.957
Contact tracing app	0.042***	(0.005)	0.222***	(0.080)	0.475	0.268
z-score: willing to sacrifice privacy	0.096***	(0.010)	0.647***	(0.170)	0.000	0.778
Panel C: Democratic rights and institutions						
Prefer strong leader	-0.081***	(0.011)	0.663***	(0.189)	2.672	0.614
Prefer delegating to experts	0.084***	(0.011)	0.747***	(0.156)	2.909	-0.058
Willing to sacrifice free press	-0.002	(0.005)	0.211**	(0.084)	0.600	0.422
Preference for democratic system	0.135***	(0.009)	0.062	(0.111)	3.267	n.a.
Willing to suspend democr. procedures	-0.010*	(0.006)	0.138*	(0.073)	0.446	n.a.
z-score: willing to curtail democracy	-0.019*	(0.011)	0.648***	(0.163)	-0.001	n.a.
Panel D: Rights to movement						
Unwilling to accept: close national border	-1.612***	(0.365)	4.039	(5.504)	42.655	6.624
Unwilling to accept: recommend stay home	-3.370***	(0.362)	2.916	(5.456)	43.025	7.722
Unwilling to accept: arrest if outside home	-2.052***	(0.370)	-3.747	(5.559)	51.547	-6.984
z-score: willing to give up mobility	0.072***	(0.010)	-0.013	(0.150)	0.000	-0.032

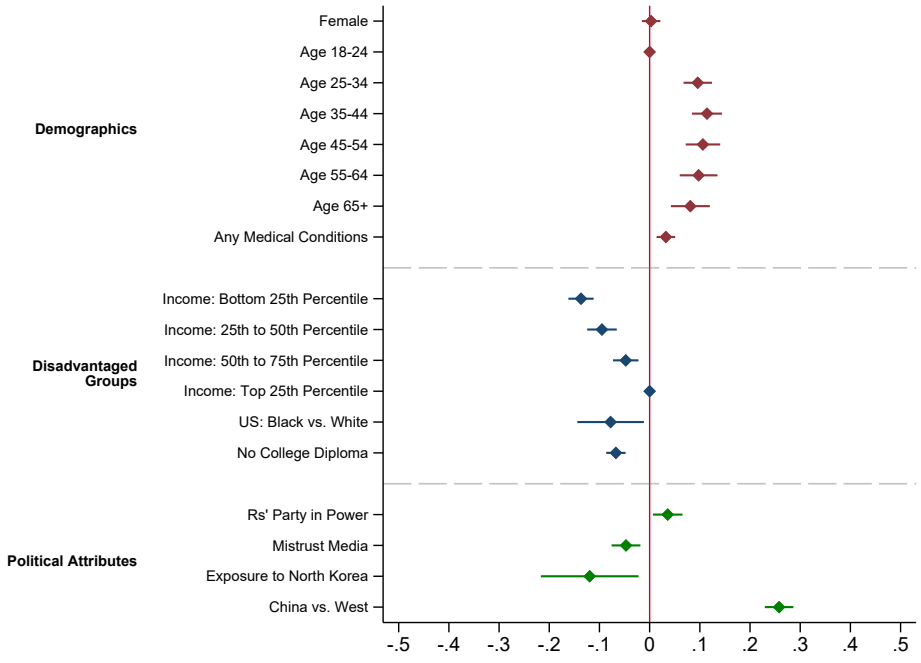
Notes: Table reports OLS and 2SLS results using experimental variation, based on the in-depth survey sample. Health Insecurity refers to an average of (1) COVID-19 is a threat to the health and lives of people in the country; and (2) the country does not have sufficient hospital capacity and medical 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); 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 56.12 to 58.44. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Main Figures



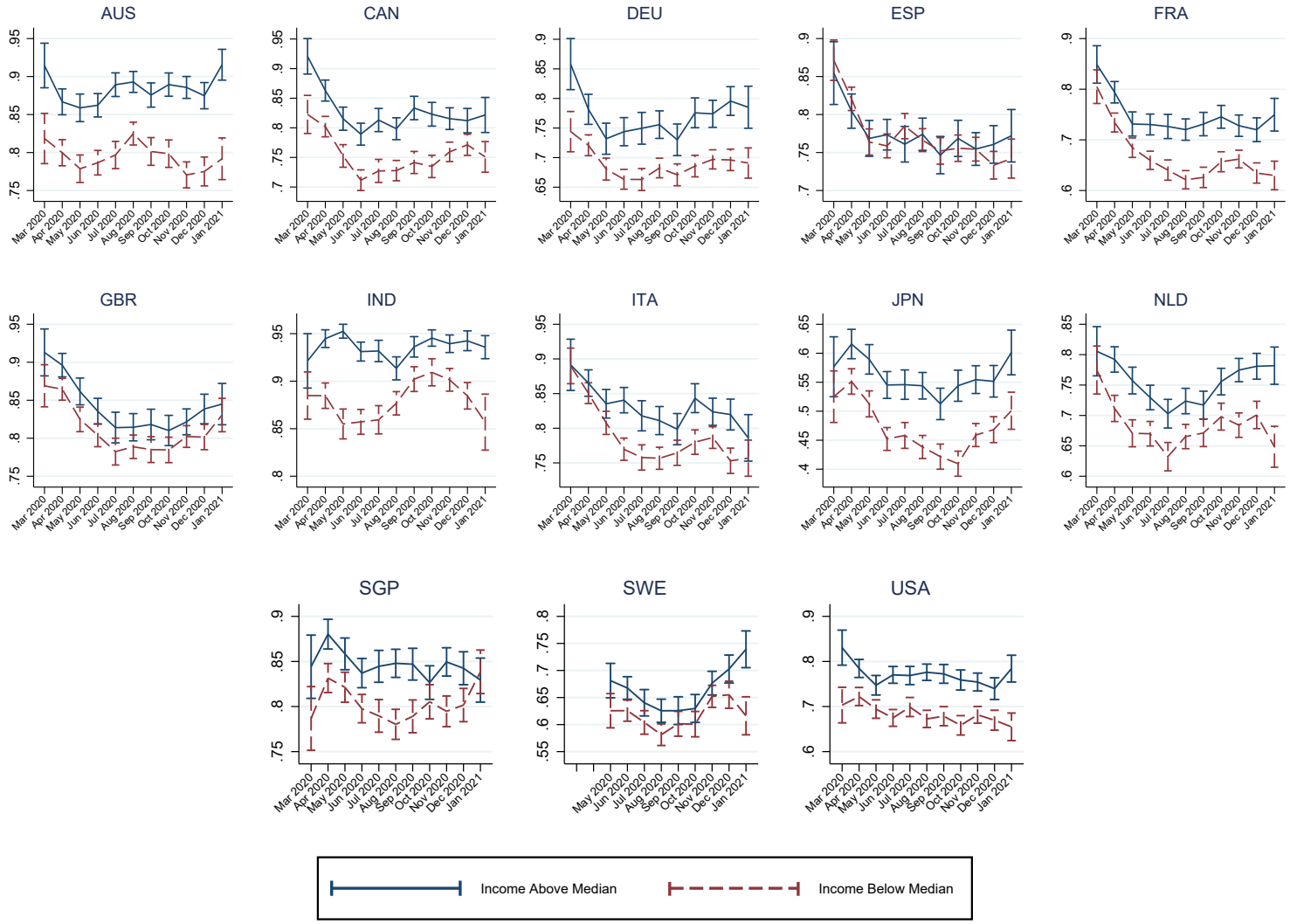
Notes: Figure uses responses from both the longitudinal and in-depth surveys for overlapping weeks (i.e., week of March 30 to week of April 13, 2020). For Sweden, data is used from the week of May 18 to the week of June 1, 2020. Bars represent the country fixed effects plus constant obtained from a regression of the outcome on week, country, and survey (i.e. longitudinal vs. in-depth) fixed effects. Willingness to sacrifice a given right is defined as answering "6" or above 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.C. 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)



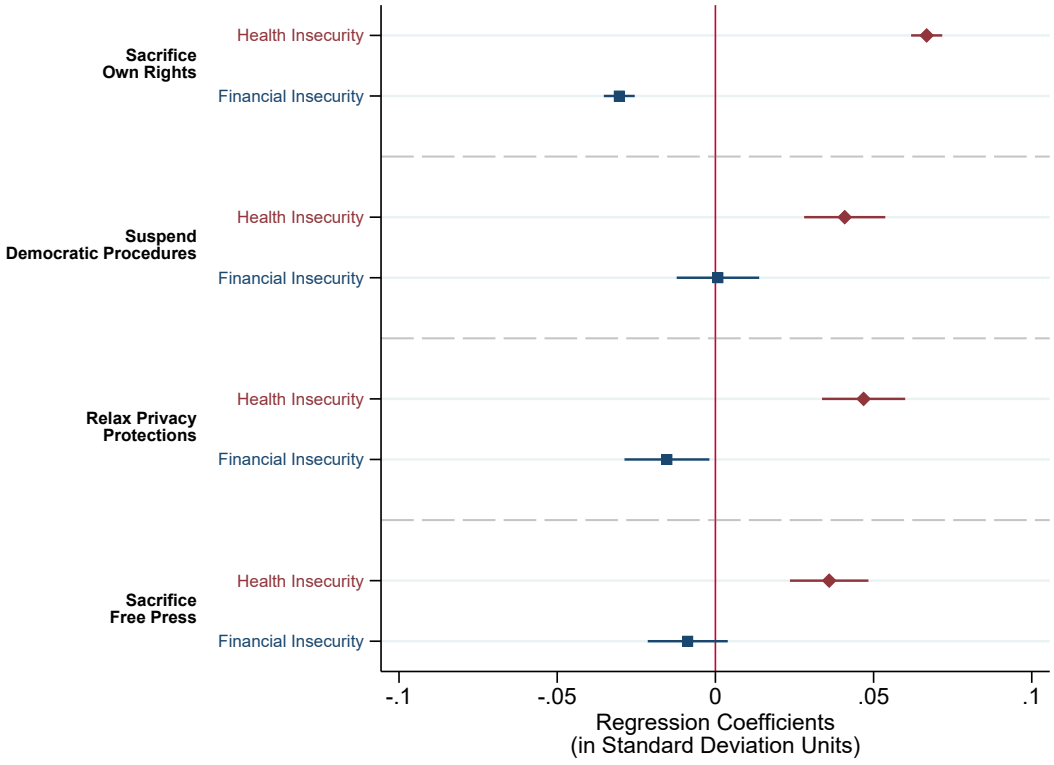
Notes: Figure based on the in-depth survey sample, restricted to the control group. Diamonds denote coefficient estimates obtained from separate OLS regressions of willingness to sacrifice rights (as described in Section II.C) on the given characteristics (y-axis), controlling for a hotspot indicator, 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)



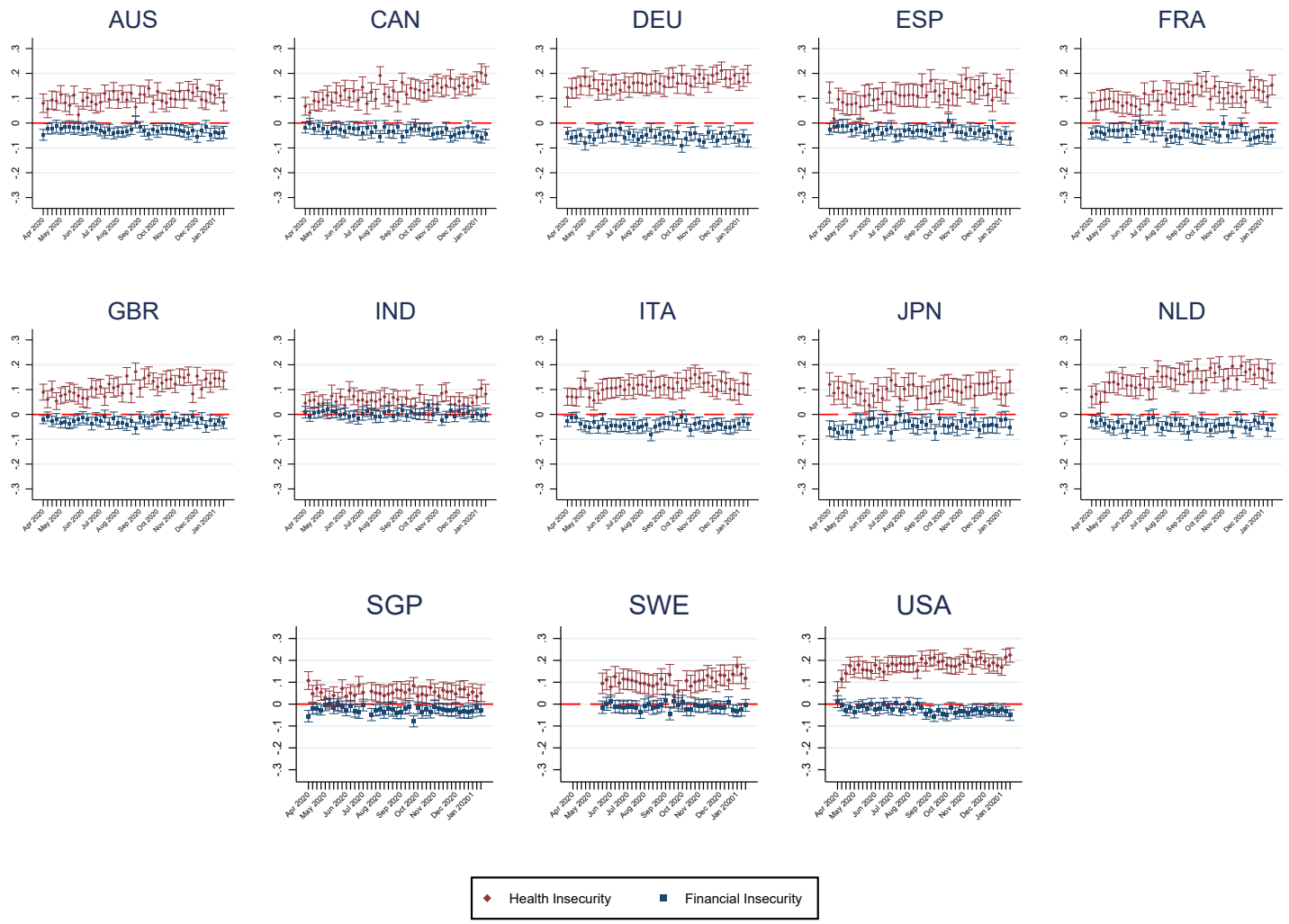
Notes: Figure is based on the longitudinal survey sample, plotting marginal predicted values of willingness to sacrifice rights on income by month for each country. Outcome variable is the willingness to sacrifice rights as described in Section II.C. Income is a binary variable, which is equal to 1 if 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 longitudinal survey sample, 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 denote coefficient estimates from separate OLS regressions—one for each of our four main outcome variables listed in bold face on the very left—on health insecurity and financial insecurity. 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.C. 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 longitudinal survey sample, 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.C. 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

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A Appendix Tables

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

	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	
Panel A														
	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

	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	
Panel B														
	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	0.501	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	0.29	0.25	0.29	0.37	0.34	0.45	0.46
Region 2	0.28	0.26	0.04	0.07	0.23	0.22	0.35	0.35	0.24	0.22	0.19	0.20
Region 3	0.19	0.20	0.27	0.39	0.28	0.29	0.12	0.16	0.15	0.24	0.36	0.34
Region 4	0.10	0.10	0.52	0.23	0.21	0.20	0.28	0.20	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 F.III. 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 G.

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	0.84	0.24	0.16
Region 2	0.19	0.18	0.20	0.21	0.34	0.24	0.24	0.19	0.19	0.20	0.02	0.05	0.20	0.23
Region 3	0.10	0.11	0.48	0.48	0.19	0.21	0.24	0.28	0.04	0.05	0.08	0.08	0.17	0.22
Region 4	0.16	0.17	0.21	0.21	0.13	0.12	0.10	0.11	0.43	0.43	0.04	0.03	0.39	0.39
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 F.III. 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 G.

Appendix Table A.3: OLS and 2SLS results using COVID-19 mortality fluctuations (longitudinal survey, nationally representative weights)

	Sacrifice Own Rights	Sacrifice Free Press	Relax Privacy Protections	Suspend Demo. Proce.
	(1)	(2)	(3)	(4)
PANEL A: OLS estimates				
Health Insecurity	0.084***	0.057***	0.069***	0.059***
	(0.003)	(0.004)	(0.003)	(0.003)
PANEL B: Reduced form				
COVID-19 Incidence	0.011***	0.010	0.010**	0.025***
	(0.003)	(0.007)	(0.004)	(0.005)
PANEL C: 2SLS estimates				
Health Insecurity	0.153***	0.127	0.152*	0.316***
	(0.041)	(0.083)	(0.078)	(0.071)
Kleibergen-Paap F-statistic	69.381	49.072	15.344	37.138
Mean of Outcome	0.748	0.614	0.573	0.574
Number of Clusters	197	195	194	195
Observations	364735	72929	72892	72901
Controls:				
Demographics	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 estimates of the 2SLS model given by Equation 1 and Equation 2, as well as corresponding OLS estimates with nationally representative sampling weights. Outcome variables are listed in the column headings and described in Section II.C. 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, administrative division level 1 fixed effects, 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.4: 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	0.16	0.41	0.43	0.25	0.29	0.55	0.46	0.41	0.29	0.45	0.50	0.55	0.37
Region 2	0.24	0.23	0.42	0.41	0.23	0.22	0.20	0.20	0.28	0.35	0.11	0.14	0.23	0.28
Region 3	0.20	0.22	0.09	0.05	0.25	0.29	0.25	0.34	0.14	0.16	0.08	0.11	0.17	0.27
Region 4	0.36	0.39	0.09	0.08	0.27	0.20			0.17	0.20	0.36	0.25	0.06	0.09
Region 5			0.00	0.03										

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 F.III. 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 G.

Appendix Table A.5: 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	0.064***	(0.006)	0.151*	(0.088)	0.724	0.224
Willing to sacrifice others' rights	0.065***	(0.006)	0.106	(0.088)	0.705	0.203
z-score: willing to sacrifice rights	0.154***	(0.012)	0.309	(0.194)	0.000	0.512
Panel B: Protection of privacy						
Willing to relax privacy protections	0.024***	(0.006)	0.196**	(0.096)	0.577	0.393
Unwilling to accept: track sick people	-2.100***	(0.461)	-11.073*	(6.603)	48.855	-5.843
Unwilling to accept: track everyone	-0.859*	(0.459)	-12.879*	(6.748)	54.572	-8.957
Contact tracing app	0.046***	(0.006)	0.238**	(0.094)	0.475	0.268
z-score: willing to sacrifice privacy	0.101***	(0.012)	0.649***	(0.200)	0.000	0.778
Panel C: Democratic rights and institutions						
Prefer strong leader	-0.087***	(0.013)	0.669***	(0.221)	2.672	0.614
Prefer delegating to experts	0.100***	(0.014)	0.815***	(0.190)	2.909	-0.058
Willing to sacrifice free press	-0.003	(0.006)	0.205**	(0.098)	0.600	0.422
Preference for democratic system	0.128***	(0.010)	-0.063	(0.135)	3.267	n.a.
Willing to suspend democr. procedures	-0.006	(0.006)	0.132	(0.087)	0.446	n.a.
z-score: willing to curtail democracy	-0.007	(0.012)	0.784***	(0.204)	-0.001	n.a.
Panel D: Rights to movement						
Unwilling to accept: close national border	-1.981***	(0.459)	8.575	(6.763)	42.655	6.624
Unwilling to accept: recommend stay home	-3.547***	(0.460)	4.951	(6.613)	43.025	7.722
Unwilling to accept: arrest if outside home	-2.456***	(0.466)	-0.173	(6.626)	51.547	-6.984
z-score: willing to give up mobility	0.083***	(0.013)	-0.129	(0.182)	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); 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 39.74 to 40.68. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.6: 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	-0.010	-0.011	0.009***	0.000	-0.002	-0.002
	(0.003)	(0.008)	(0.009)	(0.003)	(0.001)	(0.002)	(0.006)
Mean of Outcome	0.518	3.758	2.184	0.432	0.903	0.094	0.504
Observations	364735	364735	364735	364735	254104	34186	19697
	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, 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.7: 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.8: 2SLS results using COVID-19 mortality fluctuations: alternative pathways (longitudinal survey)

	Sacrifice Own Rights	Sacrifice Free Press	Relax Privacy Protections	Suspend Demo. Proce.
	(1)	(2)	(3)	(4)
Panel A: 2SLS, Instrumenting for Financial Insecurity				
Financial Insecurity	-0.062	-0.506*	-0.189	-0.571***
	(0.083)	(0.265)	(0.122)	(0.195)
Kleibergen-Paap F-statistic	36.934	7.311	21.160	15.746
Panel-Specific Controls:				
Health Insecurity	Yes	Yes	Yes	Yes
Government Effectiveness	Yes	Yes	Yes	Yes
Panel B: 2SLS, Instrumenting for Financial Insecurity (National Economy)				
Financial Insecurity (National Economy)	-1.042	5.514	1.949	12.122
	(4.832)	(27.887)	(5.746)	(72.651)
Kleibergen-Paap F-statistic	0.060	0.039	0.121	0.028
Panel-Specific Controls:				
Health Insecurity	Yes	Yes	Yes	Yes
Government Effectiveness	Yes	Yes	Yes	Yes
Panel C: 2SLS, Instrumenting for Government Effectiveness				
Government Effectiveness	0.068	-0.169	-0.068	-0.250*
	(0.069)	(0.155)	(0.136)	(0.133)
Kleibergen-Paap F-statistic	14.538	11.419	6.230	16.786
Panel-Specific Controls:				
Health Insecurity	Yes	Yes	Yes	Yes
Financial Insecurity	Yes	Yes	Yes	Yes
Panel D: 2SLS, Instrumenting For Health Insecurity				
Health Insecurity	0.107***	0.198***	0.136***	0.247***
	(0.026)	(0.058)	(0.044)	(0.050)
Kleibergen-Paap F-statistic	148.700	69.355	86.449	129.361
Panel-Specific Controls:				
Financial Insecurity	Yes	Yes	Yes	Yes
Government Effectiveness	Yes	Yes	Yes	Yes
Mean of Outcome	0.750	0.615	0.575	0.575
Number of Clusters	197	195	194	195
Observations	359380	71846	71801	71809
Controls:				
Demographics	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 2SLS results using naturally-occurring variation in COVID-19 mortality. Outcome variables are listed in the column headings and described in Section II.C. Financial insecurity in Panel B refers to an concern about your household financial position on a scale of 1 to 5. Financial insecurity (national economy) in Panel C refers to an concern about the national economy 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, financial insecurity (national economy), 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.9: 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 (Nat. Economy)	Concerns about Surveillance	Rights Insecurity	Financial Insecurity (Nat. Economy)	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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.10: 2SLS results using experimental variation: alternative pathways (in-depth survey)

Outcome Variables	Health Insecurity (2SLS)		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	0.158*	(0.082)	0.724	0.224
Willing to sacrifice others' rights	0.125	(0.082)	0.705	0.203
z-score: willing to sacrifice rights	0.339*	(0.180)	0.000	0.512
Panel B: Protection of privacy				
Willing to relax privacy protections	0.209**	(0.087)	0.577	0.393
Unwilling to accept: track sick people	-12.368**	(6.060)	48.855	-5.843
Unwilling to accept: track everyone	-15.211**	(6.249)	54.572	-8.957
Contact tracing app	0.237***	(0.088)	0.475	0.268
z-score: willing to sacrifice privacy	0.691***	(0.184)	0.000	0.778
Panel C: Democratic rights and institutions				
Prefer strong leader	0.716***	(0.198)	2.672	0.614
Prefer delegating to experts	0.830***	(0.171)	2.909	-0.058
Willing to sacrifice free press	0.214**	(0.087)	0.600	0.422
Preference for democratic system	0.043	(0.123)	3.267	n.a.
Willing to suspend democr. procedures	0.130*	(0.075)	0.446	n.a.
z-score: willing to curtail democracy	0.705***	(0.173)	-0.001	n.a.
Panel D: Rights to movement				
Unwilling to accept: close national border	4.657	(6.047)	42.655	6.624
Unwilling to accept: recommend stay home	3.079	(5.994)	43.025	7.722
Unwilling to accept: arrest if outside home	-4.376	(6.122)	51.547	-6.984
z-score: willing to give up mobility	-0.013	(0.165)	0.000	-0.032
Additional Controls:				
Financial Insecurity	Yes	Yes		
Concerns about Surveillance	Yes	Yes		

Notes: Table reports 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. 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)). Government effectiveness refers to the respondent's level of satisfaction with the the federal government's COVID-19 response on a scale of 1 (very dissatisfied) to 5 (very satisfied). Columns (2) to (3) present the 2SLS results and standard errors from Equation 3, including an additional control for financial insecurity. Columns (4) to (5) present the 2SLS results and standard errors from Equation 3 but replace health insecurity with the financial insecurity, while controlling for health insecurity. Columns (6) to (7) present the 2SLS results and standard errors from Equation 3 but replace health insecurity with perceived government effectiveness, controlling for health and financial insecurity. Column (8) reports the unconditional mean of the outcome variable of respondents in the control group. Column (9) 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). Health insecurity, financial insecurity, and government effectiveness 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); 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 60.30 to 61.94 for columns (2)-(3); 4.28 to 6.61 for columns (4)-(5); and 2.84 to 3.53 for columns (6)-(7). Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.11: 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.
	(1)	(2)	(3)	(4)
PANEL A: OLS estimates				
Health Insecurity	0.645***	0.444***	0.499***	0.428***
	(0.021)	(0.022)	(0.022)	(0.019)
PANEL B: Reduced form				
COVID-19 Incidence	0.056***	0.077***	0.074***	0.122***
	(0.013)	(0.018)	(0.020)	(0.020)
PANEL C: 2SLS estimates				
Health Insecurity	0.768***	1.057***	0.981***	1.494***
	(0.153)	(0.278)	(0.263)	(0.260)
Kleibergen-Paap F-statistic	117.451	53.116	67.071	110.548
Mean of Outcome	7.076	6.102	5.813	5.823
Number of Clusters	197	195	194	195
Observations	364735	72929	72892	72901
Controls:				
Demographics	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 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, administrative division level 1 fixed effects, 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.12: 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	0.507***	(0.028)	0.705	(0.431)	7.055	1.665
Willing to sacrifice others' rights	0.492***	(0.028)	0.667	(0.419)	6.935	1.479
z-score: willing to sacrifice rights	0.208***	(0.011)	0.285*	(0.167)	0.000	0.653
Panel B: Protection of privacy						
Willing to relax privacy protections	0.180***	(0.031)	1.385***	(0.513)	6.018	2.997
Unwilling to accept: track sick people	-1.861***	(0.363)	-11.259**	(5.506)	48.855	-5.843
Unwilling to accept: track everyone	-0.673*	(0.364)	-13.662**	(5.716)	54.572	-8.957
Contact tracing app	0.042***	(0.005)	0.222***	(0.080)	0.475	0.268
z-score: willing to sacrifice privacy	0.096***	(0.010)	0.653***	(0.172)	0.000	0.832
Panel C: Democratic rights and institutions						
Prefer strong leader	-0.081***	(0.011)	0.663***	(0.189)	2.672	0.614
Prefer delegating to experts	0.084***	(0.011)	0.747***	(0.156)	2.909	-0.058
Willing to sacrifice free press	-0.103***	(0.032)	0.868	(0.540)	6.123	3.261
Preference for democratic system	0.135***	(0.009)	0.062	(0.111)	3.267	n.a.
Willing to suspend democr. procedures	-0.141***	(0.037)	0.944**	(0.480)	4.934	n.a.
z-score: willing to curtail democracy	-0.028**	(0.011)	0.605***	(0.161)	-0.001	n.a.
Panel D: Rights to movement						
Unwilling to accept: close national border	-1.612***	(0.365)	4.039	(5.504)	42.655	6.624
Unwilling to accept: recommend stay home	-3.370***	(0.362)	2.916	(5.456)	43.025	7.722
Unwilling to accept: arrest if outside home	-2.052***	(0.370)	-3.747	(5.559)	51.547	-6.984
z-score: willing to give up mobility	0.072***	(0.010)	-0.013	(0.150)	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); 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 56.12 to 58.44. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.13: 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.C 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.14: 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.15: OLS estimates of the Black-white gap in response to privacy infringements and movement restrictions
(in-depth survey, U.S. sample only)

Outcome Variables	U.S. only: Respondent is Black		Mean among White	Gap btw. Black and White
(1)	(2)	(3)	(4)	(5)
Panel A: Privacy and Surveillance				
Willing to relax privacy protections	-0.068**	(0.033)	0.350	-0.056
Unwilling to accept: track sick people	5.576**	(2.275)	50.759	8.932
Unwilling to accept: track everyone	2.308	(2.253)	59.470	4.205
Contact tracing app	-0.015	(0.034)	0.345	-0.036
Panel B: Lockdown and Closures				
Unwilling to accept: close national border	14.285***	(2.359)	33.547	18.140
Unwilling to accept: recommend stay home	12.353***	(2.409)	34.167	15.773
Unwilling to accept: arrest if outside home	1.363	(2.341)	56.019	2.921

Notes: Table is based on the in-depth survey sample. The sample only includes the U.S. respondents who self-identified as either Black or white and assigned to the control group. Columns (2) to (3) present the coefficients and robust standard errors from OLS estimates of an indicator for a Black respondent (i.e., 1 if the respondent is Black, or 0 if white) on the outcome variables in Column (1). Column (4) reports the unconditional mean of the outcome variable among white respondents. Column (5) reports the difference in the unconditional control group mean of each outcome variable between Black and white 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. All regressions include the following controls: demographics (sex, and age group indicators), survey week fixed effects, hotspot fixed effects, and the measure of health insecurity (i.e., 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). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.16: 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	-0.139**	0.054*	-0.106*	0.091***	0.120
	(0.056)	(0.028)	(0.056)	(0.026)	(0.150)
Health Insecurity	0.159***	0.076**	0.129***	0.067***	-0.004
	(0.033)	(0.030)	(0.027)	(0.022)	(0.147)
X_i	-0.007	-0.041***	0.048***	-0.045***	-0.175**
	(0.007)	(0.003)	(0.006)	(0.004)	(0.067)
Kleibergen-Paap F-statistic	59.640	55.828	59.936	59.838	2.284
Mean of Outcome	0.748	0.748	0.748	0.748	0.760
Observations	364735	364735	372125	364735	19697

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.C. 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, government effectiveness (i.e., belief that the government is taking proper steps to protect its population), administrative division level 1 fixed effects, 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.17: First stage results using experimental variation: by demographics or country
(in-depth survey)

Outcome	Public Health Treatment		F-stat.	Mean of Outcome	N
(1)	(2)	(3)	(4)	(5)	(6)
Panel A: By demographics					
Health insecurity if R belongs to:					
high income	0.123***	(0.027)	20.973	-0.201	5769
low income	0.135***	(0.022)	36.955	-0.203	7568
female	0.127***	(0.023)	29.579	-0.219	6832
male	0.129***	(0.025)	26.627	-0.186	6505
college diploma	0.147***	(0.024)	37.355	-0.207	7074
no college diploma	0.107***	(0.024)	19.126	-0.195	6263
political match	0.127***	(0.022)	32.222	-0.071	6496
political mismatch	0.184***	(0.035)	28.188	-0.097	2897
Panel B: By country					
Health insecurity if R lives in:					
Germany	0.170***	(0.065)	6.867	-0.087	919
France	0.109**	(0.052)	4.289	-0.059	1338
U.K.	0.200***	(0.057)	12.194	-0.101	1158
Italy	0.206***	(0.058)	12.454	-0.097	1134
South Korea	0.267***	(0.055)	23.589	-0.148	1165
U.S.	0.094***	(0.032)	8.949	-0.059	3711

Notes: Table reports first-stage results by demographic groups and country using experimental variation. The outcome variable is health insecurity which 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 variable is standardized to mean 0 and sd 1. Panel A shows the first-stage results by different demographic groups: income, sex, a college diploma, and political match (i.e., respondents have the same party affiliation as the party in power (left- *or* right-leaning)). Panel B shows the first-stage results by country. 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); 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 (only for Panel A) and hotspot); and survey week fixed effects. Kleibergen Paap F-statistics presented in column (4) 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 in column (5). Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A.18: 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
	Indiv FEs	*Country FEs*	Free Press	Protections	Demo. Proce.
	(1)	(2)	(3)	(4)	(5)
Panel A: OLS Estimates					
Health Insecurity	0.023***	0.083***	0.061***	0.066***	0.061***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Panel B: Reduced Form					
COVID-19 Incidence	0.007***	0.006***	0.012***	0.008**	0.021***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)
Panel C: 2SLS Estimates					
Health Insecurity	0.100***	0.093***	0.174***	0.121***	0.281***
	(0.025)	(0.027)	(0.055)	(0.043)	(0.053)
Kleibergen-Paap F-statistic	99.548	73.597	38.310	50.550	71.755
Mean of Outcome	0.744	0.748	0.614	0.573	0.574
Number of Unique FEs	66525	197	196	197	197
Observations	234512	364735	72930	72895	72903
Controls:					
Demographics	No	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
Country Fixed Effects	No	Yes	Yes	Yes	Yes
Individual-Level Fixed Effects	Yes	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.C. 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, 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.19: OLS and 2SLS results using COVID-19 mortality fluctuations with a reduced set of controls
(longitudinal survey)

	Sacrifice Own Rights	Sacrifice Free Press	Relax Privacy Protections	Suspend Demo. Proce.
	(1)	(2)	(3)	(4)
PANEL A: OLS estimates				
Health Insecurity	0.084***	0.063***	0.068***	0.063***
	(0.003)	(0.004)	(0.003)	(0.004)
PANEL B: Reduced form				
COVID-19 Incidence	0.006***	0.006*	0.008**	0.009**
	(0.002)	(0.003)	(0.003)	(0.004)
PANEL C: 2SLS estimates				
Health Insecurity	0.076***	0.078*	0.099**	0.104**
	(0.023)	(0.044)	(0.043)	(0.041)
Kleibergen-Paap F-statistic	122.690	58.112	77.842	111.281
Mean of Outcome	0.748	0.614	0.573	0.574
Number of Clusters	197	195	194	195
Observations	364735	72929	72892	72901
Controls:				
Demographics	Yes	Yes	Yes	Yes
Government Effectiveness	No	No	No	No
Policy Response	No	No	No	No
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 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.C. 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)), 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.20: 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.
	(1)	(2)	(3)	(4)
PANEL A: OLS estimates				
Health Insecurity	0.081***	0.061***	0.068***	0.063***
	(0.003)	(0.003)	(0.003)	(0.003)
PANEL B: Reduced form				
COVID-19 Incidence	0.009***	0.013***	0.010***	0.019***
	(0.002)	(0.003)	(0.003)	(0.003)
PANEL C: 2SLS estimates				
Health Insecurity	0.124***	0.173***	0.136***	0.223***
	(0.021)	(0.049)	(0.039)	(0.040)
Kleibergen-Paap F-statistic	103.143	49.985	88.145	100.058
Mean of Outcome	0.748	0.618	0.573	0.573
Observations	415316	83139	82916	83023
Controls:				
Demographics	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 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.C. 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, administrative division level 1 fixed effects, 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.21: 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	0.020**	(0.010)	0.724	0.224
Willing to sacrifice others' rights	0.017*	(0.010)	0.705	0.203
z-score: willing to sacrifice rights	0.045**	(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	-1.441**	(0.690)	48.855	-5.843
Unwilling to accept: track everyone	-1.748**	(0.699)	54.572	-8.957
Contact tracing app	0.028***	(0.010)	0.475	0.268
z-score: willing to sacrifice privacy	0.083***	(0.020)	0.000	0.778
Panel C: Democratic rights and institutions				
Prefer strong leader	0.085***	(0.020)	2.672	0.614
Prefer delegating to experts	0.096***	(0.017)	2.909	-0.058
Willing to sacrifice free press	0.027***	(0.010)	0.600	0.422
Preference for democratic system	0.009	(0.016)	3.267	n.a.
Willing to suspend democr. procedures	0.020**	(0.010)	0.446	n.a.
z-score: willing to curtail democracy	0.093***	(0.020)	-0.001	n.a.
Panel D: Rights to movement				
Unwilling to accept: close national border	0.517	(0.697)	42.655	6.624
Unwilling to accept: recommend stay home	0.373	(0.691)	43.025	7.722
Unwilling to accept: arrest if outside home	-0.480	(0.713)	51.547	-6.984
z-score: willing to give up mobility	-0.002	(0.019)	0.000	-0.032

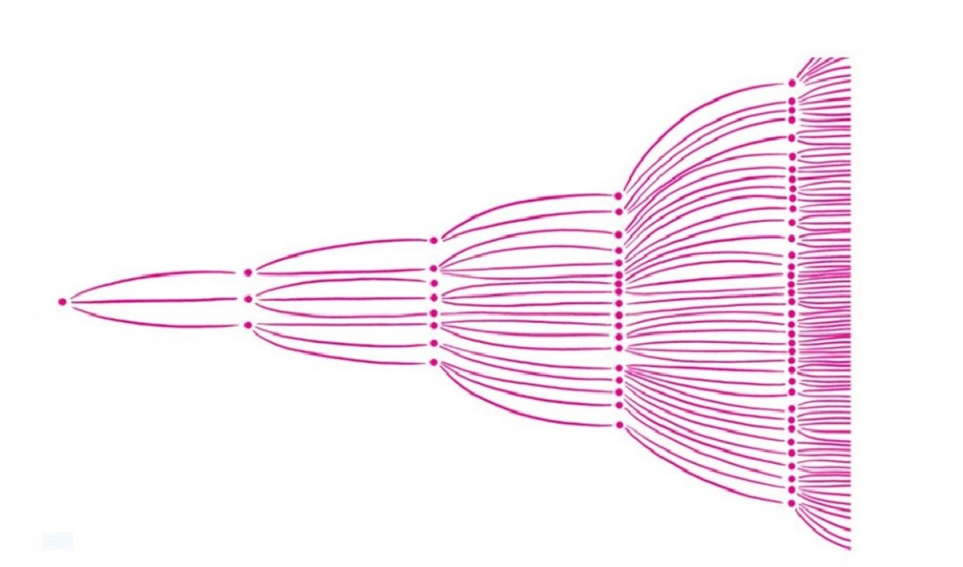
Notes: Table reports reduced form results using experimental variation from the in-depth survey. Columns (2) to (3) present the regression results of the effects of public health treatment on outcomes. Column (4) reports the unconditional mean of the outcome variable of respondents in the control group. 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); 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.22: 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	-3.252***	(0.373)	-0.668	(5.556)	42.853	8.686
Unwilling to accept: close restaurants etc.	-3.271***	(0.362)	0.413	(5.358)	42.612	5.969
Unwilling to accept: close all businesses	-3.367***	(0.357)	-1.695	(5.260)	44.021	5.060
z-score: willing to limit operations	0.097***	(0.010)	0.020	(0.150)	0.000	-0.196
Panel B: Economic well-being						
Unwilling to accept: measures cut income	0.048	(0.352)	-12.517**	(5.619)	59.612	-6.195
Unwilling to accept: measures 2x unemp. rate	-2.071***	(0.341)	-4.261	(5.106)	52.047	3.729
Unwilling to accept: measures 3x unemp. rate	-1.835***	(0.351)	-2.223	(5.289)	56.316	3.308
Willing to endure economic losses	0.058***	(0.005)	0.133*	(0.079)	0.588	0.125
z-score: willing to harm economy	0.105***	(0.010)	0.364**	(0.160)	0.000	0.181
Panel C: Other restrictive policies						
Unwilling to accept: ration goods	-1.349***	(0.351)	-9.683*	(5.354)	51.632	-0.096
Unwilling to accept: mandate vaccinations against COVID-19	-2.795***	(0.375)	-4.940	(5.660)	46.576	4.247
z-score: willing to accept restrictive policies	0.065***	(0.010)	0.239	(0.152)	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. It is standardized to mean 0 sd 1. 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. Question wording of economy-related outcomes are described in Appendix Table C.1. The remaining four outcomes listed in the above table take the standard minimum lives that need to be saved question format and are worded as follows: close schools—"During the epidemic, the government closes all schools.", close restaurants etc.—"During the epidemic, the government closes restaurants, bars, and entertainment businesses.", ration goods—"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.", mandate vaccination—"During the epidemic, the government requires everyone to become vaccinated against the coronavirus as soon as an effective vaccine becomes available.". 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); 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 56.12. Robust standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

B Appendix Figures

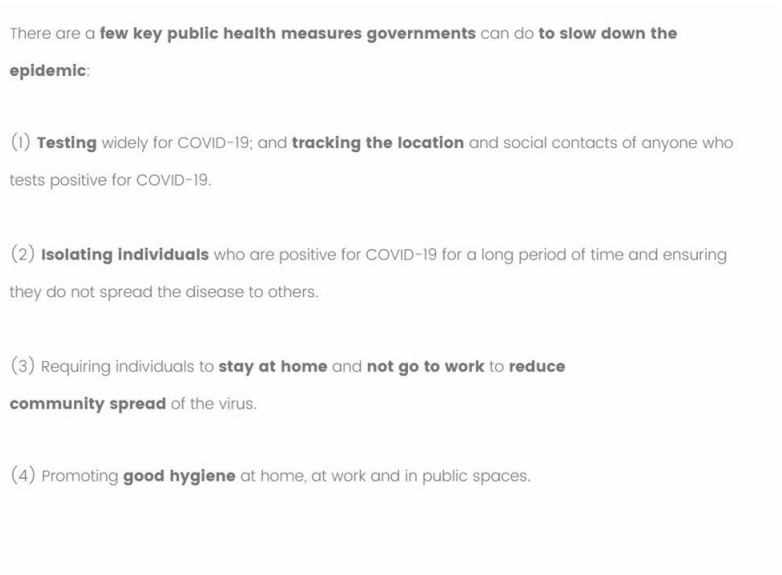


Notes: Figure shows exponential-disease-spread exhibit presented in the public health treatment. Participants in the experiment were shown a dynamic version of the figure above: from the root node of the tree, the disease sequentially spread to each set of downstream nodes.

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

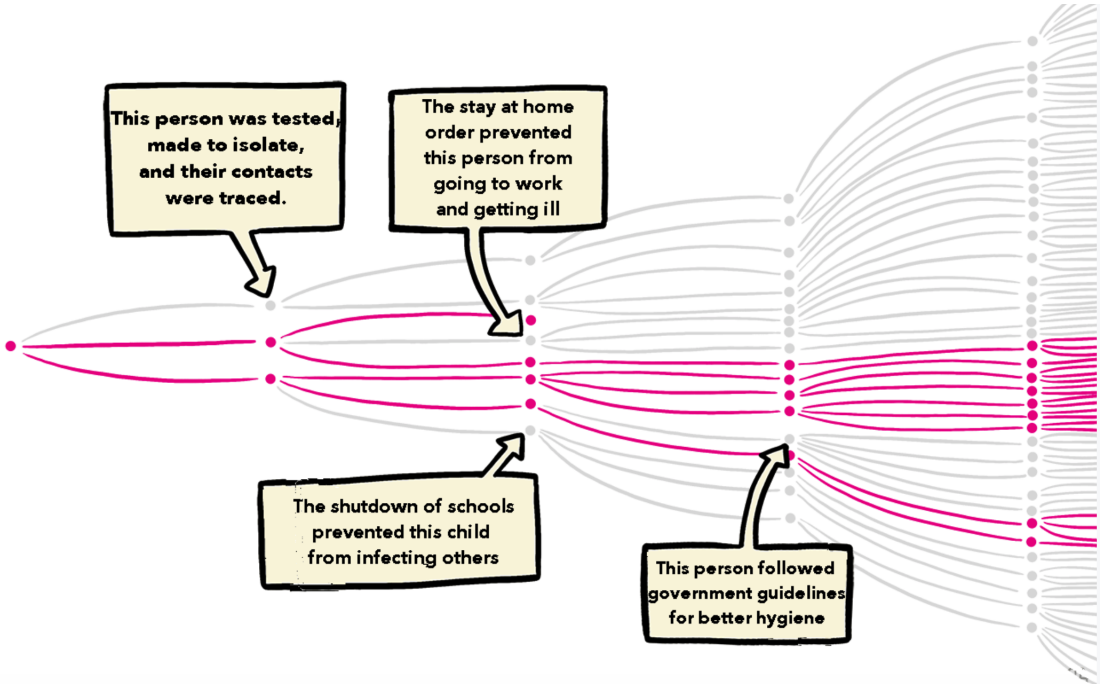
Notes: Figure shows health-care-strain exhibit presented in the public health treatment.

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



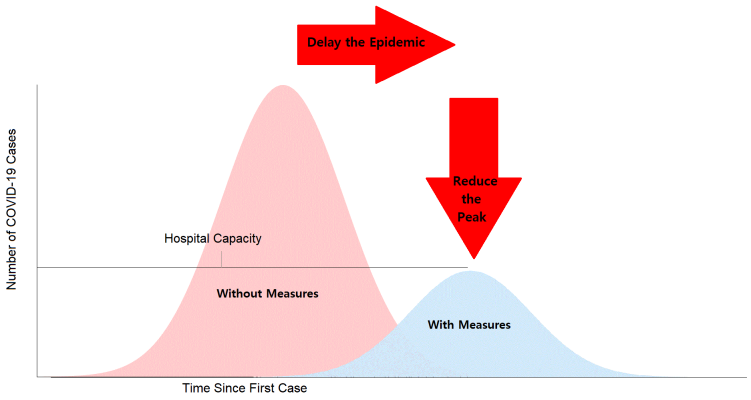
Notes: Figure shows key-health-measures exhibit presented in the public health treatment.

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



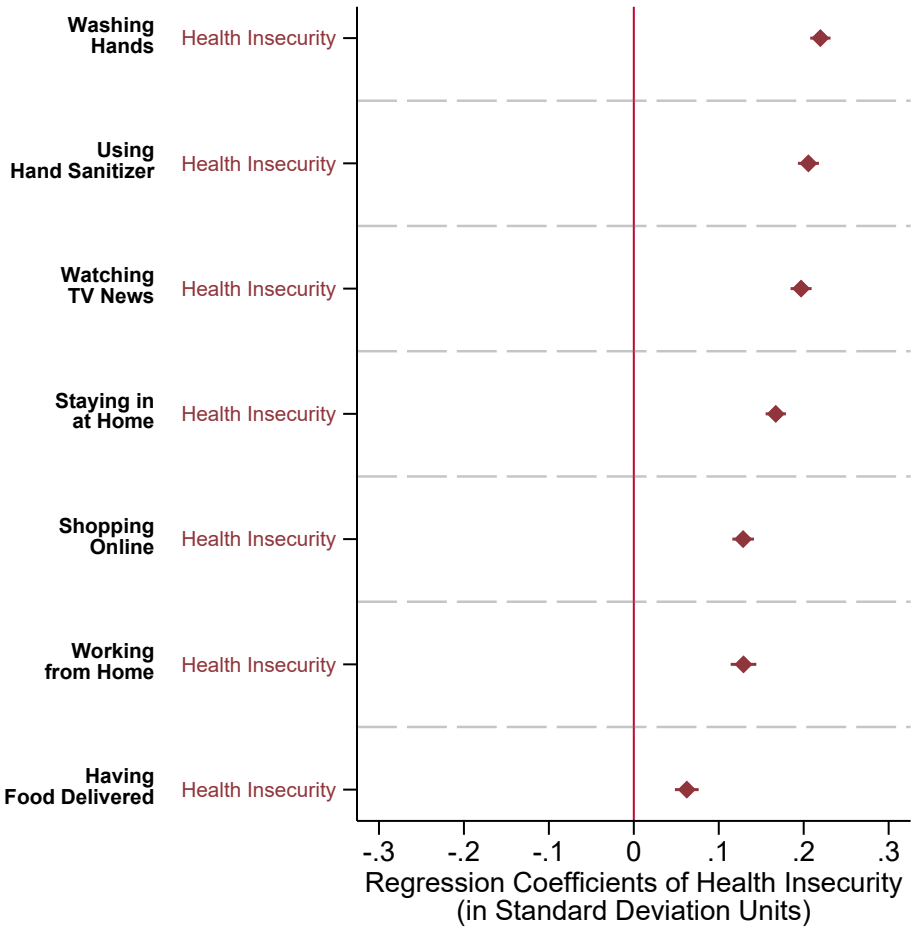
Notes: Figure shows importance-of-containment-measures exhibit presented in the public health treatment.

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



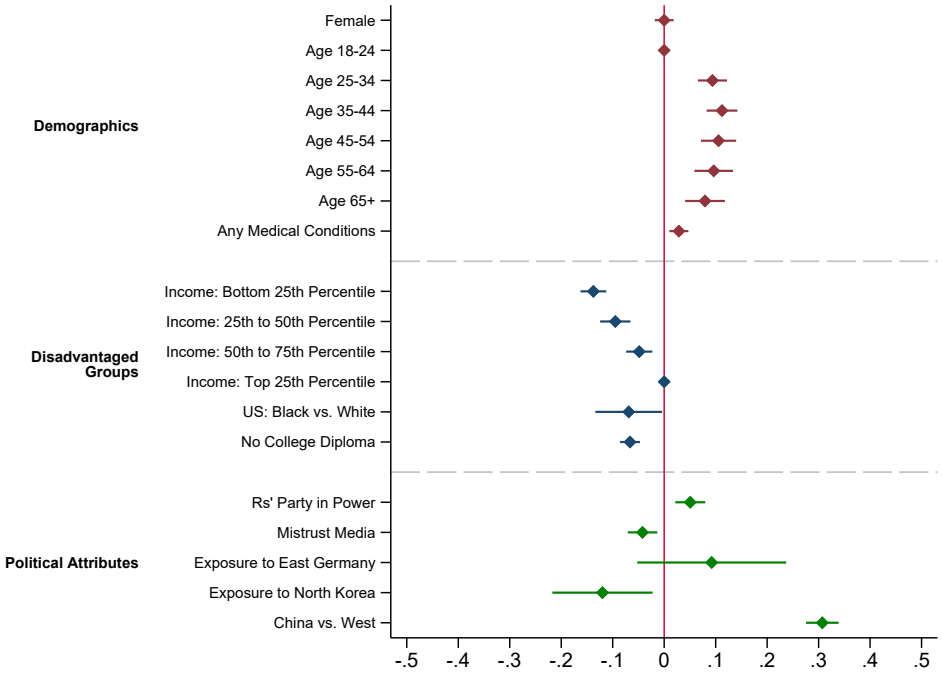
Notes: Figure shows flattening-the-curve exhibit presented in the public health treatment.

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



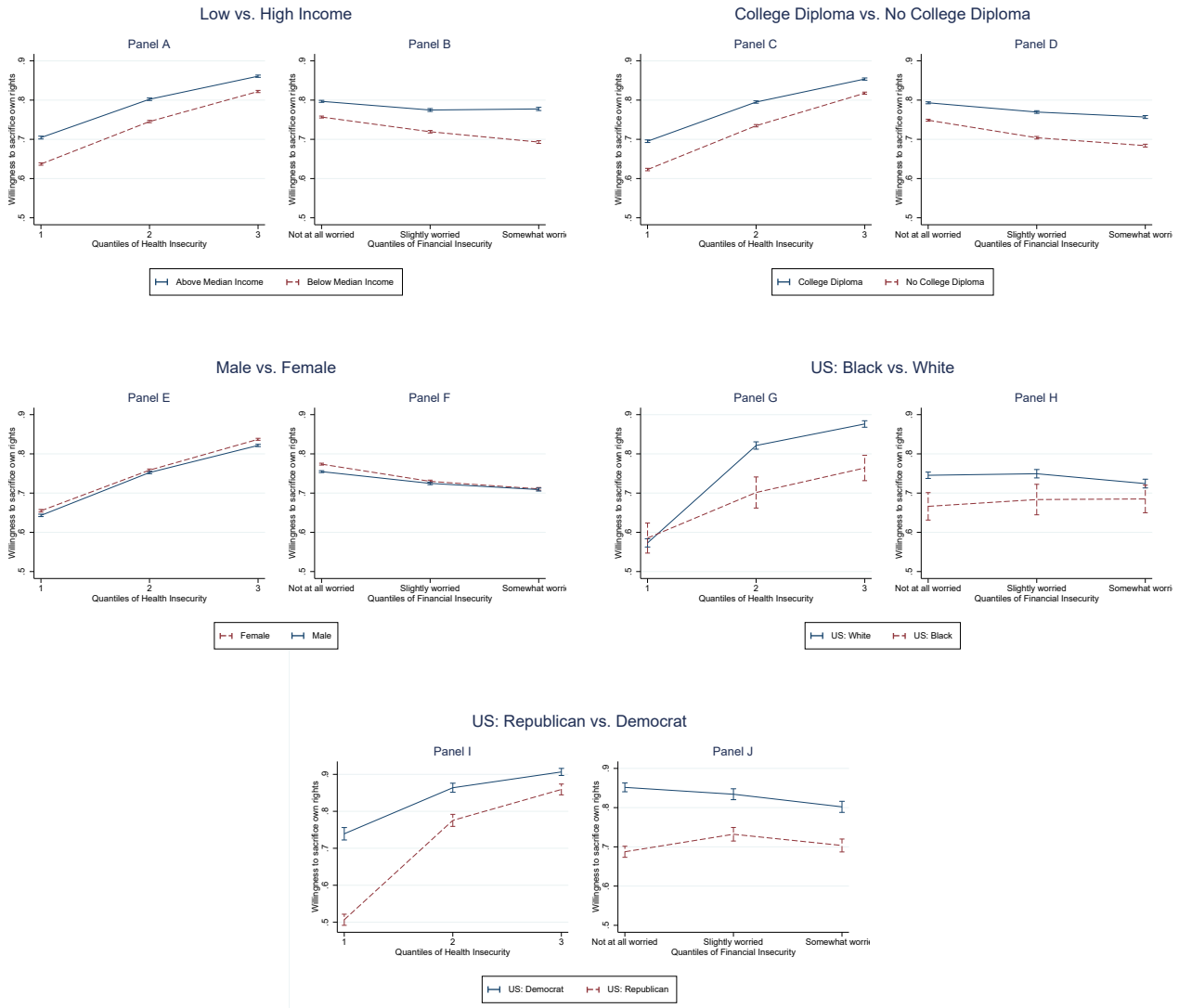
Notes: Figure is based on the longitudinal survey sample, including weeks from the week of March 30 to the week of April 13, 2020. Sweden period slightly delayed due to later entry into survey. Dots reflect coefficient estimates of health insecurity on the relevant outcome (y-axis). Health insecurity 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



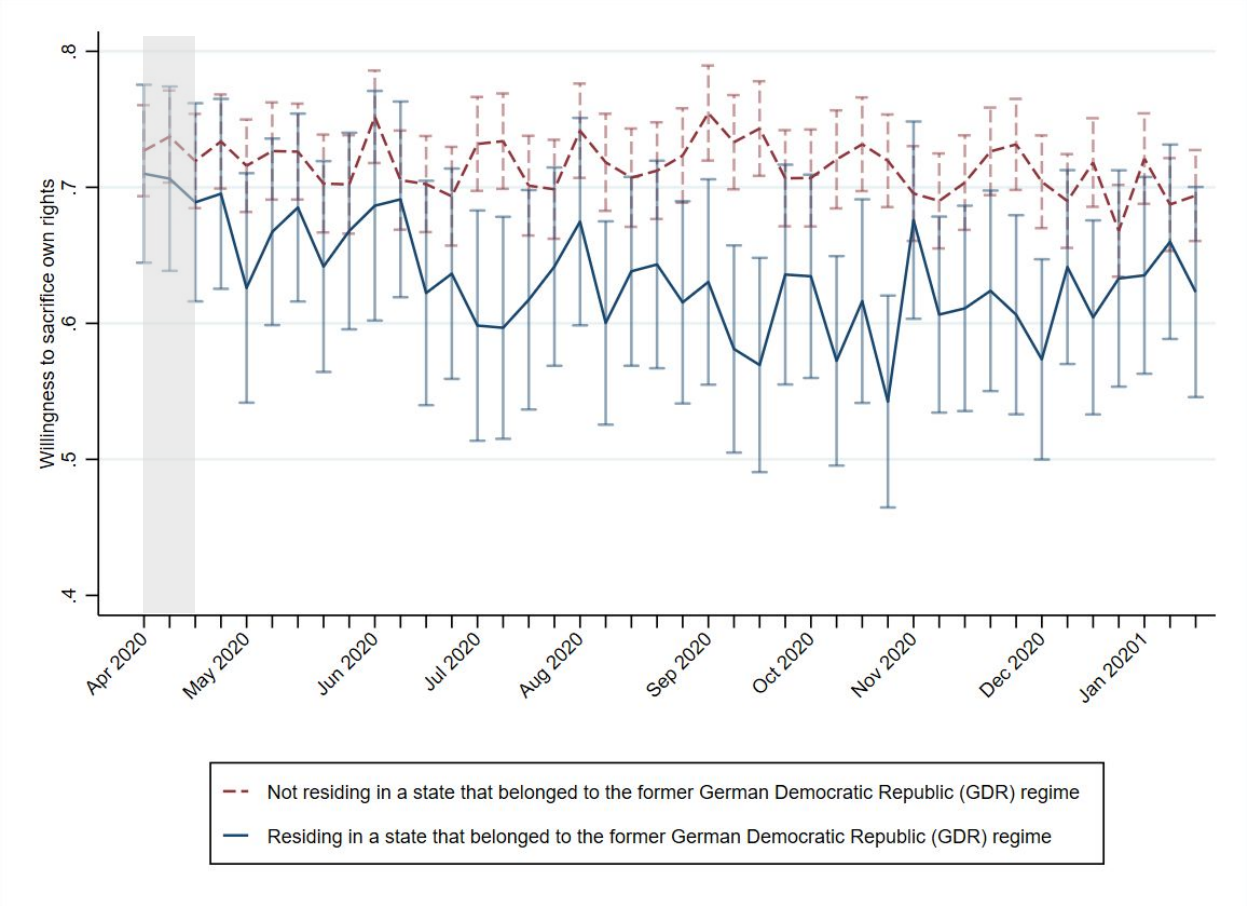
Notes: Figure based on in-depth survey sample, restricted to the control group. Diamonds denote coefficient estimates obtained from separate OLS regressions of willingness to sacrifice rights (as described in Section II.C) on the given characteristics (y-axis), controlling for perceived health insecurity, 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)



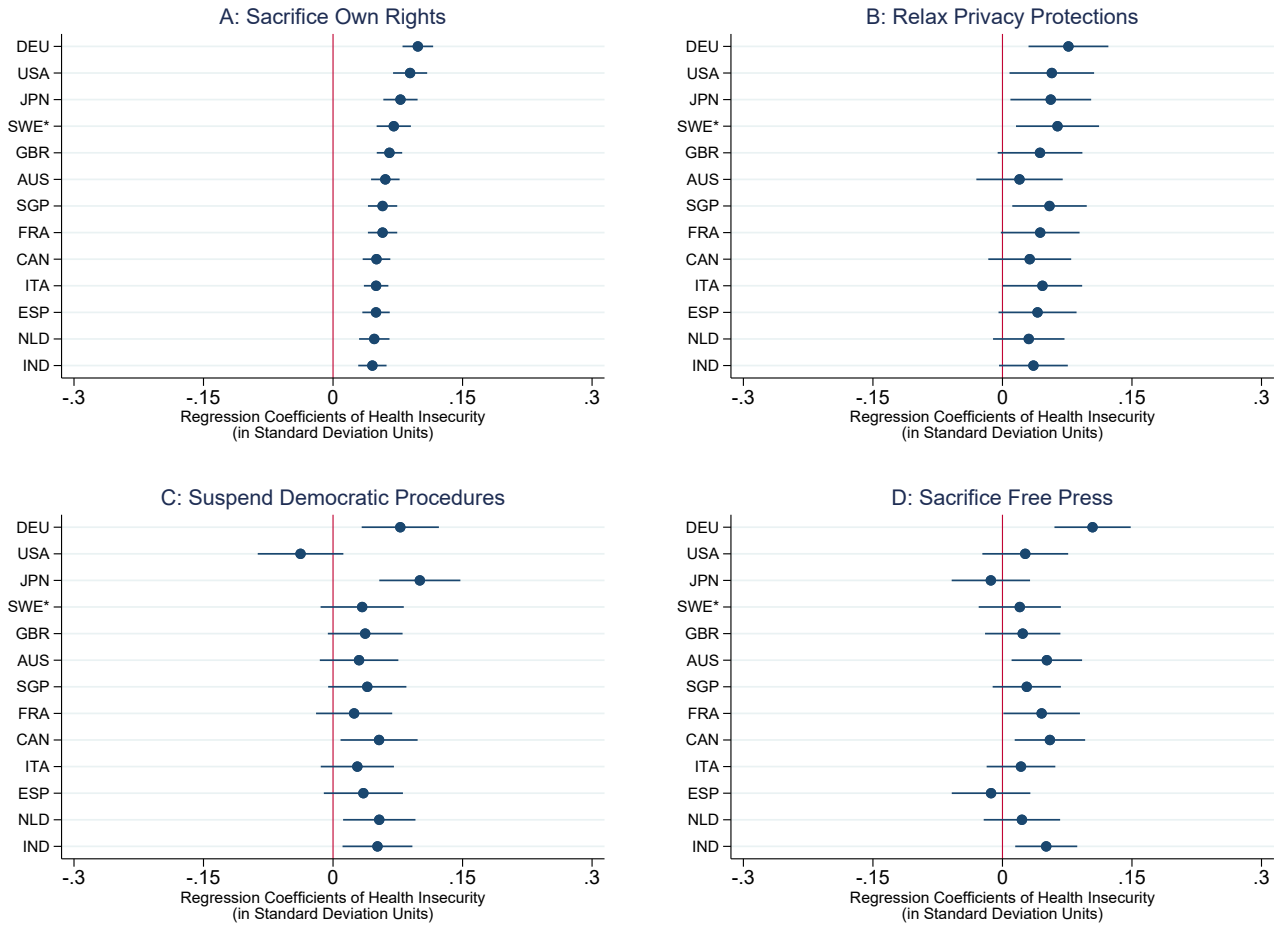
Notes: Figure is based on the longitudinal survey, plotting marginal predicted values of willingness to sacrifice rights (described in Section II.C) on the terciles of health (Panels A, C, E, G, and I) and financial insecurity (Panels B, D, F, H, and J) by demographic characteristics. The estimates are 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

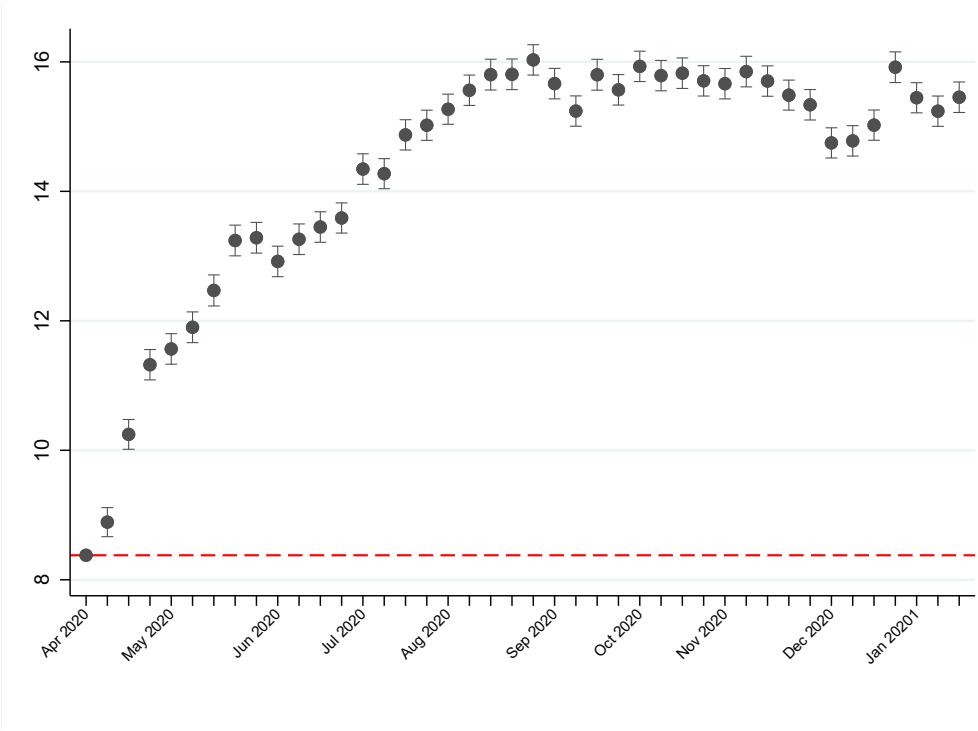


Notes: Figure is based on the longitudinal survey sample, including weeks from the week of March 30 to the week of April 13, 2020 except for Sweden; data from the week of May 18 to the week of June 1, 2020 are used for Sweden since data collection did not begin until May 18, 2020. The sample includes 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 four 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. It is 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

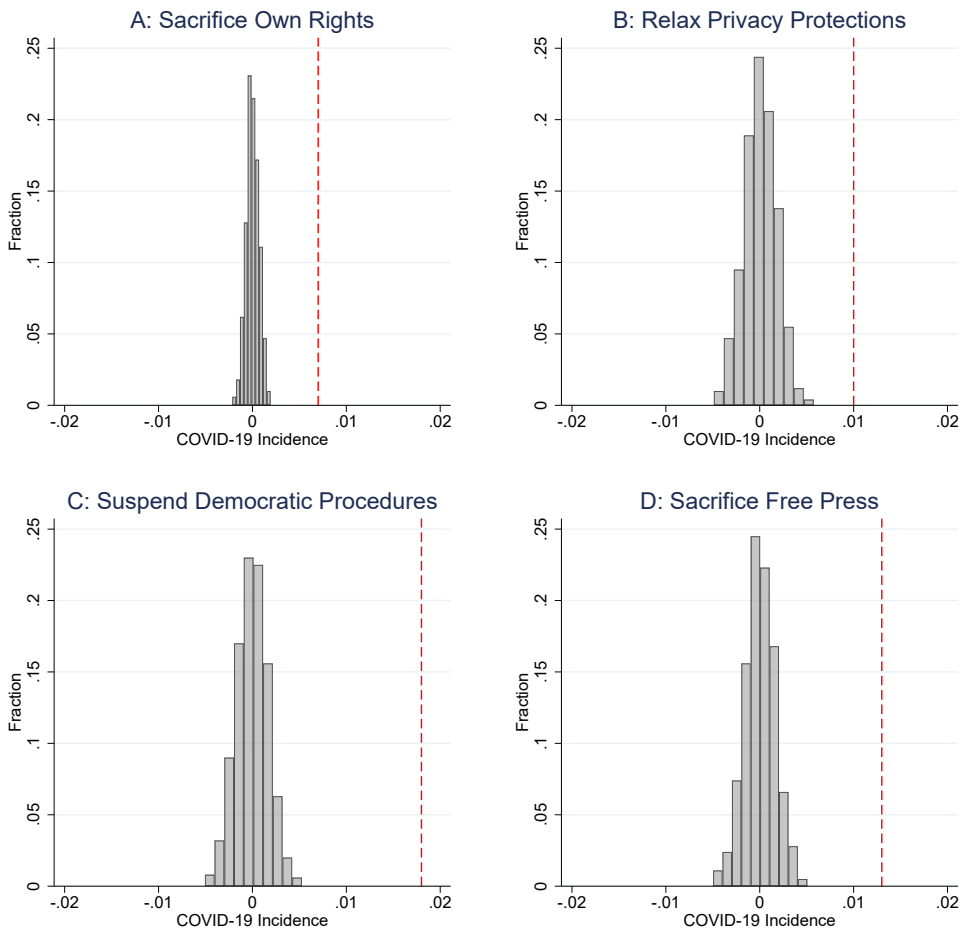
Notes: Figure is based on the longitudinal survey, including all weeks from the week of March 30, 2020 to the week of January 18, 2021 and including the following countries: Australia, Canada, France, Germany, India, Italy, Japan, Singapore, Spain, Sweden, the Netherlands, the United Kingdom, the United 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 E are binary with 1 indicating more willingness and 0 indicating less willingness; health insecurity in Panel E 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; 0.09 for Panel E. 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 IV.

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

C Results for Willingness to Endure Economic Harm to Protect Public Health

The primary outcomes studied in this paper relate to preferences over civil liberties vs. public health. However, as a benchmark, and of interest in and of itself, we have also elicited views regarding the willingness to endure economic harm in order to protect public health. We report results related to these economy-related preferences in this appendix section.

Appendix Table C.1 summarizes all outcomes related to the trade-off between economic well-being and public health protection elicited in our surveys. We elicited five outcomes in total. Among those, one measure was elicited both in the in-depth and longitudinal survey, while the other four were elicited in the in-depth survey only. The former is based on the response to a question that asks, on a 11-point Likert scale, to what extent a respondent agrees with the statement: *"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."* As with our main civil liberties-related outcomes elicited on this scale, we dichotomize this outcome such that responses of 6 or higher are coded as 1, and 0 otherwise. The other four economy-related outcomes are elicited in the "lives saved" format. They span the number of lives needed to be saved in order to endure a measure that closes all non-essential businesses, that cuts the pay of low-income workers in half, that doubles the unemployment rate, and that triples the unemployment rate, respectively.

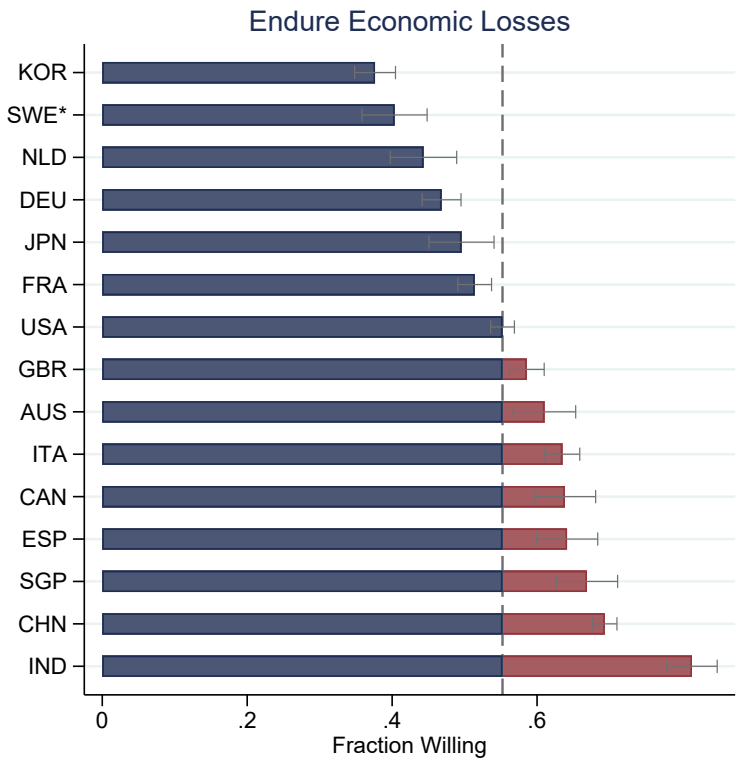
Starting with descriptive patterns across countries (Appendix Figure C.1 below), we find that relative to the willingness to suspend democratic procedures, the free press, or privacy protections (displayed in Figure I) respondents are on average more willing to endure economic losses in order to protect public health. Respondents from India and China show the highest acceptance for pandemic-related restrictions that bring economic losses, while respondents from Korea and Sweden show the lowest acceptance. For the lives saved questions (means are displayed in column 6 of Table A.22), we find levels of willingness broadly similar to those we observe for privacy-related outcomes (such as the government tracking everyone's location; see Table V, Panel B, column 6); we find slightly less willingness to endure these economic restrictions relative to restrictions related to movement (such as closing the national border, or the government arresting individuals found outside of their home; see Table V, Panel D, column 6).

Next, we turn to the results attempting to isolate a causal relationship between health insecurity and the willingness to endure economic harm in order to protect public health. Panel B of Appendix Table A.22 shows results for our four economy-related outcomes elicited in the in-depth survey, when exploiting our randomly assigned information treatment as an instrument for health insecurity. Across all four economy-related outcomes we elicit, our 2SLS estimates show a positive relationship between health insecurity and willingness to endure economic harm. The effect is strongest and most significant for the measure that cuts the pay of low income workers in half: a 1 sd unit increase in health insecurity leads to a reduction of 12.5 in the number of lives needed to be saved in order to accept this measure. In all, the treatment effect on the inverse covariance weighted index of all four outcomes is 0.36 sd units; it is approximately equal in size as the effect estimated on our index of sacrificing rights, overall, and approximately half the size as the ones estimated for privacy-related and democracy-related restrictions. Although outcomes are not directly comparable across domains, it suggests that respondents are relatively less elastic when it comes to restrictions that hurt their own economic position, and/or those who are economically vulnerable, than when it comes to privacy- or democracy-related restrictions.

Appendix Table C.2 below shows the equivalent results using local and temporal fluctuations in COVID-19 mortality as an instrument, based on the longitudinal survey sample. We find very similar 2SLS estimates across the two empirical strategies and samples: a one sd unit increase in health insecurity leads to a 14.8pp [13.3pp] increase in the willingness to endure economic losses in order to protect public health when employing COVID-19 mortality and the longitudinal survey [the information treatment and the in-depth survey].

Appendix Table C.1: Economy-related outcomes from the longitudinal and in-depth surveys

Row (1)	Outcome Family (2)	Outcome Name (3)	Question Wording (4)	Scale (5)	Outcome Reoriented When Constructing Index (6)	Survey (7)
1	Business operation	Unwilling to accept: close all businesses	What's the minimum number of people [out of every 100 people who would have otherwise died in your country because of the COVID-19 pandemic] that each of the following policies would need to save in order for you to support it? "During the epidemic, the government closes all non-essential businesses."	0 to 100	Yes	In-depth survey only
2		Unwilling to accept: measures cut income	What's the minimum number of people [out of every 100 people who would have otherwise died in your country because of the COVID-19 pandemic] that each of the following policies would need to save in order for you to support it? "During the epidemic, the government implements a set of public health measures that cuts the pay of low income workers in half."	0 to 100	Yes	In-depth survey only
3		Unwilling to accept: measures 2x unemp. rate	What's the minimum number of people [out of every 100 people who would have otherwise died in your country because of the COVID-19 pandemic] that each of the following policies would need to save in order for you to support it? "During the epidemic, the government implements a set of public health measures that doubles the unemployment rate."	0 to 100	Yes	In-depth survey only
4	Economics well-being	Unwilling to accept: measures 3x unemp. rate	What's the minimum number of people [out of every 100 people who would have otherwise died in your country because of the COVID-19 pandemic] that each of the following policies would need to save in order for you to support it? "During the epidemic, the government implements a set of public health measures that triples the unemployment rate."	0 to 100	Yes	In-depth survey only
5		Willing to endure economic losses	To what extent do you agree with the following statement: 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) to 10 (completely agree)	No	Longitudinal and In-depth surveys



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. Willingness to endure economic losses is defined as answering "6" or above to question "On a scale of 0 (extremely unwilling) to 10 (extremely willing), to what extent do you agree with the following statement: 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.". The dashed lines represent the average of the outcome variable among U.S. respondents. 95% confidence intervals are depicted in gray.

Appendix Figure C.1: Cross-country patterns in willingness to endure economic losses to protect public health
(longitudinal and in-depth survey)

Appendix Table C.2: Impact of Health Insecurity on Willingness to Endure Economic Losses to Protect Public Health
2SLS results using COVID-19 mortality fluctuations (longitudinal survey)

	Endure Economic Losses
	(1)
PANEL A: OLS estimates	
Health Insecurity	0.093***
	(0.004)
PANEL B: Reduced form	
COVID-19 Incidence	0.009***
	(0.004)
PANEL C: 2SLS estimates	
Health Insecurity	0.148***
	(0.049)
Kleibergen-Paap F-statistic	41.501
Mean of Outcome	0.570
Number of Clusters	196
Observations	72874
Controls:	
Demographics	Yes
Government Effectiveness	Yes
Policy Response	Yes
Lagged COVID-19 Prevalence	Yes
Week Fixed Effects	Yes
Admin Level 1 Fixed Effects	Yes

Notes: Table reports estimates of the 2SLS model given by Equation 1 and Equation 2, as well as corresponding OLS estimates. Outcome variable is listed in the column heading and defined as answering "6" or above to question "On a scale of 0 (extremely unwilling) to 10 (extremely willing), to what extent do you agree with the following statement: 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." 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, administrative division level 1 fixed effects, 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. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

D 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]

E Survey Instrument Details

E.I Longitudinal Survey

The longitudinal survey is part of "Covid 19 Global Consumer Trends Report", a weekly, multi-country survey designed and administered by a consumer-research company, Dynata. It explores the opinions and attitudes of global consumers in 13 countries during the COVID-19 pandemic and is representative on first moments of age, gender, and geographic location of residence.[37] The survey includes the following questions:

Q1) The current pandemic is called Coronavirus by some and Covid 19 by others. What do you normally refer to it as? (*USE THE ANSWER TO Q1 IN ALL QUESTIONS WITH TEXT SUB <CV>*)

1. Coronavirus
2. Covid 19

Q2) When thinking about <CV> how worried, if at all, are you personally about:

- Your household's financial position
- Your personal health

[37] The 13 countries are Australia, Canada, France, Germany, India, Italy, Japan, Spain, Sweden, the Netherlands, the United Kingdom, and the United States

- The health of elderly family members
- The availability of foodstuffs
- Being around strangers
- The economy in your country
- The world economy
- Healthcare systems being able to cope

1. Not at all worried
2. Slightly worried
3. Somewhat worried
4. Very worried
5. Extremely worried

98. Does not apply

Q3) Now thinking about your personal behaviour since the outbreak of <CV>. How would you say each of these has changed, if at all, in the past few weeks?

- Washing your hands
- Touching strangers
- Touching family members
- Touching friends
- Using hand sanitizer
- Going out to restaurants or bars
- Working from home
- Going shopping to physical stores
- Online shopping
- Using public transport
- Watching TV news

- Having food delivered
- Staying in at home

Q4) Please indicate to what extent, if at all, you agree or disagree with these statements other people have made in light of the <CV> outbreak.

- Our government is taking the right steps to protect us

1. Disagree strongly
2. Disagree slightly
3. Neither agree nor disagree
4. Agree slightly
5. Agree strongly

Q5) When do you think the <CV> outbreak will be over, and life will return to normal?

1. Within a month
2. Within 2 months
3. Within 3 months
4. Within 6 months
5. Within a year
6. It will take longer than a year
7. Life will never be the same again
8. Don't know

After answering these pandemic-related attitudes and behavior questions, respondents were asked to answer three civil liberties-related questions, which we added to the survey starting the week of March 30, 2020 until the week of January 18, 2021[38]. The three questions, all of which were also included in our in-depth survey, are:

Q5) To what extent do you agree ("0: completely disagree" to "10: completely agree") with the

[38]Sweden is added to the sample in the week of May 18, 2020

following statement: 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.

Q6) (*Randomly selected among the following four questions*) To what extent do you agree ("0: completely disagree" to "10: completely agree") with the following statement:

- 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.
- 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.
- 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.
- 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. [*Secondary outcome, since not civil-liberties-related; results reported in Appendix C.*]

Q7) On a scale of 0 (not at all worried) to 10 (extremely worried), how worried are you that the rights, freedoms, and procedures that are forgone during a crisis like the current one won't be recovered after the crisis is over?

In addition to the questions described above, the longitudinal sample includes respondents' demographic information, such as age, gender, geographic location of residence, household annual income level, level of educational attainment, occupation, political ideologies (U.S. and U.K. only), and party affiliation (U.S. only).

E.II In-depth Survey

The in-depth sample is representative on first moments of age, gender, income, 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.

E.III 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_9H6ENqZz1n8Uklw
- France: https://harvard.az1.qualtrics.com/jfe/form/SV_9LDNeSHT4hkAAWa
- Germany: https://harvard.az1.qualtrics.com/jfe/form/SV_2n9B6ftcrddzD2S
- Italy: https://harvard.az1.qualtrics.com/jfe/form/SV_aa6Ux0duZVR1bLM
- 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

E.IV Validation Survey

For our Validation Survey, we recruited 220 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 willingness and lives saved questions from Table I. 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.[39]

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

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

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.[40] 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 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 I) 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.[41] 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.

E.V Links for the Validation Survey

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

F Secondary Data Sources

F.I 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)

[40] The petitions were not created by the research team; they already existed on Change.org.
[41] The version asked in the in-depth survey did not fix those beliefs.

- 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)
- 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.II Data on 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.

F.III 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.

G 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.4)
  - 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

H References for Appendix

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