European Bank
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Revenge of the Experts:

Will COVID-19 Renew or Diminish Public Trust in Science?

Cevat Giray Aksoy, Barry Eichengreen, Orkun Saka

Abstract

An effect of the COVID-19 pandemic, it is sometimes suggested, will be to reverse the secular trend toward questioning the value of scientific research and expertise. We analyze this hypothesis by examining how exposure to previous epidemics affected the confidence of individuals in science and scientists. Consistent with theory and evidence that attitudes are durably formed when individuals are in their impressionable years between the ages of 18 and 25, we focus on people who were exposed to epidemics in their country of residence at this stage of the life course. Combining data from a 2018 Wellcome Trust survey of more than 70,000 individuals in 160 countries with data on global epidemics since 1970, we show that such exposure has no impact on views of science as an endeavor or on opinions of whether the study of disease is properly an aspect of science, but that it significantly reduces confidence in scientists and the benefits of their work. These findings are robust to a variety of controls, empirical methods and sensitivity checks. We suggest some implications for how scientific findings are communicated and for how scientists seeking to inform and influence public opinion should position themselves in the public sphere.

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1. Introduction

One effect of the COVID-19 pandemic, it has been suggested, will be to reverse the secular trend of challenging the value of scientific expertise. "The coronavirus crisis has put a spotlight on the importance of science in supporting our nation's well being," as one such statement has put it (Shepherd, 2020). At the same time, the pandemic has put on display certain leaders' "longstanding practice of undermining scientific expertise for political purposes" (Friedman and Plumer, 2020), plausibly with negative implications for how members of the public view science and scientists. All of which points to the question posed by Grove (2020), "Will the coronavirus renew public trust in science?"

One can distinguish several further questions under this heading. First, is there a particular tendency to challenge scientific expertise in settings such as that of an epidemic when scientific advice appears to conflict, superficially at least, with economic self-interest (when for example infectious disease specialists recommend lockdowns that threaten the economic livelihood of individuals)? Earlier research is suggestive of this possibility. Longhurst (1991) describes a decision of the North Atlantic Fisheries Organization to reopen the fishery for several cod populations after earlier moratoria, "a decision that responded not to favorable scientific assessments, but rather to the fact that the period of income support for Atlantic fishermen had terminated and small coastal communities faced great difficulties. In this, and in similar cases of decisions that were made contrary to scientific opinion, the administrative strategy appears to have been either to denigrate science or to make it invisible."

Second, there is the question of whether any change in public opinion will mainly regard the scientific endeavor or individual scientists. Does any positive or negative reassessment of the importance and validity of science apply to both the undertaking and those engaged in it? Or does the public continue to have confidence in science as a potential source of a vaccine while dismissing individual scientists who warn that the time needed to develop that vaccine may be lengthy? How scientists might best alter how they communicate to maintain or regain public confidence could be very different depending on answers to these questions.

In contrast to the large literature on the role of trust in citizens' compliance with public health directives and preventive or curative interventions (Mohseni and Lindstrom, 2007; Vinck et al., 2019), no previous study has investigated the impact of epidemics on trust in science and scientists. In this paper, we analyze this issue using the 2018 Wellcome Global Monitor, which includes responses to questions about confidence in science and scientists from more than 70,000 individuals in 160 countries.

We use data on all global epidemics since 1970 to identify respondents who experienced an epidemic outbreak in their country of residence during their formative years, the stage of the life course when value systems and opinions are durably formed. Krosnick and Alwin (1989) formalize this as the "impressionable years hypothesis," that core attitudes, beliefs, and values crystallize between the ages of 18 and 25. Spear (2000) links this to the literature in neurology describing neurochemical and anatomical differences between the adolescent and adult brain. This hypothesis has been productively applied in other contexts. Giuliano and Spilimbergo (2013) show, for example, that experiencing a recession between the ages of 18 and 25 has a powerful impact on political preferences and beliefs about the economy that persists over the life cycle.

We find that although formative-year epidemic exposure does not influence respondents' views of the value of science as an undertaking or endeavor, it is negatively and significantly associated with opinions of the integrity and trustworthiness of individual scientists. Strikingly, there is no similar association in the case of public health professionals; the exposure effect is specific to scientists, as opposed to doctors, nurses, traditional healers, and others responding to the public-health consequences of an epidemic. There is no such association for individuals who experienced an epidemic outbreak in their country before or after their formative years.

Our analysis is related to several literatures. There is the literature on communicating science in social settings, which shows how differences in findings across studies may be seen by the public as discrediting the investigators, depending on how they are presented (Scheufele, 2013; Van der Bles, 2020). These analyses point to the importance of scientists displaying trustworthiness as well as expertise when communicating findings and offering public-policy recommendations (Fiske and Dupree, 2014). There is the literature concerned with science and public opinion (Drummond and Fishhoff, 2017), in which it is argued, inter alia, that scientific knowledge may be invoked or dismissed insofar as it supports or challenges non-scientific (economic or political) concerns. Finally, there is the literature on how early life experience shapes the reception by individuals of scientific communication (Fiske and Dupree, 2014). But where that literature emphasizes the role played by science classes and informal childhood science education, our analysis points also to other early life experience, such as exposure to a public health emergency.

Our results do not yield specific prescriptions for how epidemiologists, infectious disease specialists and other scientists should alter how they communicate their results and provide policy guidance. But they are suggestive. They point to a potential problem in the case of COVID-19. They locate that problem as pertaining scientists as individuals rather than science as an endeavor and as emanating from individuals currently in their formative years.

2. Data

Wellcome Global Monitor

Wellcome Global Monitor (WGM) is a nationally representative survey fielded in some 160 countries in 2018. It is the first global survey of how people think and feel about key health and science challenges, including attitudes towards vaccines; trust in doctors, nurses and scientists; trust in medical advice from the government; whether people believe in the benefits of science. WGM also provides information on respondents' demographic and labor market characteristics. The outcome variables of interest come from questions asked of all WGM respondents regarding their confidence in science and scientists:

(i) "in general, would you say that you trust science a lot, some, not much, or not at all;

(ii) "how much do you trust scientists working in colleges/universities in this country to do each of the following?
   a. to do their work with the intention of benefiting the public
   b. to be open and honest about who is paying for their work

(iii) "thinking about companies - for example, those who make medicines or agricultural supplies - how much do you trust scientists working for companies in this country to do each of the following??
   a. to do their work with the intention of benefiting the public
   b. to be open and honest about who is paying for their work

Responses were coded on a 4-point Likert scale, ranging from "A lot" (1) to "Not at all" (4). We code "A lot" and "Some" as 1 and zero otherwise. The geographical dispersion of responses to the most relevant survey questions are shown in Figure 1.

WGM also provides information on respondents' demographic characteristics (age, gender, educational attainment, marital status, religion, and urban/rural residence), labor market outcomes, and within-country income deciles. Controlling for employment status and income allows us to measure the impact of past epidemics on confidence in science and scientists beyond the direct effect of epidemics on material well-being. We also examine responses to four parallel questions as placebo outcomes, namely whether the respondents have confidence in: doctors and nurses; hospitals and health clinics; NGO workers; traditional healers. This helps us to determine whether what we are capturing is the impact of epidemic exposure on scientists specifically, as distinct from any impact on healthcare-related outcomes.

EM-DAT International Disaster Database

Data on the worldwide epidemic occurrence and effects are drawn from the EM-DAT International Disasters Database from 1970 to the present. EM-DAT was established in 1973 as a non-profit within the School of Public Health of the Catholic University of Louvain; it subsequently became a collaborating center of the World Health Organization. Its database is compiled from multiple sources including UN agencies, non-governmental organizations, insurance companies, research institutes, and press agencies. It includes all epidemics (viral, bacterial, parasitic, fungal, and prion) meeting one or more of the following criteria: (i) 10 or more people dead; (ii) 100 or more people affected; (iii) declaration of a state of emergency; (iv) a call for international assistance.

Each epidemic is identified with the country where it took place. When an epidemic affects several countries, several separate entries are made to the database for each. EM-DAT provides information on the start and end date of the epidemic, the number of deaths, and the number of individuals affected. The number of individuals affected refers to the total number requiring immediate assistance (assistance with basic survival needs such as food, water, shelter, sanitation, and immediate medical treatment) during the period of emergency. We aggregate the epidemic related information in this database at the county-year level and merge it with WGM.

3. Empirical Strategy

To assess the effect of past exposure to an epidemic on an individual's trust in science and scientists, we estimate the following OLS specification:

$$Y_{ica} = \beta 0 + \beta 1 X_i + \beta 2 \text{Exposure to epidemic } (18\text{-}25)_{ica} + \beta 3 C_c + \beta 4 A_a + \beta 5 C_c * \text{Age} + \varepsilon_{ict} \quad (1)$$

where Y_{ica} is a dummy variable indicating whether or not the respondent *i* with age *a* in country *c* has confidence in science or scientists. To operationalize *Exposure to epidemic (18-25)*, we calculate for each individual the number of people affected by an epidemic as a share of the population, averaged over the 8 years when the individual was in his or her formative years (18-25 years old), consistent with the "impressionable years hypothesis." The coefficient of interest is $\beta 2$, which captures the impact of past exposure to an epidemic on the confidence in science or scientists.

To adjust for the effect of demographic and labor market structure on the outcome variables, we control for observable individual characteristics. We specify the X_i vector of individual characteristics to include: indicator variables for living in an urban area and for having a child (any child under 15), and dummy variables for gender (male), employment status (full-time employed, part-time employed, unemployed), religion (religious vs. non-religious), educational attainment (tertiary education, secondary education), and within-country-year income quintiles. To account for unobservable characteristics, we include fixed effects separately at the levels of country (*Cc*) and age (*Aa*). The country dummies control for all variation in the outcome variable due to factors that vary cross-nationally. The age dummies control for the variation in the outcome variable caused by factors that are heterogeneous across (but homogenous within) age groups.

In addition to saturating our specification with country and age fixed-effects, we include country-specific age trends (*Cc*Age*). These address the possibility that, even though we control for overall age-related factors via the above-mentioned fixed effects, the interaction of age and attitudes may differ across countries. For example, older or younger age groups may be more or less likely to support the government in some countries but not others. Country-specific age trends will tend to remove such variation to the extent that it exists. Finally, we cluster standard errors by country and use sample weights provided by Welcome Global Monitor to make the data representative at the country level. Finally, estimates using ordered logit are virtually the same in terms of statistical and economic significance.

4. Results

Table 1 reports our results for three dependent variables related to the societal impact of science: whether the respondent has confidence in science; thinks that science will help to improve life; and thinks that studying disease is a part of science. It shows that formative-year epidemic exposure has a positive but small and statistically insignificant effect in all three cases. Table 2, in contrast, reports the results for dependent variables related to respondents' views of scientists: whether the respondent has confidence in scientists; believes that scientists working for private companies benefit the public; believes that scientists working for private companies are honest; believes that scientists working for universities benefit the public, and believes that scientists working for universities are honest. Here the coefficients on formative-year epidemic exposure are negative, not positive as in Table 1. They differ significantly from zero at least at the 95 per cent confidence level in all cases but whether scientists working for universities benefit the public. The results presented in Column 1 of Table 2, for example, show that an individual with the highest exposure to epidemics (0.032, that is, the number of people affected by an epidemic as a share of the population in individual's formative years) relative to individuals with no exposure has on average 11 percentage points (-3.454*0.032) less confidence in the honesty of scientists.

Evidently, individuals who experience epidemics at first hand retain confidence in the positive potential of science as an endeavor. They continue to believe in the importance of disease-related scientific research. But they are less confident about the trustworthiness and public-spiritedness of the individuals involved in scientific endeavors. Checkland, Marshall, and Harrison (2004) and Smith (2005), also working in a public health context, distinguish between "confidence" as something that is entrusted in systems on the one hand and the "trust" that is invested in individuals on the other. Our results point to the conclusion that epidemic exposure reduces trust in scientists but not confidence in science. Impressionistically, this distinction is consistent with what we observe in, inter alia, the United States, where politicians and commentators have questioned the value of the public-policy recommendations offered by individual scientists (viz. Senator Rand Paul's comment “As much as I respect you, Dr. Fauci, I don’t think you’re the end-all”) while at the same time seeking to mobilize all available scientific resources to develop a vaccine by the end of 2020 (the Trump Administration’s “Operation Warp Speed”).

Given that previous work points to science education as shaping views of science and scientists, we also estimate our main specification for two subsamples: respondents who learned about science at most at the primary school level, versus respondents who learned about science at least at the secondary school level. The results, in Table 3, reveal substantial differences. They suggest that our results are driven by the sample of individuals with little or no science education. Additional analysis (not presented here) suggests that these results cannot be explained by possible the interruption in education due to exposure to an epidemic.

We examined a number of placebo tests and sensitivity analyses to verify the robustness of the results. The placebo tests address the possibility that what we are picking up is not the impact on the perceived trustworthiness and public-spiritedness of scientists engaged in health-related research specifically but the impact on perceptions of individuals engaged in tasks related to healthcare and health outcomes more generally. In contrast to its significant negative impact on confidence in scientists, the results in Table 4 indicate no significant impact on confidence in doctors and nurses, in hospitals and health clinics, in NGO workers, or in traditional healers.

As sensitivity analyses (not reported here), we also confirmed the persistence of the impact of epidemic exposure as individuals age over time. Epidemic exposure between the ages of 18 and 25 continues to significantly influence perceptions of the trustworthiness and public-spiritedness of respondents as old as 40. It influences their perception of these matters in old age (when they are over the age of 64).

Lastly, findings in Table 5 suggest that the effect is insignificant when individuals are exposed to epidemics in any period other than when they are between 18 and 25 years old. Together with the results reported in the preceding paragraph, these findings are consistent with the formative-years hypothesis that there is something special about the early-adult years that leaves a long-lasting legacy in individuals' beliefs and attitudes.

5. Discussion

COVID-19 promises to reshape every aspect of society, not excluding how science is perceived. The precise nature of these changes remains to be seen. It is not clear whether the authority of science and scientists will be enhanced or diminished, or whether such changes will affect mainly science as an endeavor or scientists as individuals.

If past epidemics are a guide, however, the virus will not have an impact on the regard in which science as an undertaking is held, but it will reduce confidence in individual scientists, worsen perceptions of their honesty, and weaken the belief that their activities benefit the public. The strongest impact is likely to be felt by individuals in their "impressionable years" whose beliefs are in the process of being durably formed.

Responding to these trends will not be straightforward. At a minimum, our findings suggest that scientists working on public health matters and others concerned with scientific communication should think harder about how to communicate trustworthiness and honesty and, specifically, about how the generation currently in their impressionable years ("Generation Z") perceives such attributes.

References

A. Longhurst. *Mismanagement of Marine Fisheries*, (Cambridge University Press, 1991).

A. Van der Bles, S. van der Linden, A. Freeman and D. Spiegelhalter. The Effects of Communicating Uncertainty on Public Trust in Facts and Numbers, *Proc. Natl. Acad. Sci. U.S.A.* 117, 7672-7683 (2020).

C. Drummond, C. and B. Fishhoff, Individuals with Great Science Literacy and Education Have More Polarized Beliefs on Controversial Science Topics. Proc. Natl. Acad. Sci. U.S.A. 114, 9587-9592 (2017).

C. Smith. Understanding Trust and Confidence: Two Paradigms and their Significance for Health and Social Care, Jour.l of App. Phil. 22, 299-316 (2005).

D. Scheufele. Communicating Science in Social Settings, *Proc. Natl. Acad. Sci. U.S.A.* 110, 14040-14047 (2013).

K. Checkland, K., M. Marshall and S. Harrison, Re-Thinking Accountability: Trust versus Confidence in Medical Practice. *Qual. and Saf. in Heal. Care* 13, 130-135 (2004).

J. Grove, Will the Coronavirus Crisis Renew Public Trust in Science? *Times Higher Education* (16 March). Available at: https://www.timeshighereducation.com/news/will-coronavirus-crisis-renew-public-trust-science. Accessed 18 May 2020.

J. Krosnick. and D. Alwin. Aging and Susceptibility to Attitude Change, *Jou. of Pers. and Soc. Psyc.* 57, 416-425 (1989).

L. Friedman and B. Plumer, Trump’s Response to Virus Reflects a Long Disregard for Science. New York Times (28 April). Available at: https://www.nytimes.com/2020/04/28/climate/trump-coronavirus-climate-science.html Accessed 18 May 2020.

L. Spear. Neurobehavioral Changes in Adolescence, Cur. Dir. in Psyc. Sci. 9, 111-114 (2000).

M. Shepherd. The COVID-19 Coronavirus Pandemic Highlights the Importance of Scientific Expertise, *Forbes* (14 March). Available at: https://www.forbes.com/sites/marshallshepherd/2020/03/14/covid-19-and-the-sudden-respect-of-science-expertise/#54ae1afa29b0 Accessed 18 May 2020.

M, Mohseni, & Lindstrom, M. (2007). Social capital, trust in the health-care system and self-rated health: the role of access to health care in a population-based study. *Soc. sci. & med.*, 64(7), 1373-1383.

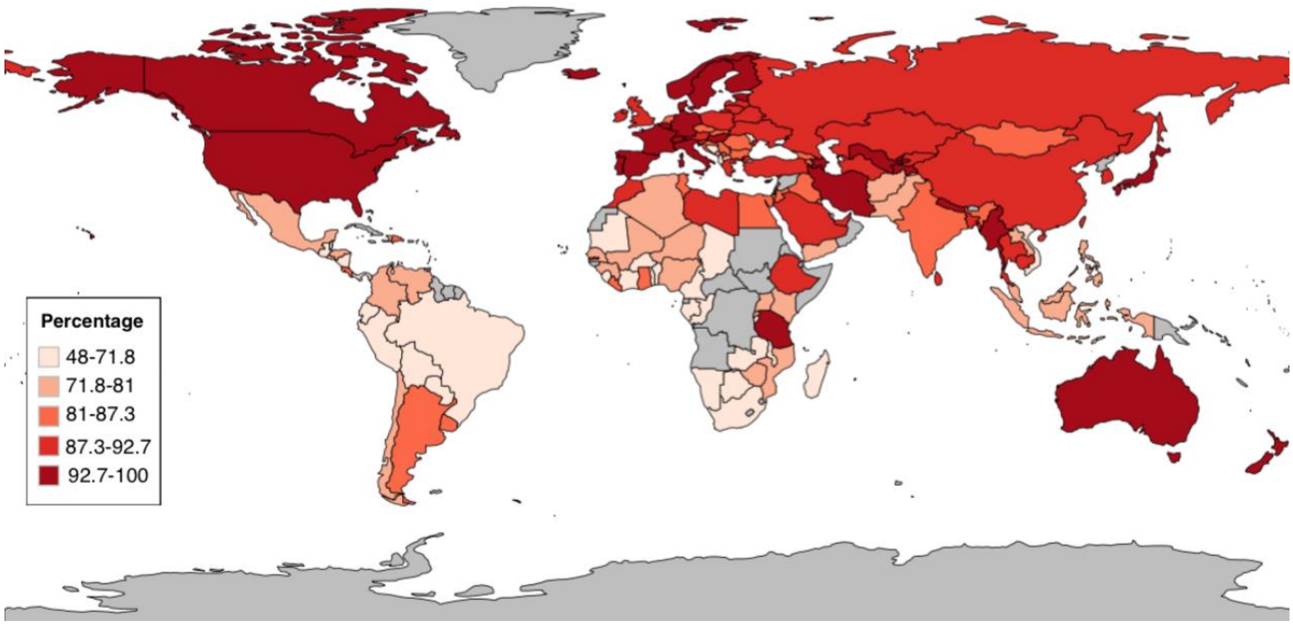
P. Giuliano and A. Spilimbergo. Growing Up in a Recession. Rev. of Econ. Stud. 81, 787-817 (2013).

P. Vinck, Pham, P. N., Bindu, K. K., Bedford, J., & Nilles, E. J. (2019). Institutional trust and misinformation in the response to the 2018–19 Ebola outbreak in North Kivu, DR Congo: a population-based survey. *The Lancet Inf. Dis.*, *19*(5), 529-536.

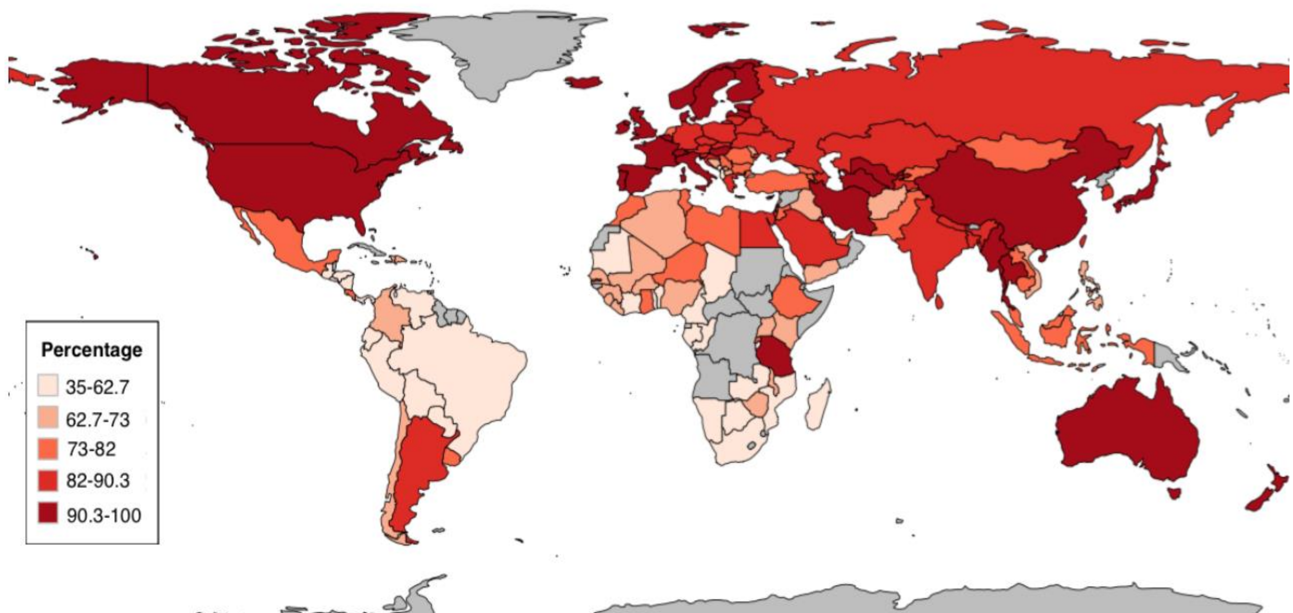
S. Fiske and C. Dupree, The Science of Science Communication. *Proc. Natl. Acad. Sci. U.S.A.* 110, 14031-14032 (2013).

S. Fiske and C. Dupree, Gaining Trust as well as Respect in Communicating to Motivated Audiences about Science Topics. *Proc. Natl. Acad. Sci. U.S.A.* 111, 13593-13597 (2014).

Figure 1: Share of respondents who trust science and scientists
Panel A



Panel B



Notes: Panel A illustrates share of respondents who trust science a lot or some. Panel B illustrates share of respondents who trust scientists a lot or some. Countries are grouped in quintiles. Source: Wellcome Global Monitor, 2018.

Table 1: The Impact of Exposure to Epidemic (18-25) on Confidence in Science

	(1)	(2)	(3)
Outcome ➔	Have confidence in science	Science and technology will help improve life	Studying diseases is a part of science
Exposure to Epidemic (18-25)	0.256	0.685	0.369
	(0.408)	(0.462)	(0.423)
Country fixed effects	Yes	Yes	Yes
Age fixed effects	Yes	Yes	Yes
Demographic characteristics	Yes	Yes	Yes
Income quintile fixed effects	Yes	Yes	Yes
Labour market controls	Yes	Yes	Yes
Country*Age trends	Yes	Yes	Yes
Observations	85199	86397	88138
R^2	0.118	0.052	0.063

Notes: *Exposure to epidemic (18-25)* defined as the average per capita number of people affected by an epidemic when the respondent was in their impressionable years (18-25 years). *The number of people affected* refers to people requiring immediate assistance during a period of emergency (that is, requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance). Demographic characteristics include: a male dummy, dummy variables for educational attainment (tertiary education, secondary education), religion dummies (religious and non-religious), employment status (full-time employed, part-time employed, unemployed), a dummy variable for living in an urban area and having a child (any child under 15). Income quintile fixed-effects are constructed by grouping individuals into quintiles based on their income relative to other individuals within the same country and year. Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

Source: Wellcome Global Monitor, 2018 and EM-DAT International Disaster Database, 1970-2017.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2: The Impact of Exposure to Epidemic (18-25) on Confidence in Scientists

	(1)	(2)	(3)	(4)	(5)
Outcome ➔	Confidence in scientists	Scientists working for private companies benefit the public	Scientists working for private companies are honest	Scientists working for universities benefit the public	Scientists working for universities are honest
Exposure to Epidemic (18-25)	-3.454**	-1.283***	-1.731***	-0.616	-3.330***
	(1.330)	(0.338)	(0.642)	(0.478)	(0.446)
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Age fixed effects	Yes	Yes	Yes	Yes	Yes
Demographic characteristics	Yes	Yes	Yes	Yes	Yes
Income quintile fixed effects	Yes	Yes	Yes	Yes	Yes
Labour market controls	Yes	Yes	Yes	Yes	Yes
Country*Age trends	Yes	Yes	Yes	Yes	Yes
Observations	82854	81406	76723	81147	75992
R^2	0.138	0.060	0.064	0.103	0.086

Notes: Exposure to epidemic (18-25) defined as the average per capita number of people affected by an epidemic when the respondent was in their impressionable years (18-25 years). The number of people affected refers to people requiring immediate assistance during a period of emergency (that is, requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance). Demographic characteristics include: a male dummy, dummy variables for educational attainment (tertiary education, secondary education), religion dummies (religious and non-religious), employment status (full-time employed, part-time employed, unemployed), a dummy variable for living in an urban area and having a child (any child under 15). Income quintile fixed-effects are constructed by grouping individuals into quintiles based on their income relative to other individuals within the same country and year. Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

Source: Wellcome Global Monitor, 2018 and EM-DAT International Disaster Database, 1970-2017.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3: The Impact of Exposure to Epidemic (18-25) on Confidence in Scientists by the Level of Science Education

	(1)	(2)	(3)	(4)	(5)
Outcome ➔	Confidence in scientists	Scientists working for private companies benefit the public	Scientists working for private companies are honest	Scientists working for universities benefit the public	Scientists working for universities are honest
Sample ➔ Respondents learned about science at *most* at primary school level					
Exposure to Epidemic (18-25)	-4.521***	-4.140***	-2.443**	-0.186	-0.891
	(0.888)	(1.162)	(0.971)	(1.323)	(3.436)
Observations	14434	13984	12931	61012	12668
R^2	0.140	0.089	0.092	0.108	0.109
Sample ➔ Respondents learned about science at *least* at secondary school level					
Exposure to Epidemic (18-25)	1.332	3.270***	-1.545	1.529	-0.441
	(2.547)	(0.831)	(2.370)	(1.780)	(1.285)
Observations	57892	57054	54130	57206	53755
R^2	0.138	0.061	0.066	0.109	0.091
Age fixed effects	Yes	Yes	Yes	Yes	Yes
Demographic characteristics	Yes	Yes	Yes	Yes	Yes
Income quintile fixed effects	Yes	Yes	Yes	Yes	Yes
Labour market controls	Yes	Yes	Yes	Yes	Yes
Country*Age trends	Yes	Yes	Yes	Yes	Yes

Notes: Exposure to epidemic (18-25) defined as the average per capita number of people affected by an epidemic when the respondent was in their impressionable years (18-25 years). The number of people affected refers to people requiring immediate assistance during a period of emergency (that is, requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance). Demographic characteristics include: a male dummy, dummy variables for educational attainment (tertiary education, secondary education), religion dummies (religious and non-religious), employment status (full-time employed, part-time employed, unemployed), a dummy variable for living in an urban area and having a child (any child under 15). Income quintile fixed-effects are constructed by grouping individuals into quintiles based on their income relative to other individuals within the same country and year. Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

Source: Wellcome Global Monitor, 2018 and EM-DAT International Disaster Database, 1970-2017.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4: Placebo Tests

Outcome →	(1) Have confidence in doctors and nurses	(2) Have confidence in hospitals and health clinics	(3) Have confidence in NGO workers	(4) Have confidence in traditional healers
Exposure to Epidemic (18-25)	1.585	1.341	1.034	-0.696
	(1.196)	(1.323)	(0.662)	(0.505)
Country fixed effects	Yes	Yes	Yes	Yes
Age fixed effects	Yes	Yes	Yes	Yes
Demographic characteristics	Yes	Yes	Yes	Yes
Income quintile fixed effects	Yes	Yes	Yes	Yes
Labour market controls	Yes	Yes	Yes	Yes
Country*Age trends	Yes	Yes	Yes	Yes
Observations	91835	89851	80394	87761
R^2	0.088	0.099	0.086	0.164

Notes: Exposure to epidemic (18-25) defined as the average per capita number of people affected by an epidemic when the respondent was in their impressionable years (18-25 years). The number of people affected refers to people requiring immediate assistance during a period of emergency (that is, requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance). Demographic characteristics include: a male dummy, dummy variables for educational attainment (tertiary education, secondary education), religion dummies (religious and non-religious), employment status (full-time employed, part-time employed, unemployed), a dummy variable for living in an urban area and having a child (any child under 15). Income quintile fixed-effects are constructed by grouping individuals into quintiles based on their income relative to other individuals within the same country and year. Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

Source: Wellcome Global Monitor, 2018 and EM-DAT International Disaster Database, 1970-2017.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: The Impact of Exposure to Epidemic on Confidence in Scientists During Formative Years (18-25) vs. During Other Years

Outcome ➔	(1) Confidence in scientists	(2) Confidence in scientists	(3) Confidence in scientists	(4) Confidence in scientists	(5) Confidence in scientists
Exposure to Epidemic (18-25)	-3.454**	-4.433**	-3.086**	-2.361***	-6.326***
	(1.330)	(1.915)	(1.184)	(0.836)	(1.023)
Exposure to Epidemic (2-9)		-0.044			
		(0.990)			
Exposure to Epidemic (10-17)			0.078		
			(0.942)		
Exposure to Epidemic (26-33)				-0.753	
				(1.152)	
Exposure to Epidemic (34-42)					-0.932
					(4.066)
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Age fixed effects	Yes	Yes	Yes	Yes	Yes
Demographic characteristics	Yes	Yes	Yes	Yes	Yes
Income quintile fixed effects	Yes	Yes	Yes	Yes	Yes
Labour market controls	Yes	Yes	Yes	Yes	Yes
Country*Age trends	Yes	Yes	Yes	Yes	Yes
Observations	82854	58284	71109	60943	42018
R^2	0.138	0.139	0.138	0.142	0.143

Notes: Exposure to epidemic (18-25) defined as the average per capita number of people affected by an epidemic when the respondent was in their impressionable years (18-25 years). The number of people affected refers to people requiring immediate assistance during a period of emergency (that is, requiring basic survival needs such as food, water, shelter, sanitation and immediate medical assistance). Demographic characteristics include: a male dummy, dummy variables for educational attainment (tertiary education, secondary education), religion dummies (religious and non-religious), employment status (full-time employed, part-time employed, unemployed), a dummy variable for living in an urban area and having a child (any child under 15). Income quintile fixed-effects are constructed by grouping individuals into quintiles based on their income relative to other individuals within the same country and year. Results use the Gallup sampling weights and robust standard errors are clustered at the country level.

Source: Wellcome Global Monitor, 2018 and EM-DAT International Disaster Database, 1970-2017.

* significant at 10%; ** significant at 5%; *** significant at 1.