

in brief...

# The pandemic of 1918: effects on religiosity and innovation

When faced with catastrophic events, do people turn to religion or science? **Enrico Berkes, Davide Coluccia, Gaia Dossi and Mara Squicciarini** find that both reactions can occur at the same time: people affected by the flu epidemic of 1918 become both more religious and more innovative.

Adverse events such as disease and natural disasters have always posed challenges to societies across the world. The Covid-19 pandemic, for example, has claimed almost seven million lives worldwide. Understanding how individuals cope with such experiences has many social, economic and political implications, and it is crucial in designing effective policies in their aftermath.

There is evidence showing that adverse events can make people more likely to be religious (Bentzen, 2019). Separate research finds an increase in innovation efforts to mitigate the negative impact of environmental catastrophes (Miao and Popp, 2014; Moscona, 2021).

Can societies therefore become simultaneously more religious and more innovative? This might be surprising since religiosity and science are two phenomena typically in contrast with one another, both historically and today (Squicciarini, 2020; Bénabou et al, 2015).

We address this question by studying the reaction of religion and science to a catastrophic historical event: the 1918 influenza pandemic in the United States. The disease – also called by the misnomer of the Spanish flu – was one of the most lethal in modern history, killing around 0.7% of the US population in two years, a mortality rate more than twice as high as that of Covid-19.

Historical records document that many people turned to or strengthened their religious faith in response to the pandemic. At the same time, the period that followed saw an increase in innovative activity and important medical advances. Despite being largely ineffective during the pandemic, medicine evolved enormously in subsequent years. By the 1930s, virology had become an established field in medicine and the development of the first flu vaccines began.

For our analysis, we developed a novel measure of religiosity based on how babies were named between 1900 and 1930 from historical full-count censuses.

The key advantage of this approach is that it allows us to measure religiosity at a granular spatial level and yearly frequency.

The underlying idea is that the first name given to a child conveys information on the religiosity of their parents. For example, with our approach, we find that names associated with popular saints or biblical episodes, such as “Esther” and “Paul”, are associated with high religiosity. We then aggregate the measure at the county level.

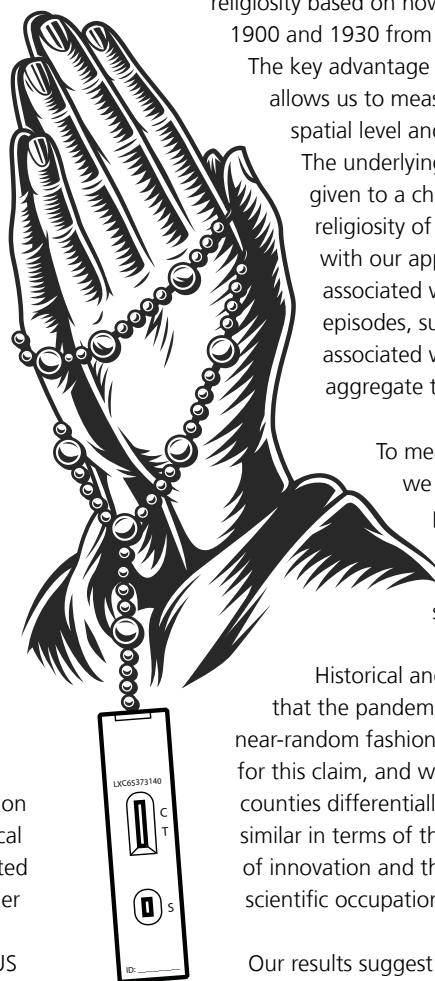
To measure scientific progress, we use the number of patents produced in a certain county, as well as the share of individuals in scientific occupations.

Historical and modern accounts suggest that the pandemic hit the United States in a near-random fashion. In the data, we find support for this claim, and we further document that counties differentially hit by the pandemic were similar in terms of their religiosity, their production of innovation and the share of individuals in scientific occupations before the pandemic.

Our results suggest that counties hit harder by the shock experienced an increase in religiosity.

We also find that these same counties experienced an increase in innovative activities, and more specifically concentrated in pharmaceutical patents. In addition, we find that employment in scientific occupations grew in counties hit harder by the pandemic. Cities display a similar pattern: those that experienced higher excess deaths due to the pandemic became both more religious and more innovative.

Did the same individuals become both more religious and more innovative after the pandemic or did different



individuals react in different ways? We find evidence that the second mechanism is at play. Individuals from more religious backgrounds further embraced religion, while those from less religious backgrounds became more likely to choose a scientific occupation. These results suggest that, within counties, a group of individuals turned to religion as a coping device, while a separate group turned to science.

Our findings on religiosity are in line with two possible explanations. On the one hand, religious faith may provide a coping device to deal with personal distress following a negative shock – in psychological research, this is known as the “religious coping hypothesis” (Pargament, 2001). On the other hand, individuals may turn to religion as a source of social insurance.

While we are not able to distinguish clearly between the two mechanisms, we see our evidence as supporting the religious coping hypothesis. First, this interpretation is in line with previous research showing that intrinsic religiosity – rather than churchgoing – responds to unexpected negative events (Bentzen, 2019). Second, the increase in religiosity persists for up to a decade after the shock, suggesting a change in behaviour rather than a temporary need for social insurance.

What motivates people to turn to science is less obvious. Individuals may turn to science to deal with their psychological distress – in a similar way to religious coping – or to mitigate the negative effects of the pandemic.

In support of this interpretation, we find that those turning to science are mostly young people, who experienced the pandemic in their late teens and early twenties. According to theories in psychology, these are the “impressionable years” when individuals form their preferences (Krosnick and Alwin, 1989).

Another possibility is that individuals turn to science because of increased labour demand in scientific occupations in counties more hit by the pandemic. While we cannot rule this out, our results suggest that, beyond market forces, the individual’s religious background (or, more precisely, the lack thereof) plays a key role in the decision to turn to science.

Despite the differences between the present context and the 1918 pandemic, including medical advances over the past century, our research suggests that the response of modern society to Covid-19 – an increase in religiosity (Bentzen, 2021) and innovation – is like that observed after 1918. Our findings can help to explain the opposing views that have emerged since the Covid-19 pandemic on science-based responses to the shock, such as the polarised attitudes toward vaccines.

This article summarises ‘Dealing with Adversity: Religiosity or Science? Evidence from the Great Influenza Pandemic’ by Enrico Berkes, Davide Coluccia, Gaia Dossi and Mara Squicciarini, CEP Discussion Paper No. 1927 (<https://cep.lse.ac.uk/pubs/download/dp1927.pdf>).

A version of this piece first appeared as ‘The 1918 Flu Pandemic Made Some People More Religious, and Others, More Innovative’ on *LSE American Politics and Policy* (<https://blogs.lse.ac.uk/usappblog/2023/05/24/the-1918-flu-pandemic-made-some-people-more-religious-and-others-more-innovative/>).

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## Further reading

Roland Bénabou, Davide Ticchi and Andrea Vindigni (2015) ‘Religion and Innovation’, *American Economic Review* 105(5): 346-51.

Jeanet Sinding Bentzen (2019) ‘Acts of God? Religiosity and Natural Disasters Across Subnational World Districts’, *Economic Journal* 129(622): 2295-321.

Jeanet Sinding Bentzen (2021) ‘In Crisis, We Pray: Religiosity and the COVID-19 Pandemic’, *Journal of Economic Behavior and Organization* 192: 541-83.

Jon Krosnick and Duane Alwin (1989) ‘Aging and Susceptibility to Attitude Change’, *Journal of Personality and Social Psychology* 57(3): 416-25.

Qing Miao and David Popp (2014) ‘Necessity as the Mother of Invention: Innovative Responses to Natural Disasters’, *Journal of Environmental Economics and Management* 68(2): 280-95.

Jacob Moscona (2021) ‘Environmental Catastrophe and the Direction of Invention: Evidence from the American Dust Bowl’.

Kenneth Pargament (2001) *The Psychology of Religion and Coping: Theory, Research, Practice*, Guilford Press.

Mara Squicciarini (2020) ‘Devotion and Development: Religiosity, Education, and Economic Progress in Nineteenth-Century France’, *American Economic Review* 110(11): 3454-91.