



# Science can't stay on the sidelines

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## Abstract

For the last 77 years, many science policy figures in the US have adhered to the principle that staying out of politics is the best way to ensure growth in science funding, and that doing so in the name of doing more science would eventually lead to wholesome uses of scientific information. Although the evidence of the failures of this philosophy have been apparent for several decades, the inability of scientists to communicate about the COVID-19 pandemic has exposed the flaws, effectively.

**Keywords** Science policy · Science funding · Science diplomacy

## Preamble

I write editorials for *Science*, and I benefit from an outstanding editor, which is a good reminder that people who are good at editing and communicating are just as important as the people who are doing the science; we don't do a good enough job of celebrating them. We need these folks, for sure, because as Naomi Oreskes has written about elsewhere (Naomi Oreskes 2009 IOP Conf. Ser.: Earth Environ. Sci. 6 532,009; Oreskes, N.; Conway, E.M. *Merchants of Doubt*, Bloomsbury Publishing, 2011), the “supply side model” where scientists assume that good information will filter down where needed, does not work.

To figure out how to change this, we have to accept the things we can't change. We can't change the fact that Facebook promotes misinformation and makes money doing so. We can't change the fact that there are so many deceptive actors that are better at using these tools than we are and that they want to undermine us. We have to focus on the things that we can change and one of those is accepting that this all happens in a political environment. In my view, in science we have been a little too timid about acknowledging the fact that politics plays a very important role in everything that happens whenever scientific knowledge intersects with the public while being willing to do almost anything that enables

more research to be done. I will focus on the United States but this can be extrapolated to almost any country.

## Examples of the intertwining of science and politics

The history of science and politics in the United States had a very big event in 1945 when Vannevar Bush wrote a paper called *Science: The Endless Frontier* that led to the formation of the federally funded scientific enterprise in the United States (<https://www.nsf.gov/od/lpa/nsf50/vbush1945.htm>). As famous as the document is, it has been frequently misinterpreted by scientists as making the case for why science and politics should stay separate. And it is true that Bush makes the case for objective, basic research, but he does so in a very political way. It is a brilliant work of persuasion that had a tremendous impact. And it has politics written all over it. The historian Audra Wolfe has written an important book about this called *Freedom's Laboratory* (Wolfe, A. *Freedom's Laboratory*, Johns Hopkins University Press, 2018). Bush's paper laid out the concept of supply-side science: let the government fund as much science as possible, and the universities would fill the journals with facts and let the policymakers use those facts as they saw fit.

Closer to our current era. I recently hosted a panel where Jane Lubchenco - one of the leading advocates for climate research in three US Presidential administrations – told another important story of how this plays out (<https://www.youtube.com/watch?v=A-WlpyQxQxw>). During the Clinton administration, Lubchenco, Sherwood Roland, and Mario

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Molina went to see Speaker Newt Gingrich to talk to him about climate change and to see if bipartisan support could be brought to the problem. And Gingrich said that he understood what they were saying and that he trusted them that the science was correct. But, he said, he couldn't help them unless they gave him a way to help them without agreeing with Vice President Al Gore who was the principal advocate for climate change in the administration.

To me, this is a very illustrative story, because there is all of this fretting that goes on about how science is politicized and that it's somehow the fault of science. This story clearly demonstrates that it's not. We operate in a two-party system in the US that's adversarial, and if one side picks science, the other side is not going to agree. The fact that Newt Gingrich said "I get the science but I'm not going there, because, I can't agree with Al Gore" tells us another thing that we can't change. We can't change the fact that science is something the parties will disagree on just like they disagree on everything else. This is true for evolution, climate change, vaccines, and plenty of other topics. They're politicized intrinsically by the system, not by us.

Another illustration of this can be found in a great book by Turner and Isenberg called *The Republican Reversal* that describes the fact that Republicans Richard Nixon and Barry Goldwater were environmentalists, but when Ronald Reagan became President, he found himself in a difficult spot because environmentalism was politically popular, and government regulation was the only way to do anything about it (Turner, J.M.; Isenberg, A.C. *The Republican Reversal*, Harvard University Press, 2018). Reagan – who famously said that the scariest words were "I'm from the government and I'm here to help" – had built his career on reducing government regulation. So, ultimately he decided to undermine the science rather than support climate action. And thus the partisan divide over climate change was formed.

## Now what?

That's all pretty stark. There's a lot of things we need to accept that we can't change. We can't stop science from being politicized, and we can't stop that politicization from leading to the shrewd manipulation of the public by those who seek to gain politically from undermining science. Which implies something that we *can* do. We can stop pretending that if we just do a good job putting outstanding work in the journals, the rest will take care of itself.

We can stop believing that supply-side science is a good idea. We're going to have to partner with the right people to make sure science is used wisely. And it's going to be extra hard because we're 77 years behind.

Next, we have to be willing to have the world see the drama and human complexity of science in all its glory. Science is not a set of facts that fall out of the sky in textbooks. Science is a messy, human process that has stops and starts, mistakes and triumphs, and all of the frailties that attend all human processes. When we try to present science as a fixed set of facts, we make it easy for anyone who wants to undermine us because all they have to do is wait until we make changes and improvements to sow doubt.

Finally, we need to have a very challenging discussion about the fact that more science is not always better. Many of the problems that science faces today have come from always choosing to do the thing that leads to more science being done. Staying out of politics to avoid angering politicians and not endangering appropriations, thereby passing up the opportunity to stand up for our values. Directing funding to research while science education, policy, and communication are shortchanged. Standing on the sidelines to avoid angering Republican appropriators when the US government carried out a xenophobic China Initiative that targeted our Chinese colleagues. Growing graduate programs even when jobs are not waiting on the other side.

Was it worth it? The research apparatus in the US is second to none in scale and quality. But the public health infrastructure and environmental protections have been seriously damaged. And still only 34% of Republicans have confidence in science – the same science that keeps them healthy and makes their cell phones work; it's hard to imagine that would have been any worse if we had been standing up for ourselves instead of looking the other way while the bills were passed. We do a lot of research, but the talent required to facilitate its transfer to the public is woefully underdeveloped. Lots of talented folks work in America's research labs as graduate students, but comparatively few of them find meaningful lives in science after they get their PhDs.

Changing course will not be easy. It will take strong leadership carried out with compassion and understanding.

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