Politics and expertise: How to use science in a democratic society

The Covid-19 pandemic has underlined the importance of scientific advice to modern policymaking. But how can the use of expertise in politics be aligned with the needs and values of the public? Drawing on a recent book, **Zeynep Pamuk** *sets out a new model for the relationship between science and democracy.*

The Covid-19 pandemic has put scientific advisory bodies under the spotlight as rarely before. The question of how scientific advisers should communicate their guidance in the face of wavering trust in science and scientists has subsequently received much scholarly and public attention over the past two years. But while the focus on scientific advice is certainly important, there is a limit to how far the problems in the relationship between science and politics can be fixed at the advisory stage.

After all, advisers are constrained by the knowledge available to them. Their recommendations depend on earlier decisions about which scientific questions should be pursued and how. To improve the relationship between science and democracy and ensure more effective responses to issues such as pandemics and climate change, we must align the production of scientific knowledge itself with the needs and values of the public.

Politics and expertise

In a recently published book, I argue that decisions made at earlier stages of the scientific process play a crucial role in shaping the public uptake of scientific advice, as well as determining the failures and limits of the use of science for policy. Drawing on examples from Covid-19, climate change, artificial intelligence, and environmental protection, I show that the scientific knowledge available often sets the terms of debate, frames political conflicts, determines the policies that will appear feasible and whose needs can be addressed.

The absence of the right kind of knowledge, in turn, makes it difficult to criticise policies and work toward alternative visions of the future. Scientific decisions about what knowledge to pursue are also decisions about which areas of uncertainty and ignorance we can live with, and whose problems we can safely ignore. Scientists, funding agencies and philanthropists, who have a say over which scientific questions should be pursued, thereby shape what counts as significant knowledge in society and what can be bracketed or left out altogether.

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In the early months of the pandemic, scientific choices about which scenarios and variables to include in disease models shaped public framings of pandemic risks as well as the nature of policy responses. Early models from the Imperial College and IHME models focused narrowly on the total death count rather than studying broader health measures or studying health effects across population subgroups. They studied short-term health outcomes, and entirely neglected the economic and social impacts of policies.

The mental and physical health toll of social isolation and economic downturn, the increased domestic violence and substance abuse rates, delayed treatments for other diseases, and missed vaccination schedules for children were not considered. Nor were there enough studies about how Covid-19 affected different population subgroups along racial, ethnic, and class lines, and the differential impacts of lockdowns and school closures.

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While research on vaccine production was a triumph, inattention to the sociological determinants of vaccine hesitancy resulted in lower uptake among certain populations. Consistently missing was knowledge about the needs of the most vulnerable communities historically neglected by science, human behaviour and social interactions, a broader understanding of health, as well as interdisciplinary and bottom-up sources of knowledge.

Rethinking the structure of public funding for science

Most basic scientific research today is publicly funded; this is typically justified on the grounds that scientific research advances the public interest. Soon after the pandemic broke out, the US Congress approved $3.6 billion in emergency research funding for the National Institutes of Health. The dependence of scientific research on public funding creates a significant democratic stake in the activities and findings of scientists, as well as making the distribution of science funding the locus of a potentially political power. This raises the question of how a democratic society ought to wield this power and strike the balance between the value of scientific autonomy and the right of citizens to have a say over the research they support through their taxes.

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I make three proposals for rethinking the structure of public funding for science. First, I argue that more democratic input into the determination of research priorities is necessary to align scientific knowledge better with issues of public concern and need. Visions of how science can advance the public good must be shaped through more participatory and inclusive mechanisms, directing more attention and funds to issues and populations that science has historically neglected.

This requires clear and accessible channels for public input and accountability, as well as more mechanisms for ex post assessments of how well scientific research outputs have realised collectively determined aims. Citizens and their representatives cannot make sound judgements on the appropriate level and distribution of funding without evidence and feedback on the results of past spending.

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Secondly, there is a democratic stake in ensuring diversity within science and especially in funding dissenting views and unconventional approaches. Our ability to pursue different courses of action at the policy stage depends on the availability of scientific research that supports a wide range of alternatives. While diversity is widely accepted as being good for scientific progress, I argue that it is also critical for the democratic use of science. Majoritarian decision procedures may not be the best for supporting diversity and dissent within science, but there is increasing evidence that peer review in grant allocations is not sufficiently effective, either. I therefore propose the use of lotteries in the distribution of at least some portion of scientific funds.

Finally, I make the case for a democratic right to withdraw funding altogether in certain cases of high-risk and high-uncertainty scientific research. It is widely accepted that research may be restricted if it poses harm to human subjects participating in the research process. The suggestion that it may be restricted on the grounds that the findings pose a risk of harm to society is far more controversial.

But this boundary is arbitrary from a moral perspective. The possibility of a lab origin to the pandemic drew attention to the serious risks of lethal pathogen research and the lack of transparency around decisions by US and Chinese funders to approve these projects. Considering the planetary scope of the risks posed by certain areas of research – lethal autonomous weapons, heritable gene editing and geoengineering are some other examples – concerns around freedom of inquiry must be balanced against the risk of harm, and those who will have to bear the risks must have a say in the decision.

For more information, see the author's recent book, Politics and Expertise: How to Use Science in a Democratic Society (Princeton University Press, 2021)

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