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## Was the UK Government's Policymaking 'Evidence-Based' During the Pandemic? Reflections on Science and Politics

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**Abstract:** At face value, it could be argued that, during the pandemic, UK Government policymaking (like that in some other countries) came close to being evidence-based, in the sense that it drew on virological and epidemiological evidence about the spread of the virus, as well as on a broader range of scientific evidence about what measures were likely to be successful in dealing with it. I consider what this case can tell us about the complexities and limits of evidence-based policymaking, and about the conditions required if closer approximation to a model of rational decision-making drawing on scientific evidence is to be achieved. In particular, I examine: problems caused by uncertainties surrounding scientific evidence and advice; issues to do with the channels of communication by which scientific information reached policymakers; the fuzzy interface between evidence and grounds for policy action; and the contextual factors that affected both its reception and its production – in particular, the role of interests and ideology.<sup>2</sup>

**Keywords:** Evidence-Based Policymaking, Policymaking in the COVID-19 Pandemic, Complexities of Scientific Evidence, Role of Ideology and Interests in Policymaking

## War die Politikgestaltung der britischen Regierung während der Pandemie evidenzbasiert? Überlegungen zu Wissenschaft und Politik

**Zusammenfassung:** Auf den ersten Blick könnte man sagen, dass die Politik der britischen Regierung während der Pandemie nahezu evidenzbasiert war, da sie sich auf virologische und epidemiologische Erkenntnisse über die Ausbreitung des Virus stützte. In diesem Beitrag gehe

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ich der Frage nach, was uns dieser Fall über die Komplexität und die Grenzen der evidenzbasierten Politikgestaltung sagen kann und welche Bedingungen erfüllt sein müssen, damit eine Annäherung an ein Modell der rationalen Entscheidungsfindung auf der Grundlage wissenschaftlicher Erkenntnisse erreicht werden kann. Insbesondere untersuche ich: Probleme, die durch die Unsicherheiten im Zusammenhang mit wissenschaftlichen Erkenntnissen und Ratschlägen verursacht werden; Fragen im Zusammenhang mit den Kommunikationskanälen, über die wissenschaftliche Informationen zu den politischen Entscheidungsträgern gelangten; die unscharfe Schnittstelle zwischen Erkenntnissen und Gründen für politisches Handeln; und die kontextuellen Faktoren, die sich auf die Rezeption und Produktion der Erkenntnisse ausgewirkt haben — insbesondere die Rolle von Interessen und Ideologie.

**Schlagwörter:** Evidenzbasierte Politikgestaltung, Politikgestaltung in der COVID-19-Pandemie, Komplexität wissenschaftlicher Evidenz, Ideologie und Interessen im politischen Prozess

The concept of evidence-based policymaking, where governments make policy decisions on the basis of scientific evidence, became influential in the 1990s, in the wake of the evidence-based medicine and evidence-based practice movements (see Boaz et al., 2008). Later, there was a shift to the idea that practice and policy should be evidence-*informed* rather than directly *based* on scientific evidence. Of course, the idea that policy should be informed by scientific evidence has a much longer history. Indeed, it has been central to the rationale for the evaluation movement, exemplified for example in Campbell's notion of the 'experimenting society' (Campbell, 1971, 1973; Dunne, 1997; Weiss, 2000; Dehue, 2001). In the UK, during the 1990s and into the first decade of this century, there were some genuine attempts to increase the role of research evidence in the UK Government's decision-making. However, the appeals made by politicians to evidence-based policymaking were sporadic and seemed expedient and superficial, and there was little sign of a transformation in governmental process.<sup>3</sup> By contrast, a significant change *did* appear to take place in 2020, as a result of the COVID-19 pandemic. At this time, UK Government ministers repeatedly declared that they were 'following the science', and there were daily televised briefings in which the Prime Minister or the Health Minister was flanked by the Chief Medical Officer and the Government Chief Scientific Adviser, or their deputies, with these government scientists providing detailed information about the pandemic and about measures being introduced to deal with it.<sup>4</sup> Furthermore, Government decisions were informed by the Scientific Advisory Group for Emergencies (SAGE), and its sub-committees, which included scientists from outside government. They summarised existing knowledge and produced relevant new scientific evidence for policymakers. Meanwhile, in the public sphere, scientists, especially health specialists, gained unprecedented exposure and influence.

3 I am sceptical about the claim that there has been an 'evidence revolution' which has produced 'experimenting societies' (White, 2019), or that such a revolution is in prospect.

4 All three speakers responded to questions from an audience of journalists, these sessions typically lasting at least an hour.

What can this case tell us about the nature of, and prospects for, 'evidence-informed policymaking'?<sup>5</sup> I will focus on the UK because it may be a particularly illuminating case, though also because I am most familiar with what happened there, and have been able to draw on a considerable body of relevant literature. I lived in the UK throughout the pandemic, watching, listening to, and reading much of the media output during the period. I have also drawn on a wide range of documents, from officially produced material, such as the minutes of SAGE meetings and parliamentary reports, to published commentary and testimony produced by those involved (for instance Ashton, 2020; Horton, 2021; Sridhar, 2022). There has also been some excellent investigative journalism concerned with the Government's response to the pandemic (Grey & MacAskill, 2020; Calvert & Arbuthnott, 2021), as well as research drawing on interviews with those playing various roles in the events (Sasse et al., 2020; Atkinson et al., 2020, 2022; Vickery et al., 2022).<sup>6</sup> However, my aim is not primarily to provide an account of what happened in the UK during the pandemic, but to use this material to explore complexities surrounding the provision of scientific evidence to the Government and how it was used. At the very least, I hope to be able to offer reminders about what can be easily forgotten, or neglected, when considering the relationship between research and governmental policymaking (or organisational decision-making more generally).

While I am not aiming to evaluate the performance of the UK Government, the evaluations that have been made of it provide an important background to my discussion. There are at least four conflicting narratives:

1. The UK Government's policies during the pandemic were evidence-based; produced the best trajectory possible in terms of infection levels, pressure on hospitals, and deaths; and represented the most desirable policy direction in the circumstances (The UK Government's own view).
2. UK Government policies were science-based, were in the right policy direction, but did not produce the most desirable trajectory, owing to initial errors (House of Commons Health and Social Care and Science and Technology Committees Report 2021).

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5 Several authors have pointed out that, despite the rhetoric of 'following the science', it was not possible for policymaking during the pandemic to be 'based on' scientific evidence in a strict sense: see Weible et al., 2020; Atkinson et al., 2022. And the idea of evidence-based policymaking and practice has been questioned more generally (see Hammersley, 2013). However, in this paper, my interest is simply in how relevant scientific evidence and advice was produced and used during the pandemic, and what this can tell us about the scope for policymaking to be evidence-informed in more normal times. For an interesting discussion of an earlier case in which the role of evidence played a major role in shaping policy, and one in which it did not, both relating to public health, see Smith, 2013.

6 Of course, there are restrictions on what information can be obtained regarding how government decisions were actually made. Furthermore, I will ignore the fact that how the pandemic was dealt with in the UK varied somewhat across England, Scotland, Wales, and Northern Ireland, some decisions being made by the devolved administrations, albeit in consultation with the UK Government. Two official inquiries into the handling of the pandemic are currently taking place, mounted by the UK and Scottish Governments.

3. UK Government policies did not follow scientific advice closely, and were sometimes at odds with it. In consequence, the trajectory was much worse than it could have been (Calvert & Arbuthnott, 2021; Sridhar, 2022).
4. UK Government policy followed the advice of health scientists and as a result exaggerated the severity of the pandemic, causing unnecessary economic damage and serious infringements of individual freedom (for example, Lord Sumpston; see Coggon, 2021).<sup>7</sup>

There are three points of disagreement here: whether or not Government policy took proper account of scientific evidence and advice; how effective policies were in dealing with the pandemic; and whether the pandemic was given the right level of priority as against other issues and considerations. My discussion here will be framed mainly by the first of these questions.

In a seminal paper, Carol Weiss (1983) identified *ideology, interests, and information*, as key factors shaping policymaking. What she means by ‘ideology’ is ‘philosophy, principles, values and political orientation’; by ‘interests’, the perceived self-interests of individuals, agencies, and organisations; and, by ‘information’, the various kinds of factual evidence, including that from scientific sources, relevant to decisions in the context concerned (Weiss, 1995, pp. 574–576). This is a useful broad framework and I will employ it here (along with much else from her work).<sup>8</sup> The UK’s pandemic policy illustrates conflicts between information – including scientific evidence and advice – on the one hand, and ideology and interests, on the other. But it also reveals the complexities involved in the nature and role of all these factors. My main concern will be the role of scientific information, but this will require taking account of the other two factors as well.

I will focus on the initial period of the pandemic from around the time when news first broke of the outbreak of COVID-19 in Wuhan, in December 2019, through to the implementation of a lockdown and other restrictions in the UK, in March 2020. I want to pick out several features of the relationship between scientists and Government policymaking during this time. I will begin by examining uncertainties and conflicts surrounding scientific information, before going on to discuss the mediating processes involved in the channels of communication by which it reached policymakers, and the fuzzy boundary between science and policy. This will then lead to consideration of the role of ideology and interests.

7 Many others put forward similar views both in the UK and elsewhere, from a range of political perspectives. See, for instance, Walden, 2020; Dodsworth, 2021; Frijters et al., 2021; Green & Fazi, 2023. For a comparative analysis of the performance of the UK Government in responding to the pandemic see G. Williams et al., 2021.

8 In a later paper Weiss (1995) identified a fourth factor: institutional structures. There is a separate paper to be written about how the institutional structures of the UK Government affected policymaking during the pandemic.

## 1. The Complexities of Scientific Information

Information can come from a variety of sources, but the one that is prioritised by the notion of evidence-based policymaking is, of course, science. During the pandemic, multiple kinds of scientific information were drawn on by UK policy-makers, mainly from virology, epidemiology, public health more generally, and behavioural science. Obviously, it was necessary to know the characteristics of the virus in order to assess its likely transmissibility and the severity of the consequences of infection, hence the importance of virology. Epidemiological modeling was used to anticipate the rapidity and likely extent of the spread of infection. Public health and behavioural science specialists were employed to inform decisions about what measures were necessary to deal with it and how effective they were likely to be.<sup>9</sup>

As this makes clear, the scientific information available was rather heterogeneous in character and function. Different disciplines were involved, with varying aims, ways of working, sources of data, and products; and there was also variation in the likely reliability of the information produced. For example, virology offered general knowledge about the nature of viruses as well as specific information about COVID-19, whereas epidemiological modelers were concerned with predicting future levels of infection on the basis of assumptions about the behaviour of the virus and that of members of the relevant human populations. Quite sharp differences are involved between these two disciplines, in both process and product, but the difference between them and behavioural science is even greater. The latter draws on several disciplines, albeit with psychology dominant, and employs a variety of methodologies. Furthermore, its findings are different in character, and perhaps also in likely validity – at least they are probably more open to dispute than, for example, those of virology. In the context of the pandemic, the role of behavioural scientists was to advise about likely public responses to various potential government strategies for dealing with the spread of the virus.<sup>10</sup> This drew on evidence from surveys of relevant attitudes in the population, general experimental studies, non-experimental evaluations of particular types of intervention, and social psychological theories about human behaviour. Behavioural scientists, along with public health specialists, could also draw on studies of policies dealing with previous health crises; though these were mostly post hoc evaluations, almost always of situations where multiple strategies had been deployed (so that assessing the effectiveness of any one of them was extremely difficult). In applying much of this knowledge, there were, of course, difficulties involved in transferring or 'translating' the findings to the new situation. There were also

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9 The notion of evidence-based policymaking tends to focus on the role of science in providing evidence about *the effects of potential or actual policies, programs, or practices*, but as I have indicated during the pandemic it performed a wider range of functions.

10 For summaries of behavioural science findings relevant to dealing with the pandemic see van Bavel et al., 2020; Lunn et al., 2020; S. Williams et al., 2021.

gaps in the information available, especially at the beginning; and occasionally findings came to be significantly revised.<sup>11</sup>

Not surprisingly given the different sources and types of scientific information, there was sometimes conflicting evidence. Conflicts arose both *within* some of these scientific fields and *between* them. An example of a within-field dispute was a public debate among behavioural scientists about the likelihood of ‘behavioural fatigue’: whether introducing restrictions on behaviour too early would lead people to start ignoring the restrictions before the peak of infection had been reached (see Oliver, 2020; Hammersley, 2020a).<sup>12</sup> Similarly, there was some variation in the results produced by different epidemiological models. This reflected the fact that these were based on varying assumptions both about the virus and about people’s behaviour (see Taylor, 2020). Furthermore, as greater knowledge emerged concerning the characteristics of the virus, the predictions of each group of modelers changed over time; and on at least one occasion this seems to have prompted a major shift in policy – towards imposing a lockdown.

An example of conflict *between* fields concerned reliance on the results of epidemiological modeling versus drawing on the experience of public health specialists in dealing with previous crises. Sasse et al. (2020, p. 7) report that “scientists inside and outside government argued that SAGE has [...] been dominated by too narrow a group of medical scientists and modellers at the expense of others such as external public health experts”. Implicated here are not just different types of evidence, but also the potential for conflict between specific evidence and general expertise, the latter drawing on past experience and what was being done in other countries. Also relevant is the problem of the public health precautionary principle: should one wait for reliable information about the likely spread of infection or act on what information is available at the time (see Sridhar, 2022, pp. 118–119; see also Monaghan et al., 2012). Sasse et al. (2020, p. 18) report that in relation to the first lockdown in the UK ‘ministers were unwilling to take action until scientists thought the evidence was “overwhelming”’.

One result of gaps in information, concerns about the reliability of evidence, and conflicting results, was uncertainty surrounding the value of particular measures (Vickery et al., 2022). This arose even at the level of the general approach that should be adopted: whether the emphasis ought to be on mitigation, suppression, or elimi-

11 At the start of the pandemic, there was little or no information about the distinctive characteristics and effects of the new virus, and ways of dealing with it, so that (as already noted) reliance had to be placed on research concerning previous pandemics (see, for example, Viner et al., 2020). Uncertainties surrounding evidence about many issues are a frequent theme in the minutes of SAGE. Sridhar (2022, p. 303) comments that: “Early decisions about which strategy to pursue were made in an initial vacuum of knowledge about COVID-19. The biggest gaps in knowledge related to long-term health complications for survivors, how long immunity would last, if at all, how many people were truly susceptible and the risk of mutations”.

12 This may have reflected a deeper division within the behavioural science community: between those who believed that, if properly informed, most of the public would take the appropriate action, and those who insisted that more strategic management of their behaviour was necessary, taking account of likely resistance and a tendency to drift back to previous patterns.



nation.<sup>13</sup> The UK Government adopted all three of these strategies at different times (with varying degrees of commitment and success). Initially, there was an attempt to identify and isolate those infected with the virus coming from abroad, along with general advice to the population about handwashing etc., but this elimination strategy was quickly abandoned when the number of cases rose sharply and it came to be recognised that transmission was already occurring *within* the population, and that the test and trace capabilities were inadequate. There then seemed to be a move towards allowing the virus to spread in order to build herd immunity, with an expressed commitment to mitigate the consequences by protecting those most at risk of severe illness or death. This was based, in part, on information that, while COVID-19 was more deadly than flu, the likely death rate was much less than some other infections such as Ebola. During this period, however, there was little direct action in terms of mitigation, and an increasing proportion of the population started to take measures themselves to reduce their risk of getting infected, one result of this being to delay any possibility of reaching herd immunity. Furthermore, epidemiological predictions began to suggest that health services would very quickly become overwhelmed. As a result, there was a shift to suppression: the Government eventually introducing quite severe lockdown restrictions.

Uncertainty also arose concerning quite specific measures that could be adopted. An example is the case of wearing masks, which was discouraged early on.<sup>14</sup> Little scientific evidence was available initially, and there was scientific advice both in favour and against recommending citizens to wear face masks, though the balance of this changed somewhat over time. One initial practical concern was that, given a severely limited supply, recommending that people wear masks would reduce their availability for hospital and care staff who were in greatest need of protection. However, there were also general arguments for and against the wearing of face masks:<sup>15</sup>

*Possible advantages:*

- a) A face mask reduces the chances of droplets spreading from an infectious person when speaking, coughing, or breathing. This is especially important in indoor or crowded settings, and gained greater significance once it was recognised that much infection occurred through airborne dissemination rather than by touching infected surfaces, and that asymptomatic transmission was taking place.
- b) Masks may also offer some protection for the wearer, though this was a matter of particular dispute.

<sup>13</sup> See Shih (2021) on China, and Lu et al. (2021) for comparison of the cases of China and Germany.

<sup>14</sup> The issue of the closure of educational institutions also attracted conflicting scientific views.

<sup>15</sup> On the question of masks, see Sridhar, 2022, pp. 119–125. For influential interventions on this issue, see Greenhalgh, 2020 and Greenhalgh et al., 2020; Martin et al., 2020a, 2020b. There is also the issue of *type* of mask worn, but I will leave this on one side here.



*Possible disadvantages and dangers:*

- a) Face coverings are sometimes not worn correctly.
- b) Many people touch their masks while wearing them, thereby potentially spreading infection.
- c) Wearing them for long periods of time creates excessive moisture and results in loss of the mask's protective function.
- d) Masks may make people feel fully protected and lead them to take part in riskier behaviours; and
- e) Masks could harm child development for babies and young children who need to see faces as part of their psychological and speech development. They are also problematic for people with hearing impairment who rely on lip-reading.

This example usefully illustrates the problems involved in evaluating even quite specific and well-defined measures: they often carry both beneficial and less desirable potential consequences, and the balance between the two can be hard to judge; these consequences may fall differentially on different groups in society; and there are complexities in the implementation of measures that can be crucial for the outcome, such that what may be an effective measure in principle can be useless or counterproductive in practice. In an instance like this there is also the question of the likely take-up of a measure within populations, not just in gross terms but as regards when and where masks are worn. And there may be interaction between measures, for example between mask-wearing and social distancing, with the first perhaps reducing the second.

It was the declared task of SAGE to produce consensus about the relevant scientific knowledge. Given the sorts of uncertainty and conflict mentioned, this was far from straightforward. However, some critics have argued that there was insufficient challenge, for example to modelling assumptions, within SAGE. While there were a large number of scientists and others involved in it and its sub-committees, a small group, including government officials, were much more centrally involved than others. There is obviously a difficult tension operating here: between providing a coherent, agreed body of information to policymakers, on the one hand, and involving a wide enough range of views to try to improve the quality of the information, on the other.

So, while UK Government policymaking may have drawn on scientific information, this involved significant uncertainties and conflicts, rather than a single, coherent body of developed knowledge whose implications were clear-cut.

## 2. Channels of Communication

A second issue concerns channels of communication: we cannot assume that once scientific evidence has been produced it is immediately available to policymakers. There were two main routes by which it reached them during the pandemic:<sup>16</sup>

1. I have already mentioned the first: a relatively private and hierarchical route through SAGE, with information ultimately reaching policymakers via the Government Chief Scientific Adviser (GCSA) and the Chief Medical Officer (CMO). Membership of SAGE and of its sub-committees was determined by the GCSA and the CMO (Cairney, 2021a). A large group of external scientists were irregular attendees, with a much smaller group being more consistent and influential members. Advice was provided by SAGE in response to questions put by the Government through GCSA, though sometimes officials and ministers contacted SAGE members directly. As already noted, the aim was to distil a wide range of evidence into a single consensual answer to each question. Quite often this required specific research to be carried out, and a very large number of working papers were produced for SAGE. But there were times when it was overloaded with requests for advice coming from across Government. There was also a problem that some questions did not appear essential, while others requested direct guidance about what measures should be taken, which most scientists viewed as outside their competence (Sasse et al., 2020, p. 20).
2. The other main vehicle for scientific information was the mass media and social media. Many scientists were interviewed in the news media and contributed articles. They also engaged in online exchanges, for instance on Twitter. This was even true of some of those involved in SAGE and its sub-committees. There were also many influential scientists external to SAGE who contributed to these discussions, individually or through group letters (the 'Great Barrington Declaration' [<https://gbdeclaration.org>] versus the 'John Snow Memorandum' [<https://www.johnsnowmemo.com/>], for example). Furthermore, quite early on an external 'independent SAGE' was set up by a previous CMO and other scientists, reporting its views via the media.<sup>17</sup> Of course, there were many other types of commentators as well: there was opposition to the measures taken to deal with the pandemic by a vociferous minority within the Conservative Party, as well as by some business leaders. Other critics regularly appearing in the mass media included Lord Sumption, a former senior judge, who criticised Government policy for infringing individual freedom, and a sociologist, Robert Dingwall, who suggested that there had been an overreaction to the threat of the virus, at

16 This is a considerable simplification. As Sasse et al. (2020, p. 11) point out: "Government departments and public bodies also receive a wide range of scientific advice [...]. Many have their own scientific advisory committees – there are more than 70 across government. Almost all departments have appointed a chief scientific adviser. Agencies such as [...] Public Health England (PHE) also have deep scientific and technical expertise that is important in a public health crisis".

17 See Who are we? | Independent SAGE [<https://www.independentsage.org/who-are-independent-sage/>].

the expense of common sense and existing sociological knowledge, this having damaging economic and health consequences.<sup>18</sup> As this indicates, discussion in the media ranged more broadly than in the advisory committees, with scientific advice prominent (but not always dominant) in the mix.

It is hard to determine the relative importance of these two channels in shaping policy, even in relation to specific issues at particular times, but it is worth noting Weiss and Singer's (1988, p. 1) argument that, frequently, the mass media (and these days we must include social media) are the main channel through which scientific information gets the attention of politicians. (This is because they are intensive consumers of media output since their electoral prospects depend upon being aware of what is going on in that sphere.) We also need to bear in mind here that 'policymakers' is a heterogeneous category that extends beyond politicians to include special advisers and civil servants, across many departments and agencies.

Furthermore, while it is clearly important to understand the routes by which scientific information reaches policymakers, the concept of 'channels of communication' is potentially misleading, in at least two respects. First, it tends to imply that there is a single decision-making agent standing at the endpoint of the channels who makes a decision once the information has been received. Yet, from what we know about governmental decision-making, and about organisational decision-making more generally, this is rarely true. In the case being discussed here, there were several candidates for central decision-maker: the Prime Minister (PM), the Cabinet Office (in particular the Civil Contingencies Secretariat, which prepares for emergencies), the Secretary of State for Health and Social Care, Public Health England (and equivalent organisations in the other nations), as well as the ministers and officials who make up COBR, a committee (usually chaired by the PM) meeting in the Cabinet Office Briefing Rooms in Whitehall that is designed to provide high-level co-ordination and decision making in national emergencies. All of these were involved at particular points, but none of them was an autonomous decision-making agent able to take all of the decisions relevant to the pandemic, not even the PM. Indeed, it seems that in the early stages of the pandemic there was only a low level of coordination across Government, while later No.10 opted to try to retain greater control at the centre, keeping SAGE running as a source of information even after COBR stopped meeting (Sasse et al., 2020, pp. 6–7).<sup>19</sup> Nevertheless, Sasse et al. (2020, p. 18) comment that "At times it was very unclear, outside the inner circle, just who would be involved, how decisions were taken and on what basis."

18 See, for example: An interview with Dr Robert Dingwall | Elder [<https://www.elder.org/the-elder/an-interview-with-robert-dingwall/>].

19 SAGE was intended to be a temporary arrangement, supplying information in the early stages of an emergency, with the relevant Government department subsequently taking over the production and use of relevant scientific information.

In short, the notion of channels of communication tends to assume what has been called the rational model of organisational policymaking.<sup>20</sup> In caricatured form, this portrays policymaking as involving a single (albeit perhaps collective) agent with a coherent set of goals, gathering information about the best means of achieving those goals, and then acting on that basis (and perhaps monitoring and adjusting to the consequences of the actions taken). Against this, it has been pointed out that government decisions are made by multiple agents who often seek to anticipate one another's actions, as well as the responses of significant external audiences, and who frequently have internally incoherent as well as discrepant orientations, these leading to conflict as well as cooperation (Cairney, 2021a). Equally important, critics point out that decision-making takes place over time, not at a single point, so that some 'decisions' are made inadvertently through the effects of other decisions already made, or through opportunities to act being missed.<sup>21</sup> Furthermore, not only may participants in decision-making have diverse conceptions of the problem at issue, but these may sometimes be less significant than their prior assumptions about the remedy that is required, this supplied by ideological commitments or serving influential interests. (There is an issue about which deviations from the rational model result from particular circumstances, incompetence, vested interests, political attitudes, etc., and which are almost inevitable features of governmental decision-making, at least in democracies.)

A second respect in which the notion of channels of communication can be misleading is that it implies objective information being transmitted in a manner that preserves its integrity so that it is 'received' intact. Something like this may sometimes occur, but often the reality is rather different. This is particularly obvious in the case of the public channel. Frequently, here, there was the selection and organisation of information in order to encourage or support particular policy conclusions. There was also propaganda for or against particular positions (by which I mean selection of material in a way that is indifferent to whether what is put forward is true or misleading, along with the invention of 'facts', and the assertion of some value-judgments accompanied by the rhetorical discrediting of others). This was especially common on social media. Sridhar (2022, p. 323) writes that:

Unfortunately, with COVID-19, we have seen the line between facts and lies disintegrate. Expertise and training have given way to influencers on YouTube

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20 The term 'rational' is open to diverse interpretations, of course. While I will be critical here of the 'rational model', as will become clear later I am not denying that we can make judgments about what are more and less rational forms of policymaking.

21 There are at least a couple of examples of this in the case of the UK Government's response to the pandemic. While there had been preparation for a pandemic, the stocks of personal protective equipment had been allowed to deplete, and obtaining new stocks during the pandemic was much more difficult, initially, so that there were severe shortages in hospitals. Similarly, an early decision to obtain large quantities of tests was not made, so that, once the virus arrived and started to spread in the country, there was insufficient testing capacity to identify who had it, trace their contacts, and ensure isolation. In this way elimination as a strategy was ruled out by default.

or Facebook who have figured out that misinformation sells, pushing their clickbait to hundreds of thousands of people. This misinformation is often worryingly organized, making the management of any pandemic incredibly challenging for governments and experts.

Even in the case of scientists presenting information to SAGE, there is likely to have been a concern to formulate information in a manner that was intelligible to, and usable by, the intended audience. And we should note that there is a tension here between the normal requirements of science and those of politics: at the start of the pandemic it seems likely that the uncertainty surrounding the initial results meant that scientists were tentative in how they presented their findings, with the consequence that it was easy for politicians to downplay or ignore them. (Different presentational norms operate in science and politics.) Subsequently, this seems to have led to a concern on the part of some scientists with presenting the information in such a way that it attracted policymakers' attention and was convincing to them.

This was even more obvious in the public sphere, and in that context there were scientists who explicitly made a case for or against particular policy options. Some became increasingly concerned with shaping government decision-making in the face of what they saw as an impending crisis and a failure to act in time. Scientists also actively resisted the counter-narratives being presented by those who believed that health specialists were creating a spurious moral panic.

Given this, it may be better to think in terms of channels of *influence*, with these conveying the results of scientific work or expertise, worked up so as to persuade policymakers, in the context of a wide variety of other 'influencers', including some within Government such as Treasury officials, as well as factions among backbench Conservative MPs, and groups across the wider public sphere.

It is also important to underline that what is involved here is an interactive process (Cairney, 2021b). As just noted, in the public sphere scientists responded to opinions expressed by others, including government ministers and those who challenged scientific information. Meanwhile, in the more private route there may have been a backwash effect. For example, the Chief Medical Officer and Government Chief Scientific Advisor would have recognised that in communicating evidence to ministers they needed to take account of its likely reception: they would have tailored what they said in light of this, to one degree or another (Grey & MacAskill, 2020). Initially, they needed to gain the attention of politicians, whose eyes and interests were elsewhere, and who were resistant to refocusing their attention. Subsequently, they probably had to interpret and shape the scientific evidence, and what courses of policy it implied, according to what seemed most likely to move politicians at least in the right direction. They may often have recommended what they believed to be the minimum necessary (Cairney, 2021a). Sasse et al., (2020, p. 23) report that: "Some interviewees said they thought that SAGE, and even on occasion the GCSA and CMO, engaged in 'self-censoring', based on what they thought would be acceptable to politicians". Sailing too close to the wind would have resulted in

their being ignored by ministers or even being forced to resign. That there was considerable tension in the relationship is suggested by a later occasion when the Prime Minister chose to draw advice from a set of experts he or his advisers had selected as an alternative to GCSA, CMO, and SAGE.<sup>22</sup>

So, it is important to recognise that channels of communication were also channels of influence, even in the case of the more private route through SAGE. And also to acknowledge the complexities of governmental agency, and of the public debates that served as the context in which UK Government decision-making took place. These features of the reception and use of scientific information have implications for my next topic: the gap between research evidence and grounds for policy action.

### 3. The Gap Between Research Evidence and Policymaking

Research cannot immediately provide grounds for policy action (Weiss, 1983, p. 226), and this is acknowledged in the UK Government *Handbook* concerned with scientific evidence. It states that: “As well as providing scientific evidence, advisors may be asked to identify policy options as part of the advisory process, however the line between advising on/identifying policy options and making the decision on the final policy must be respected” (Government Office for Science, 2010). This marks a commonly accepted division between science and politics, and one that was also occasionally highlighted by scientists speaking to the media, especially when they were being pushed to comment on government policy or to say what the policy should be (see Atkinson et al., 2022).

One reason for this gap between scientific evidence and grounds for action is that, while research can supply relevant facts, these will have different implications for action depending on what value assumptions are adopted: practical decisions depend upon value assumptions not just facts, and science cannot validate these (Hammersley, 2014a). A second reason for the gap is that science often cannot provide *all* of the factual information necessary in making practical decisions: it is necessary to rely, in addition, on other sources of information and/or on prior assumptions or even relatively speculative judgments, both about the situation being dealt with and about the world more generally. The insufficiency of the information available from science can be illustrated by the fact that very often decisions depend upon predictions about what is likely to happen in a given situation and about what the effects of different decisions will be. While science may be able to inform decision-makers about typical behaviour, how similar situations have developed, what current projections imply, or what the consequences of similar policies have been in the past,

<sup>22</sup> In response, the GCSA and CMO held their own media conference outlining the situation, and the dangers of not introducing the brief ‘circuit-breaker’ lockdown they had recommended; though they did not directly criticise the Government’s decision.

circumstances are always unique, so that some judgment has to be made about what existing knowledge tells us about what will happen in the present context.<sup>23</sup>

A third issue is that there is a fundamental difference between what can legitimately be taken to be true in scientific terms and how judgments must be made about what is likely to be true for practical purposes. This concerns how the threshold is set above which knowledge claims are to be treated as true. Science operates on the basis of a relatively high fixed threshold of likely validity that all claims must meet, irrespective of whether the implications of their being true are thought to be desirable or undesirable. Indeed, there is (or should be) pressure against being more ready to accept as true claims whose implications are assumed to be favourable or to reject claims whose implications are taken to be negative. By contrast, in practical decision-making the threshold adopted tends to vary according to the likely costs or benefits of different types of error (of treating the claim as false when it is true, or true when it is false). Furthermore, propaganda concerns are likely to play an influential role here too: some information may be treated as 'too good to be false' (or 'too bad to be true'), and this can be legitimate in practical terms where the costs of being mistaken are minimal (Hammersley, 2011, Ch. 5). An example of 'too good to be false' for some Western politicians may have been the claim that the virus causing the pandemic arose from a security breach in a Chinese research facility. However, other sorts of practical consideration can play a similar role. For instance, the public health precautionary principle, mentioned earlier, could reasonably have led to a readiness to accept the likelihood of a pandemic before there was strong scientific evidence for this. While adopting this practical orientation towards assessing likely truth increases the danger that information will wrongly be treated as true, or as false, it is essential precisely because practical decisions cannot be made solely on the basis of scientific information, and because there are costs involved in delaying decisions. It is not possible to engage in practical activities employing the sort of threshold that science adopts. In short, there is a significant difference between scientific and practical rationality, in this and other respects.<sup>24</sup>

Despite the fact that limitations on the capacity of science to serve policymaking are widely acknowledged, there is a strong tendency for the gap between scientific evidence and practical grounds for action to be overlooked in practice. As became clear in the previous section, there is a fuzzy interface between communication of information and attempts to influence decisions. Even diagnosing the scale and nature of a problem, and the likely effectiveness of strategies for dealing with it, relies not just on scientific information but also on both information from other sources and practical judgment. And the role of these becomes even more obvious when it comes to assessments of the significance and urgency of a problem, and recommen-

<sup>23</sup> Indeed, this is still true even when the implementation of a particular policy is being studied as it happens, since much of the situation remains uncontrolled.

<sup>24</sup> There is an important complication that I cannot deal with here. This is that research is itself a form of practical activity and must be carried out on the basis of practical rationality. But, as I have explained, its goal is defined solely in epistemic terms.



dations about what should be done. As a result, there tends to be negotiation over where the line between science and politics lies, or should lie.<sup>25</sup>

Part of the reason for this is that, in providing scientific evidence for decision-making, there needs to be engagement between the parties involved: policymakers must determine their priorities and seek advice relevant to these, while scientific advisers must attend to these priorities and select the information needed from what is available, or try to produce it. At the same time, how policymakers set priorities may be influenced by the evidence, and advisers need to anticipate what the implications are of evidence for policy options. Without such an interactive relationship, evidence is unlikely to serve policymaking.

However, in this process there is a danger that the orientation of one or both sides will become biased, that there will be a distortion of what is taken to be true and/or of what is treated as desirable in policy terms.<sup>26</sup> This may be particularly likely if it is believed that a smooth and direct relationship can be established between the two activities, with a tendency for one side (or both sides) to conceptualise the orientation of the other in their own terms (Hammersley, 2014b). Furthermore, the relationship between scientists and policymakers is a highly contingent one, not least because the two parties are not operating on the same timetables. Atkinson et al. (2022, p. 8) report the following comment, telling a familiar story, from one of their informants: "A couple of times ... we have had a commission one week, got people working over the weekend ready for it to go to SAGE on Thursday ... And over the weekend, while people are working on it, the decision has been announced ... that is quite demoralising for the people doing it" (Interviewee D, 27 January 2021). More generally, we can say that policymakers and scientists operate in different experiential worlds that are in tension with one another as a result of conflicting social structural forces; and this makes communication and mutual engagement very challenging, and threatens the integrity of both sides, even though the relationship is essential (Hammersley, 2002).<sup>27</sup>

We should also note that within the public sphere even just making a factual statement will often be regarded as promoting or challenging a particular policy or viewpoint. And it may appear that, since controlling the pandemic came to be very widely accepted as the overriding Government policy objective, scientists could, without overstepping the line, evaluate strategies for dealing with it and recommend those they believed most likely to be effective. Yet, of course, the different means of dealing with the pandemic had benefits and costs beyond health considerations. The most obvious example of this is the recurrent argument put forward by some critics

25 Long ago, Laski, 1931 provided an eloquent discussion of problems surrounding the idea of 'rule by experts'. For a more recent discussion of the gap between science and politics see Atkinson, 2020.

26 Horton (2021, p. 102) claimed that, in the UK, scientific advisors "became the public relations wing of a government that had failed its people".

27 For a more optimistic, but sophisticated, interpretation of the relationship, documented by reference to case studies, see Lazarsfeld and Reitz, 1975. A further complication is that both research and policymaking involve heterogeneous roles, ones that themselves involve some tensions. For this aspect of social research, see Hammersley, 2002, Ch. 6.

of lockdown that the economic costs of this were excessive. Indeed, they also argued that the lockdown would have *health* costs that made it unacceptable, notably consequences for mental wellbeing.<sup>28</sup> In response, some public health specialists, such as Sridhar (2022), pointed to the severe *economic* costs associated with allowing the infection to spread throughout the population, insisting that the Government did not face a choice between prioritising health or the economy, that there was no conflict involved and that the desirability of a lockdown was obvious in the circumstances.

Thus, the interactive nature of the relationship may have encouraged scientists to go over the boundary between offering scientific evidence and providing grounds for action. Some felt a sense of public duty to speak out when what they regarded as the necessary measures were not being taken, or mistaken ones adopted. We should also note that one of the scientific fields involved, Public Health, straddles the line between science and policy, in taking responsibility for ‘the health of the nation’.<sup>29</sup> On the other side, policymakers may not only try to push scientists into offering policy advice but also use science as a shield against public criticism. Boris Johnson’s mantra that the UK Government was ‘following the science’ seems to have been a clear example.<sup>30</sup>

Even apart from this, though, as noted earlier political judgments are necessarily influenced by assessments of the costs of different sorts of potential error. For example, it seems likely that, in the early stages of the pandemic, Government ministers’ assessments of the evidence were shaped by an assumption that the economic costs of overestimating the risk and effects of a pandemic would be greater than the pandemic’s consequences for the health of the UK population. As I mentioned, the argument that COVID-19 is more like Flu than Ebola was sometimes deployed here: that it had a comparatively low death rate, and mainly affected the elderly or already ill. However, it is also fairly obvious that this attitude probably reflected the prevailing ideology within the Government – its commitment to what could be crudely labeled as neoliberalism – along with its perception of its own interests.

#### 4. Ideology and Interests

UK Government policymaking in the early stages of the pandemic is a particularly interesting case to use in thinking about the notion of evidence-informed policy-making because there was a very sharp conflict between the ideology to which the Government was committed and some of the policies they came to adopt, on the

28 This may be an example of an argument constructed to support a prior position, in that these critics were often against a lockdown *in principle*.

29 A major textbook on the subject declares that: “Public health is the process of mobilizing [...] national and international resources to assure the conditions in which people can be healthy” (Detels & Breslow, 2004, p. 3).

30 For an interesting discussion of the ‘politics of blame’ during the pandemic, see Flinders, 2020.

basis of 'science'.<sup>31</sup> Towards the end of 2019, a new Conservative Government had been elected following the Brexit vote and the restructuring of the parliamentary Conservative Party associated with this. The new government, led by Boris Johnson, was largely made up of politicians with strong inclinations to minimise the role of government and promote private business, despite the commitment to 'levelling up'. They also displayed populist tendencies: they appealed to citizens over the heads of Members of Parliament and other elites, and often dismissed the views of 'experts', or at least experts with whom they disagreed. It is a historical irony that, in March 2020, a government with this political complexion came to impose the most draconian restrictions in the history of the UK on both the economy and the liberty of ordinary citizens, *and did so in the name of scientific expertise*. Many businesses were closed, people were urged to work from home wherever possible, there were restrictions on whom they could meet with, as well as on their travel, and the wearing of masks came to be legally required in certain contexts. Furthermore, later, the Government intervened in the economy, introducing a 'furlough scheme' whereby it paid a large proportion of the wages of staff of private companies who had been forced to stop work by the lockdown, as well as offering 'bounce-back loans' to businesses. These measures were by no means unique to the UK during the pandemic, of course, but the contrast with the ideological commitments of the Conservative Government was very sharp.

There is certainly evidence that, at the start of the pandemic, generally speaking UK Government Ministers did not take the threat of a pandemic very seriously (in the sense of giving it priority over other issues), and that (in part at least) this reflected their ideological commitments and priorities (Calvert & Arbuthnott, 2021). They were preoccupied with 'getting Brexit done' and implementing other policies to which they were committed, as well as removing what they saw as the undesirable barriers to executive power that had stymied earlier attempts at obtaining parliamentary approval for Brexit. This was important background to the Government's first response to information about the risk posed by COVID-19. The Prime Minister initially dismissed it as a 'health scare', and it took several weeks for it to climb to the top of the Government's policy agenda. For example, even though weekly COBR meetings were set up from early February, the PM did not chair the first five of these. Subsequently, on the face of it at least, the Government's commitments and priorities delayed the decision to implement a lockdown, as well as later leading to its being lifted earlier than many scientists thought advisable. Indeed, I think it is clear that the Prime Minister felt pushed into imposing a lockdown, and was never fully reconciled with doing this (subsequent lockdowns were also delayed and lifted early, for the same reason).

However, what I have sketched above is not the full story. We must recognise that governance is a hyper-active space in which ministers are faced with a bewil-

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31 The sharpest contrast here is, of course, with China, where an extensive governmental apparatus was already in place for controlling the population. See He et al., 2020.

dering range of pressing concerns: this is a fact that is easy to forget when focusing on the response to just one issue. Furthermore, at the very least, uncertainty surrounding the scientific evidence and advice at the beginning of the pandemic allowed scope for the operation of ideology, along with political calculations about what was in the best interests of the Government. Moreover, the delay in implementing the first lockdown was not at odds with the scientific information that the Government were receiving at the time, via what I referred to earlier as the private route of SAGE (which was indeed then private, since its minutes only started to be published later, as a result of public pressure) (see Wickham, 2020). At the same time, the decision to impose a lockdown and institute a furlough scheme was also probably based in part on political calculation: taking into account the likely effects on public opinion of allowing the pandemic to cause a high level of illness and death, to overwhelm the health services, and to lead to a significant level of unemployment. This Government, perhaps even more than others, was preoccupied with winning the next election (even though this was a long way off); but it could equally be argued that it was, necessarily, seeking to navigate a path through the crisis that would retain maximum public support.

It is also important to recognise that politicians are not the only ones to have ideological commitments, or to take account in decision-making of various interests they and others have. Indeed, such commitments and interests are to be found even on the part of scientists. Work in particular scientific fields tends to generate broader ideological perspectives, and/or to attract people with these perspectives. Most significant here is that, if one's work is directed towards contributing to improvements in the health of the population, one is likely to believe that this should be among the major goals of public policy, perhaps the major one. This is explicit in the case of Public Health, which is simultaneously an intellectual and a practical discipline, as I noted earlier. Furthermore, it often treats a very wide range of features of society as relevant to improving health. For example, Horton (2021, p. 19) writes that:

At the end of 2020, Professor Sir Michael Marmot [a professor of epidemiology and public health] published his prescription for tackling the social determinants of COVID-19. [...] In *Build Back Fairer*, Marmot proposes much more vigorous investment in children and young people – the only way to break the chain of systemic inequality. Eliminating child poverty, spending on early years care and education, expanding and fairly rewarding the childcare workforce, establishing parenting support programmes, improving access to digital technologies, increasing training and employment opportunities for school leavers, attending to mental as well as physical health, and writing a national strategy to reduce health inequalities – these policies are indispensable for strengthening society's security against future pandemics.

And, later in the same book, Horton (2021, p. 108–109) adds:

What does it mean to possess a health service? At the very least, it represents the commitment of people living in a society (past and present) to the twin ideas of solidarity and collective action. By solidarity I mean the feelings of empathy and responsibility we all feel and owe towards one another. Solidarity stands in opposition to the principles of individualism and competition which so dominate and shape our lives in twenty-first-century capitalist, and even authoritarian, nation-states.

Here we have what is close to a whole political ideology.<sup>32</sup> Many of the scientists involved in advising the Government, whether privately and publicly, probably had ideological commitments along these lines. They also had interests: at the very least in the future funding of work in their fields.

Moreover, while scientists often emphasised the line between what science could provide and political decisions, as we have seen many of them (in the public sphere at least) drew quite strong conclusions from scientific evidence about what policies were required, and sometimes criticised the Government for failing to adopt these, or for not adopting them early enough (see, for instance, Horton, 2021 and Sridhar, 2022). Of course scientists are also citizens and as such have the right to express their opinions about public issues, but their participation in both private and public routes of influence rested on their expert roles, not their citizenship. This is one aspect of what I referred to as a blurring of the relationship between science and policymaking. But we could ask: do not experts in a field relevant to public policy have a civic duty to express their views about what should be done, especially in a crisis? There are difficult issues here about the relationship between science and politics.

The terms 'ideology' and 'interests' commonly carry a negative evaluation. For example, the first is often taken to refer to ill-founded, ill-formed, and ill-motivated sets of ideas that have negative consequences; while the second is frequently used to mean what is self-serving. However, that is not how I am employing these terms here. Indeed, I do not believe that their negative senses are justifiable in the context of social science (Hammersley, 2020b). I am using the term 'ideology' to refer to a set of general assumptions (some may be well-grounded, others more speculative) about the world, how it is *and ought to be*.<sup>33</sup> In the context of policymaking this leads to judgments about the relative importance of different issues, initial diagnoses of these, and tendencies towards particular conclusions about proposed remedies for them. More than this, ideological assumptions fill gaps in knowledge, and provide the context in which other information is interpreted. They simplify the complex and dynamic situations faced, assimilating new situations to what was previously understood. Ideology in this sense cannot be avoided, as Weiss (1983, 2000) recog-

<sup>32</sup> Much of the rest of Horton's book also displays this.

<sup>33</sup> Bertrand Russell (1928, p. 28) wrote that: "Every man, wherever he goes, is encompassed by a cloud of comforting convictions, which move with him like flies on a summer day".

nised. There are at least two reasons for this, ones I have already noted. First, science frequently cannot provide all of the information required, and what it does provide has to be assessed. Second, values are necessarily involved in identifying problems, and in prioritising one problem over another, as well as deciding what policies should be adopted to deal with it.

Thus, ideological assumptions provide the resources for inferences to be drawn, this often needing to be done quite rapidly, from particular items of new information, for instance about the causes of some problem and what ought to be done. The term 'political instinct' captures the way in which ideology can work in leading to immediate conclusions about situations: about what is wrong, what is necessary, what is and is not feasible, and so on. While the resulting action may be rash, and perhaps could have been improved with more deliberation, delay in decision-making can also have costs; and, as I noted earlier, decisions are sometimes made by default. Moreover, ideological assumptions and judgments are equally involved when there is more deliberation, even if the result can be more rational.

Needless to say, the ideologies of political actors are frequently closely bound up with interests. But care is required in dealing with the concept of 'interests' as well as 'ideology'. A common contrast is with value commitments, the latter being taken to be universalistic, whereas interests are viewed as particularistic (Hammersley, 2020b, Ch. 9). However, we should note that, in practice, the application of value principles is often constrained by more particularistic concerns. Anyone acting solely on the basis of universal principles would be widely regarded as an ethical monster. Furthermore, interests are not simply individual matters: there are group interests for which individuals may sacrifice even their lives. There is also a notion of the 'collective interest'; and sometimes this is a matter of what is in the interests of humanity as a whole; though greater costs are likely to fall on some people than on others in its pursuit. The boundary and relationship between interests and values is murky, then. And, once again, I believe the term should be used in a non-evaluative way. Even a Government's concern with staying in power should not be dismissed simply as self-serving, since any government that neglects this interest will soon lose the capacity to institute the policies to which it is committed.<sup>34</sup>

Thus, as Weiss emphasised, ideology and interests, in the senses of those terms used here, are not simply sources of *potential* distortion, they play a crucial role in the decision-making process. Furthermore, we must remember that practical rationality cannot mean simply 'acting on the basis of scientific evidence' or even 'acting in a scientific manner'. There are fundamental differences between the requirements of research and of policymaking. It should also be clear from my discussion that, in dealing with policymakers, scientists cannot operate solely on the basis of scientific rationality, they too must deploy some form of practical rationality. For this reason, and others, what is involved in respecting the boundary between science and politics

<sup>34</sup> A further complication, of course, is the distinction between 'perceived' and 'real' interests. In my view, for social science the main sense of the term should be *perceived* interests, since it is these that play a causal role in behaviour.

is not so much following a straight and clearly-marked path, but rather trying to negotiate a route through confusing terrain, but one that is defensible both in terms of the values of science and the obligations of being an advisor or a citizen. What is required on the part of researchers to do this is close to what Aristotle called 'phronesis' (Hammersley, 2018) and Rawls referred to as 'reflective equilibrium' (Daniels, 2020; see also Elgin, 1996): a mode of action in which competing considerations are balanced in ways that are adapted to ever-changing situations, while yet seeking to preserve sufficient integrity overall.

Of course, we can still ask whether the UK Government's decision-making during the pandemic was practically reasonable, or whether it showed evidence of serious deficiencies and biases. As far as I am concerned, the answer is blindingly obvious; and the fault is compounded by a refusal to recognise or acknowledge errors. Furthermore, in the public sphere, too, we can detect a strong tendency towards what might be called a post-truth environment, in which rationality is outgunned by sensationalism and propaganda. This threatens to distort both science and policymaking.

## 5. Conclusion

In this paper I have explored some of the complexities around the role of scientific information in governmental decision-making through examining the case of the UK Government's response to the pandemic. I suggested that, in key respects, this is a sort of demonstration case because, despite many central members of this Government having strong neoliberal and populist ideological commitments, implying a minimal role for government and a distrust of experts, a month or so into the pandemic Government ministers were repeatedly declaring that they were 'following the science' by instituting major programmes of state intervention in people's lives and in the economy. It may seem, therefore, that, against all the odds, in the context of the pandemic, UK Government decision-making came as close as it could to the rational model of evidence-based policymaking. This was facilitated by wide acceptance, albeit by no means unchallenged, among the population that there should be one overriding policy goal – limiting the spread of infection and mitigating its consequences – *and* that it was scientific experts who best knew how to do this. At the very least, scientific information gained much more influence than is usual in governmental policymaking, and in the public sphere; and certainly exercised more influence than it would have done otherwise on the UK Government that was elected in 2019.

Therefore, in general terms, we might take this case to show the massive influence that research can have on policy in the right circumstances: in a crisis in which there is a considerable consensus about the priority of the problem and what would count as a solution; and where the sources of relevant research evidence were accorded relatively high intellectual authority. Of course, many of the other crisis problems we face at the present time – such as high levels of poverty, inequalities



of opportunity, discrimination on grounds of ethnicity and race, etc. – are more contentious than was dealing with the pandemic, involving sharply conflicting ideologies and interests whose distribution in the population is much more evenly balanced. Furthermore, the sources of relevant evidence about these problems – the social sciences – have lower standing than medicine and public health in the eyes of both governing elites and the general public. It seems, then, that policymaking during the pandemic was a limit case rather than an ideal that is likely to be realised in non-pandemic times.

Furthermore, as we saw, even in the relatively favourable conditions for evidence-based policymaking created by the pandemic, the role *actually* played in policymaking by scientific information was more complex and contingent than the rational, or evidence-based, model implies. There were gaps, uncertainties, and conflicts in the evidence available; the transmission of information to decision-makers was highly mediated; and a gap remained between scientific evidence and grounds for policy action, allowing ideology and interests to play a continuing role. Of course, these complexities might have been less significant if the UK Government had had an ideological orientation that was more conducive to the use of scientific information in dealing with policy problems. But I suggest that most of these complexities are general in character: they reflect both a logical restriction on direct inference from scientific evidence to grounds for action, and constraints deriving from what we might call the normal features of political decision-making (at least in democracies).

A currently fashionable approach in social science, characteristic of some leading ideas in Science and Technology Studies, would be to treat the complexities I have documented in the relationship between science and policymaking as undermining any normative conception of the rational use of scientific information, of the kind built into the notion of ‘evidence-based policymaking’ or ‘the experimenting society’. From this point of view, scientific information would simply be one among an array of social factors that shape policies, its operation being not fundamentally different from that of the others. This is a very long way from the rational model of organizational decision-making; indeed, on this view it is unclear what ‘rational’ could mean beyond ‘that to which this label gets applied’.<sup>35</sup>

However, in my view this is a gross overreaction: much can be retrieved from the rational model. Even in the face of the complexities I have outlined, we can retain some notion of what reasonable policymaking looks like, and of the distinctive role scientific information can and should play within it. What it demands is that all available relevant information is taken into account, and none that is irrelevant, and that value priorities and their implications are judiciously assessed. At the same time, we must recognise the differences, as well as the similarities, between what is

35 It seems to me that ‘rational’ and ‘reasonable’ are evaluative terms: in applying them we must first determine what is the goal to be achieved, and what are the constraints within which pursuit of this goal must operate; only then can we start to decide what would be better and worse actions to take within this framework, and to evaluate actual actions against this standard.

reasonable in policymaking and what is reasonable in scientific work. It is also essential to acknowledge the limits operating on the role that scientific evidence and advice can play in policymaking, by comparison not just with what is implied by the rational model but also with many social scientists' own hopes or expectations about their role, for example when they bemoan the 'failure' of policymakers to act on the basis of the evidence they have provided. Equally important, differentiation between the roles of researcher, adviser, and policymaker must be sustained, even when the same person plays more than one of these roles. This is demanded by professional integrity, but it is also vital to combat the post-truth world in which we now appear to live.

Of course, in order to justify the funding of social science, and perhaps even to motivate our own participation in it, we may need to adopt a more expansive and optimistic view of the contribution that scientific knowledge can make to policymaking than the one I have presented here. Even so, we should not be taken in by our own propaganda.

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