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Experts in policy land - Insights from behavioral economics on improving experts' advice for policy-makers

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Abstract
Mistrust of experts is part of the modern zeitgeist – as demonstrated in the run-up to the UK's EU Referendum vote in June 2016 and the US Presidential Election in November 2016. Is it right to question experts' objectivity and impartiality and challenge their roles in the formulation of policy? Traditionally, we tend to believe that experts are offering impartial and unbiased advice, based around an objective assessment of evidence and the careful application of robust research methodologies. In practice, however, a range of behavioural biases and social influences, as well as opportunistic behaviours, have the potential to distort expert judgements. This paper will explore some of the economic, social and psychological influences that might distort the provision of objective advice to policy-makers. It will explore some of the ways in which socially driven bias can distort the evolution of knowledge and explore some policy implications, including ways to ensure that expert advice is devised and applied in the most robust and objective ways possible.

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Introduction

In the era of post-truth politics, scepticism about experts abounds. The UK's vote to leave the EU and Donald Trump's victory over Hillary Clinton in the 2016 US election, both have been interpreted as a public reaction to the influence of experts and elitists from those who have been excluded from economic and financial success and/or most affected by the fall-out from the 2007/2008 financial crises. In the run-up to the EU referendum, UK Member of Parliament and former Cabinet Minister – Michael Gove captured some of the skepticism, asserting: "I think people in this country… have had enough of experts". UK Labour MP Gisela Stuart similarly observed "there's only one expert and that's you, the voter". Nigel Farage, former leader of the UK Independence Party and new friend of Donald Trump, alleged that supposedly independent experts are often bank-rolled by governments, so are not as impartial as they claim. All three reminded voters of the mistakes that the "so-called experts" had made.

Whichever side one takes on these political divides, if the modern fashion is to allow subjective, partisan opinions to trump expert advice, what are the likely implications? Is it wise to be so mistrustful of experts? Expert advice is irreplaceable. Scientific experts and academics play a crucial role in developing new findings and insights to help inform policy, with implications across the range of human activity – from health and environmental policy through to competition policy, consumer protection and financial regulation – to name just a few. But to what extent are experts objective and impartial? Is their advice really impartial and unbiased, based around a cool and calculating objective assessment of evidence, after the careful application of robust research methodologies? In practice - uncertainty, insufficient information, unreliable data or flawed analysis can limit the expert's ability to untangle the truth, and make it difficult for the policy-maker to assess the extent to which expert advice is reliable. Robust statistical methods, careful experimental design and clear hypotheses can guide the expert but impartial advice is also compromised by a range of economic, behavioural and socio-psychological constraints, some of which may be beyond the expert's conscious control. Heuristics, biases and social influences driving experts can have significant negative consequences for the public, especially if misleading research findings are used to guide public policy.

This paper will explore some of these influences on experts' judgement. In Section 2, some of problems around information, risk and uncertainty are outlined; in Section 3, key economic and socio-psychological constraints are explored. Policy implications and solutions are suggested in Section 3, focussing on how we can ensure that expert advice is devised and applied in the most robust and objective ways possible.

Information, risk and uncertainty

Risk and uncertainty is an unavoidable problem, especially for the scientific research that backs up expert judgement because it is about investigating novel, poorly understood phenomena. When information is scarce, a situation is profoundly uncertainty, and/or we have had no prior experience of an event or phenomenon, we cannot quantify the risk of one event versus another. Frequency ratios capturing the incidence of similar events in the past are of no use when there have been no similar events in the past. Given uncertainty, it is not possible to tell before the fact whether experts are right or wrong. It is not like we have given them a difficult mathematical problem which we can double check ourselves using a computer or calculator. With scientific research and expert advice – there is no way to know what the truth might be, and that is why we need experts to find it. And we can only judge expert judgements with the benefit of hindsight, if at all. This is a Catch-22: we need expert evidence to judge expert evidence.

An example of how policy-makers confront these problems of uncertainty and poor information affecting expert advice is the work of the Hazardous Substances Advisory Committee (HSAC) – an advisory committee to the UK's Department for Environment, Food and Rural Affairs. This committee focuses on another complication arising from uncertainty – the difference between a risk and a hazard. Hazards exist, they are there – but if we know where they are, we can avoid them and thereby minimize our risk. The problem comes in knowing what and where the hazards are. Scientific experts on HSAC – including a range of toxicologists, environmental scientists and biochemists, as well as social scientists – assess evidence to help to inform the UK's regulatory policy with respect to chemicals harmful to the environment and human health. Often a key constraint is that they are asked to provide advice around the likely environmental impacts of hazardous substances such as endocrine disruptors, antiobiotics and nanomaterials – often we do not know too much about these substances and their long-term impacts, especially for innovative technologies such as nanomaterials. HSAC has therefore devised a structure for assessing the quality of evidence when information is scarce and uncertainty is endemic –spanning not only the usual scientific evidence around experiments and field observation, but also including computational modelling and anecdotal evidence (Collins et al. 2016). For experts used to analysing large data sets, the latter would seem like an anathema but when experts are facing fundamental uncertainty the types of evidence they might use must expand accordingly. If we are forced to rely on anecdote, we need to understand what distinguishes good anecdotal evidence from bad anecdotal evidence: anecdotes that are corroborated across a range of sources are more reliable than single anecdotes, for example.

Economic and socio-psychological constraints

The problems of poor information, risk and uncertainty are not about the fallibility of individuals or even differences between individuals – either in terms of their individual differences and characters, and/or their susceptibility to biases and social influences. Once we introduce these additional constraints – which reflect the characters of the experts not the nature of the evidence – the opportunities for mistakes and misleading guidance increase significantly.

Individual differences

Individual differences seem to play a role, including in terms of innate ability to make judgements about uncertain futures. Philip Tetlock conducted a study which showed that, in forecasting uncertain future events, most experts are only just better than an ordinary person guessing at random (Tetlock 2006). In a second study, however – a collaboration with Dan Gardner – he showed that some particular individuals – experts or not – are "super-forecasters" who have a particular aptitude for forecasting (Tetlock and Gardner 2015). What ideal characteristics might enable these super-forecasters to predict so well? In a complex world, we need experts who are able to understand and analyse a wide range of evidence. Do we need experts who can cover a broad range, or experts who know a narrow field very well? Linking to Isaiah Berlin's distinction between the fox-types who have a wide but relatively superficial knowledge, and the hedgehog-types who have a deep but relatively narrow knowledge, Tetlock (2006) argues that we may prefer to be advised by foxes – who know many little things, can draw on an eclectic range of evidence and are able to improvise relatively easily when evidence shifts. The hedgehogs, who know one area very well and focus on one tradition may be too inclined to impose formulaic and inflexible solutions.

Conventionalists versus Mavericks

Real-world examples of controversial expert characters illustrates how important it is to have experts who are prepared to argue against the consensus –but that in itself does not guarantee that experts bring us closer to the truth. When experts are wrong this may be intentional or unintentional. When experts are right, we may not know at the time. Galileo embraced the Copernican view of a heliocentric solar system –it turns out that he was correct. Diedrick Stapel is a Dutch sociologist now notorious for fabricating his experimental evidence supporting his hypotheses about the links between disordered, littered environments and discriminatory behaviour and deprivation. He was able to publish his fabricated findings in the top international science journals because the findings were inherently novel. It would have been difficult for the referees of his journal submissions to know, at the time, that he was operating opportunistically. Andrew Wakefield - the doctor responsible for raising public fears about health consequences from the measle, mumps and rubella (MMR) vaccines was allegedly ex-

ploiting the situation for his own commercial advantage, but, as for Stapel, it was difficult for an impartial outsider to judge the quality of his evidence. But there are key examples of the opposite too – scientists initially greeted with scepticism who later turned out to be right – for example Barry Marshall and Robin Warren, who were responsible for identifying that stomach ulcers, associated with stomach cancer, were caused by a bacterium and not by lifestyle choices and stress. And there are other experts whose judgements we can still not assess with much objectivity: Waney Squier, the medical doctor and expert witness at shaken baby syndrome trials was struck-off by the UK's General Medical Council (GMC) for allegedly distorting evidence in favor of defendants. In defending their decision, the GMC has argued that whether or not Dr Squier is correct is not the point; her mistake was deliberately to distort the evidence to support her own position. Assessing whether or not she distorted evidence, and/or in a mendacious way, is very difficult to assess – and her case remains controversial. A large number of experts have supported her position and criticised the GMC for ostracising her. For Dr Squier – the jury is still out.

Motivating experts

In assessing the different types of experts – whether those who were lauded for promulgating a false hypothesis, vilified for presenting hypotheses which have turned out to be correct, and those for whom we do not have enough information to decide – it is likely that any or all of them were driven by a complex and sometimes perverse set of incentives and motivations.

Identifying the truth in expert opinions becomes even more complex when individual incentives are taken into account. Academic incentives do not align with either testing the robustness of other scientists' results via replicating their studies, or from publishing negative findings. On one hand, publication is much more likely if research outlines unexpected or unusual findings, identified via a novel study. On the other hand, strong challenges to existing opinion can meet with substantial resistance – especially via the journal refereeing process.

Some of this can be understood in terms of the motivations driving experts. Experts are likely to be driven not just by their search for truth, but also by the consequences for them, as individuals, when they publish. Behavioural economics has insights to add in identifying the range of intrinsic and extrinsic motivations that drive experts and their research. Intrinsic motivations cover internal drives and incentives – such as pride in a job done well, enjoying a task or intellectual challenge for the sake of it. We would hope the major intrinsic motivation driving experts is to uncover the truth and to understand complex phenomena. But these intrinsic motivations must be balanced against extrinsic motivations – the external rewards which experts earn – either in terms of salary, promotion, social rewards or public attention. With high profile research, experts can build their professional reputation, and impress their bosses and peers.

Linking to the insights about mavericks and contrarians from above, reputations survive better when we agree with a group. Dissenters can suffer disproportionate losses if they disagree with a dominant paradigm. Often experts, including academic experts, have invested a great deal of their career to developing a particular methodology and/or defending a particular theory or hypothesis – the sunk costs they have invested make them less inclined to change their view. It will also make them more likely to resist change and dissent. There can be large costs in terms of career if an expert developing their career works hard in contradicting the consensus approach. Supporting the existing view will be helpful to them in building their research career, at least in the short-term –but less likely to lead to an exceptional career in the long run, in terms of original research and insights. This could be interpreted as a type of externality. Alternatively, experts who focus on the short-term career rewards from supporting a consensus view regardless of the evidence, may be exhibiting a form of present bias if they are disproportionately concerned with promotion in the short-term. It is difficult to separate this from genuine opportunism however.

Heuristics and bias

Heuristics and bias are the focus of behavioural public policy analysis, as explored in Thaler and Sunstein (2008) and Oliver (2013), but these ideas are not widely applied in the analysis of the flow of information and research findings between experts and policy-makers. The influences on experts outlined above are largely objective and conscious. With uncertainty, some of the distortions are harder to detect and more intractable. More complex styles of decision-making can make it harder to separate good scientific practice. Many behavioural economists have focused on the role played by heuristics in our decision-making. Heuristics – quick decision-making rules – are often helpful to us when we want to decide quickly in uncertain situations (Gigerenzer and Todd 1999). Heuristics help us to economise on the time and effort often involved in complex decision-making, and in this sense are rational. But, according to Tversky and Kahneman (1974) the problem with heuristics is that they can lead to systematic mistakes and bias, especially if new evidence fits with our personal biases. One bias we have is towards favouring seemingly esoteric and complex evidence – perhaps adopting the view that "if it is hard, it must be right". Weisberg et al. (2008) conducted an experiment in which they asked non-experts to assess the quality of evidence and they found that their subjects were more likely to accept bad explanations when apparently supported by irrelevant neuroscience, and they were less inclined to believe good explanations if they were not supported by irrelevant neuroscience.

Another illustration of the biases that lead people to favour false academic analysis is the Sokal hoax – physicist Alan Sokal submitted a deliberately nonsensical research paper "Transgressing the Boundaries: Towards a Transformative Hermeneutics of Quantum Gravity" to a cultural studies jour-

nal. It fitted well with reviewers' existing views of the world so it passed through the journal's refereeing process without problems. The Sokal Hoax illustrates a key bias that affects experts (as well as others) – confirmation bias. Confirmation bias emerges when people process and interpret evidence in ways that support their existing view of the world. Experts are susceptible to genuine mistakes and usually realize it – but they may be inclined to check for mistakes more carefully if their initial findings conflict with their prior opinions – their prior opinions will be accorded excessive weight. A similar problem emerges in experts judging each other's findings. Another behavioural bias related to the confirmation bias is the anchoring-and-adjustment heuristic (Tversky and Kahneman 1974). Many of our decisions are made around reference points – we anchor and adjust our decisions relative to the status quo in which we find ourselves. We are naturally biased towards popular existing opinions or our previous hypotheses.

Social influences

Specific forms of social influence connect with insights about heuristics and bias, including herding and groupthink, emerging when an individual's beliefs coincide with others' opinions – perhaps because others, opinions and judgements serve as a type of social reference point.

Solomon Asch demonstrated these types of group influence using his "line experiments". Experimental participants could be tricked into agreeing with obviously wrong answers from others (Asch 1956). Participants were collected with a group of, for example, 19 experimental confederates. They were all asked to judge the length of lines and the 19 confederates gave obviously wrong answers and, as a consequence, a substantial proportion of genuine experimental participants were tricked into giving wrong answers too. This finding has been widely replicated and interpreted in a range of ways – for example Robert Shiller argued that this does not contradict rationality because the participants may have rationally judged that it was more likely that they were wrong, than that 19 others were wrong – and this persuaded them to change their minds (Shiller 1995).

More worryingly, leaders of research teams can exploit junior researchers' obedience to authority. Allegedly, Diederik Stapel was able to sustain his academic fraud because others around him felt unable to challenge him, especially as he reportedly responded aggressively when others, especially PhD students and postdoctoral researchers, flagged concerns about his reported data and findings. A complex range of influences would have made a junior researcher disinclined to argue – the socio-psychological power of an authority figure but also a balancing of the benefits and costs of dissenting. Whistleblowers who make public their concerns about anything from imperfect to fraudulent academic practices are risking their careers and all the personal capital they have invested in building their research networks.

Policy implications and solutions

Economic incentives and human psychology will have an impact on any decision-making, and this is true for experts too. We cannot expect our experts to be completely impartial, analyzing evidence in a robotic way but we can implement mechanisms to ensure that they are forced and/or enabled to be as objective as possible. Two dimensions are crucial: first, improving the mechanisms via which these research findings are channeled through to policy-makers; and second, improving the quality of policy-relevant research. On expert scientific committees that are the conduit between experts' research and public policy making, increasing the diversity of membership will reduce the likelihood of groupthink and limit the influence of consensus opinion. HSAC, as mentioned above, is setting a good example in this sense, with its diverse committee membership. In improving the quality of experts' research, it is essential that all relevant research is reported publicly and is accompanied by robust and objective statistical analysis, assessed via a robust critical review process. Anonymity of journal submissions and blind reviewing are important policies for academic journal submissions. Those strategies are already acknowledged as essential to best practice. Other solutions would include re-thinking the incentives. In academic research, the "public or perish" imperative is strong and currently researchers publish if their findings are novel and significant. Increased emphasis on the value of replicating and verifying the findings from others, including using meta-analysis (for example, as outlined by Hunter and Schmidt 2007) and/or more focus on publishing negative findings would ensure a wider diversity of information available to guide policy. Increasingly, learned societies are realizing the value of these strategies, as demonstrated in the emergence of new policies, for example the Association for Psychological Science's "Registered Replication Reports" policy, and new types of journals – including the Journal of Negative Results and Preclinical Reproducibility and Robustness.

References

Akerlof G. (1970), The market for 'lemons': quality uncertainty and the market mechanism. *The Quarterly Journal of Economics* 84 (3):488-500.

Asch, S.E. (1956). Studies of independence and conformity: A minority of one against a unanimous majority. *Psychological Monographs* 70(416).

Baddeley, M. (2013). Herding, social influence and expert opinion. *Journal of Economic Methodology* 20:37-45.

Baddeley M. (2015). Herding, social influences and behavioural bias in scientific research. *European Molecular Biology Organisation Reports* 16(8): 902-5.

Collins C.D., Baddeley M., Clare G., Murphy R., Owens S. and Rocks S. (2016). Considering evidence: The approach taken by the hazardous substances advisory

committee in the UK. *Environment International* 92-93: 565-68.

Dolan P., Hallsworth M., Halpern D., King D., Vlaev I. (2010). *Mindspace – Influencing behaviour through public policy*. London: Cabinet Office / Institute for Government.

Gigerenzer G. and Todd, P.M. (1999). *Simple heuristics that make us smart*. New York: Oxford University Press.

Hunter F.L. and Schmidt J.E. (2015). *Methods of meta-analysis: Correcting error and bias in research findings*. London: Sage Publications.

Keynes, J.M. (1936). *The general theory of employment, interest and money*. London: Macmillan.

Oliver, A. (2013). *Behavioural public policy*. Cambridge: Cambridge University Press.

Shiller, R.G. (1995). Conversation, information and herd behavior. *The American Economic Review* 85(2): 181-85.

Sokal, A. (2000). *Sokal Hoax: the sham that shook the Academy*. Lincoln, NE: University of Nebraska, 49-54.

Surowiecki J. (2004). *Wisdom of crowds – Why the many are smarter than the few*. New York: Anchor Books.

Tetlock P.E. (2006). *Expert political judgement: How good is it? How can we know?* Princeton: Princeton University Press.

Tetlock P.E. and Gardner D. (2015). *Superforecasting: the art and science of prediction*. New York: Random House.

Thaler R. and Sunstein C. (2008). *Nudge: Improving decisions about health, wealth and happiness*. Yale: Yale University Press.

Tversky A. and Kahneman D. (1974). Judgement under uncertainty – heuristics and bias. *Science* 185:1124-31.

Weisberg M. (2013). Modelling herding behavior and its risks. *Journal of Economic Methodology* 20:6-18.

Weisberg D.S., Keil F.C., Goodstein J., Rawson E.. Gray J.R. (2008). The seductive allure of neuroscience explanations. *Journal of Cognitive Neuroscience* 20(3): 470–477.