Making policy decisions under plural uncertainty: responding to the COVID-19 pandemic

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Abstract In this paper, I contend that the uncertainty faced by policy-makers in the COVID-19 pandemic goes beyond the one modelled in standard decision theory. A philosophical analysis of the nature of this uncertainty could suggest some principles to guide policy-making.

Keywords Decision-making · Uncertainty · Policy-making

1 Introduction

The insurgence of the COVID-19 pandemic requires timely actions. From hospital re-organisation to movement restrictions and international agreements, strategical decisions are needed at all levels. But while an effective response is urgent, policy-makers have to make decisions under conditions of extraordinary uncertainty. What principles could guide decision-making in these circumstances? Of course, decision theory provides important tools to make rational decisions under uncertainty. However, the uncertainty faced by policy-making in response to the pandemic goes beyond the uncertainty modelled in standard decision theory. A philosophical analysis of the nature of this uncertainty may provide insights on decision-making and on the relationship between science and policy.

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2 Plural uncertainty

Decision theories structure decision problems in formal models. Typically, in such models the agent has to choose between some available acts, according to the utility she attaches to their expected consequences and to the probability she assigns to the events on which these outcomes depend. All the uncertainty faced by the agent is captured by the probability distribution—or lack thereof (Bradley & Drechsler, 2014; Hansson, 1996).

However, I believe that this picture is not adequate to capture uncertainty in extraordinary events like the COVID-19 pandemic. In these contexts, the uncertainty concerns not just probabilities, but all the components of a standard decision model.

To begin with, as a global pandemic is a new event in our lifetimes, policy-makers are exploring actions that are outside of their ordinary protocol. This means that decision-makers may not know their options: they have to work with an open set of acts and actively seek novel, unconsidered alternatives.

Furthermore, there are many unknown empirical aspects to the current situation, which means that it is hard to identify all the factors on which the outcome of these acts will depend. Even with the unprecedented effort of the scientific community,¹ we still lack important information about the new virus²: even more so if we consider that the pressure to produce certainty may have exacerbated the mechanisms through which local uncertainties in research processes become invisible (Star, 1985). But we also lack robust knowledge of other aspects, like the economic response to different policies or the political reactions that they will start. To illustrate, we may be uncertain whether an early, severe lock-down will be worse for the economy than a prolonged state of emergency, and whether it will lead to an increase in nationalisms or rather in solidarity: the situation comprises of several interconnected dimensions, and the novelty regards all of them.

The uncertainty over the empirical aspects spreads onto uncertainty over the identification of possible consequences: some degree of empirical knowledge is required to identify certain effects as the expected outcome of an action. Moreover, consequences as well include a variety of dimensions. Restrictive measures may have effects not only on the spread of the virus, but also on mental health, the GDP, economic inequality, personal freedom, and trust in institutions—among others.³ While we can imagine the policy to have effects on each of these dimensions, we do not know how exactly it will impact them.

Then, consequences need to be evaluated. Far from having a specific utility measure of their value, decision-makers may be unsure even as to whether they are positive or negative. Clearly there is no panacea policy: each option requires important

¹ <https://www.theguardian.com/world/2020/dec/15/the-great-project-how-COVID-changed-science-for-ever> (31/01/21).

² <https://medicalxpress.com/news/2021-01-year-coronaviruswhat-weve.html> (31/01/21).

³ For example, see Alon et al. (2020) Deb et al. (2020), and Kawohl & Nordt (2020) for impacts on gender inequality, the economy, and mental health respectively.

trade-offs. Hence, any judgement on whether the policy is overall positive depends on an evaluation of those trade-offs, and therefore on some weighing of the different effects. These trade-offs are likely to be different for different stakeholders: for instance, some trade-offs between health and the economy may impact more negatively on the youth than on the elderly, who may be more exposed to the virus while having a more secure professional life (Mueller et al., 2020). If this is so, then any assessment of such consequences requires the adoption of a non-neutral evaluative standpoint.

These considerations point to a type of uncertainty that is *plural*, as it spreads over a variety of elements of the decisions we have to make: it concerns the identification of acts, the identification and probability of events, the identification and evaluation of consequences. And yet, in the face of all this uncertainty, good decisions are as pressing as ever.

3 Facing the uncertainty

Almost trivially, when facing an uncertain decision the first thing to do should be to try and reduce that uncertainty. In this pandemic, experts and scientific committees have been widely consulted. However, evidence and model predictions can only provide information as to the empirical aspects of the situations, which are but one side of the plural uncertainty sketched above.

The identification of the relevant acts, events, and consequences to be included in the model is not an empirical issue. Evidence can help to understand the actual feasibility of some policy options, but it cannot determine the list of acts. It can hint to what could happen, but it cannot decide what eventualities are relevant for the decision. And then, the evaluation of these eventualities and of their trade-offs requires the adoption of a non-neutral standpoint. These are unavoidable aspects of the decision-making process that cannot be settled with evidence.

However, understanding the limits of evidence does not imply that there is no principled way to make decisions under plural uncertainty. Nor should the severity of the uncertainty be a reason for inaction, as it has happened for instance with climate change or tobacco (Oreskes & Conway, 2011). Instead, the uncertainty itself may suggest some principles to guide policy-making, as those I propose below.

First, policy-making under plural uncertainty should be adaptive, to accommodate changes as the situation develops (Walker et al., 2001). This means that policies should have substantial room for feedback loops, to adjust their course of action as new information comes up.

Second, the presence of trade-offs in the evaluation of consequences suggests the need of hedging and mitigating measures. Mitigation aims at the reduction of the negative consequences that are sure to occur, while hedging aims at the reduction of the impact of those that might come up (Helgeson, 2020). Implementing a system of unemployment benefits while imposing a lock-down is a mitigating strategy. Expanding the ICU capacity while reopening some activities is hedging against the possibility of a new wave.

Hedging and mitigating are also helpful to buy the time necessary to dissipate more empirical uncertainty. Science needs time to provide reliable data and usable models. The more we slow down the wave of a crisis, the more we are able to attune our response to the circumstances.

Finally, given that any evaluation comes from a non-neutral standpoint, the policy-making process should involve as many stakeholders as possible. In this complexity, engaging with a variety of viewpoints is crucial: even more so since the impact of the pandemic and of its responses is likely to hit disproportionately communities (Paton et al., 2020; Tai et al., 2020) that are left out of knowledge production by the exclusionary nature of expertise (Hamilton & Sarathy, 2018) and academic institutions (Gillborn & Mirza, 2000).

4 Conclusions

Policy-making in response to the pandemic happens under uncertainty that seems to go beyond what is traditionally modelled in decision theory. We are uncertain about which options we have. We are also uncertain about what is the case, but this empirical uncertainty is particularly complex—and it leads to uncertainty on the description of the relevant events and consequences. Finally, we are uncertain on how to evaluate the consequences, and any such evaluation comes from a non-neutral standpoint. In these circumstances, no amount of evidence can resolve all our uncertainty. Yet, an analysis of the nature of this uncertainty may suggest some principles to guide policy-making. Future research in philosophy and neighbouring disciplines could apply this framework and its implications to concrete instances of COVID-19 response, as well as to any policy-making context presenting similar traits of uncertainty.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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