

Valuing Public Preferences on Complex and Unfamiliar Environmental Bads: The case of metals and chemical substances in consumer products in the UK

Joel Atherton¹, Giles Atkinson^{1,*}, Davide Contu², Stavros Georgiou^{3,4} and Susana Mourato¹

¹ Department of Geography and Environment, London School of Economics and Political Science, London, UK

² Canadian University Dubai (*from Aug. 2019*)

³ Chemicals Regulation Division, Health and Safety Executive (HSE), London, UK

⁴ Applied Economics, Marketing and Development Group, School of Agriculture, Policy and Development, University of Reading, Reading, UK

*Corresponding author

Abstract

How and when to tackle possibly harmful impacts on human health and/ or the environment from ever more complex, and sometimes novel, hazardous substances is an increasing challenge for regulatory agencies whether at national or multilateral level. Many of the substances that are precursors to harms being addressed are ubiquitous in products that people consume in daily life. In some cases, this is because of functional use (e.g. metallic lead in a range of basic consumer goods such as clothing, stationary and household products). In other cases, the substance itself addresses some protection in other domains of regulatory concern (e.g. flame retarding chemicals used in household furniture and so on).

In principle, cost-benefit analysis (CBA) is one important means of arbitrating debates about regulation of these substances – and its stringency – given that it seeks to couch policy benefits in ways which can be readily compared to policy costs. In practice too, a range of agencies – e.g. the European Chemicals Agency, ECHA, in the European Union, and the Environment Agency in England – are using CBA routinely to help inform decisions about regulatory policy and implementation. Nevertheless, this is a genuine challenge in a context where little is known about the exact policy impacts: that is perhaps because of what in reality is low-level exposure, or the substance itself being relatively novel and impact pathways being complex, as well as currently largely unknown, as a practical matter. While this points to the importance of developing an adequate scientific basis, given existing institutional use of CBA already in these settings it arguably points as well to the need to gather economic evidence which examines how the public considers these uncertainties especially given that they ultimately will bear the costs of policy (in)action such as e.g. in the form of prices for consumer products or household water bills.

In this paper we evaluate three different, but related, valuation domains or contexts where harmful substances arise in everyday consumer products:

- *Lead* – where the primary impact of interest is possible exposure via ingestion from small children (e.g. via mouthing) with resulting possible consequences for IQ levels.; *Other metals* – where degradation and/ or disposal of consumer products results in these substances entering the water environment;
- *Persistent chemicals* – (long-standing as well as novel) flame-retarding substances where degradation and/ or disposal of consumer products results in these substances entering the water environment.

We do so by utilising three original stated preference studies with a combined (representative) sample of almost 5,000 respondents drawn from the adult population of the United Kingdom. While these are distinct studies (respectively, the initial two are dichotomous choice contingent valuation studies and the third is a discrete choice experiment) we show how our findings can be used to distil consistent evidence and narrative on this emerging class of regulatory challenge.

In doing so, we make a number of contributions. While in one sense our data can simply be used to generate policy relevant estimates of willingness to pay (WTP) which can be used to frame practical estimates (and ranges of estimates) for policy benefits, we seek also to probe more deeply WTP responses – and what drives these – for at least two reasons:

- First, we scrutinise how the public is prepared to bear costs of stronger regulatory measures (or implementation of existing regulations) for environmental and health protection where policy impacts and benefits are uncertain, often substantially so, and given that this uncertainty is likely to persist for a considerable time. As well as controlling for policy problem familiarity, we utilise extensive data on respondents' appetite for, and attitude towards, risky decisions as well as understanding of risks to contextualise, and condition, WTP responses.
- Second, and as previously mentioned, uncertainty in e.g. the physical evidence base is likely to endure, and policy and implementation within regulatory agencies inevitably is running ahead of what is known. This apparent haste is understandable, and indeed consistent with other principles guiding decisions such as 'precaution'. Nonetheless we also use our findings to evaluate whether existing institutional use of economic evidence and especially CBA in regulatory agencies (such as the Environment Agency, in England) is also running ahead of public opinion for the policy problems our studies examine.