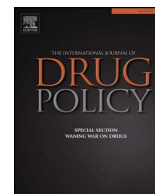




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## A new approach to formulating and appraising drug policy: A multi-criterion decision analysis applied to alcohol and cannabis regulation

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### ABSTRACT

**Background:** Drug policy, whether for legal or illegal substances, is a controversial field that encompasses many complex issues. Policies can have effects on a myriad of outcomes and stakeholders differ in the outcomes they consider and value, while relevant knowledge on policy effects is dispersed across multiple research disciplines making integrated judgements difficult.

**Methods:** Experts on drug harms, addiction, criminology and drug policy were invited to a decision conference to develop a multi-criterion decision analysis (MCDA) model for appraising alternative regulatory regimes. Participants collectively defined regulatory regimes and identified outcome criteria reflecting ethical and normative concerns. For cannabis and alcohol separately, participants evaluated each regulatory regime on each criterion and weighted the criteria to provide summary scores for comparing different regimes.

**Results:** Four generic regulatory regimes were defined: absolute prohibition, decriminalisation, state control and free market. Participants also identified 27 relevant criteria which were organised into seven thematically related clusters. State control was the preferred regime for both alcohol and cannabis. The ranking of the regimes was robust to variations in the criterion-specific weights.

**Conclusion:** The MCDA process allowed the participants to deconstruct complex drug policy issues into a set of simpler judgements that led to consensus about the results.

### Introduction

Substance use can cause harms to individuals and societies, but opinions differ regarding how these harms are best reduced. Such opinions will also reflect how we view trade-offs, as policies need to balance the harms of use against negative consequences of restrictive

policies and the pleasures and benefits that the majority of users may claim to experience. Over time, and across regions, policies – even for the same substance – have ranged from strict prohibitions criminalising production and consumption to relatively unregulated commercial markets. In recent years, policy changes in US states, Uruguay and Canada have fuelled a growing debate on whether cannabis supply and

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David Nutt	Professor of Neuropsychopharmacology, Imperial College London
Larry Phillips	Emeritus Professor, London School of Economics, and Director, Facilitations Ltd

**Panel 1.** Facilitators and participating experts in the drug policy MCDA workshop.

consumption should be legalised and, if so, how strictly it should be regulated (Caulkins & Kilmer, 2016; Hawken, Caulkins, Kilmer, & Kleiman, 2013; Room, 2014; Uchtenhagen, 2014). The appropriate balance between “free market” and “government control” also remains an issue for alcohol, with a current example being the debate over minimum unit pricing (Holmes et al., 2014; Stockwell, Auld, Zhao, & Martin, 2012). Public health arguments are frequently emphasised in these discussions (Hall & Degenhardt, 2009; Hall & Lynskey, 2016; Room, Babor, & Rehm, 2005) with a particular focus on adolescent use (Hasin et al., 2015; Simons-Morton, Pickett, Boyce, ter Bogt, & Vollebergh, 2010), while other concerns include social consequences (Klingemann & Gmel, 2001; Laslett et al., 2011) and crime and criminalisation (Csete et al., 2016a; MacCoun & Reuter, 2001).

Identifying an optimal policy for a substance involves three conceptually distinct steps: I) defining the available policy options, II) defining the outcomes of importance and the criteria against which policies should be evaluated, and III) assessing each policy option against each criterion, taking into account how the policy will influence the relevant outcomes.

This is a cognitively complex task: criteria need to reflect the concerns of a broad set of policy stakeholders including not just health and legal experts but also people who use drugs, their neighbours, and the broader national and international society. Judgments regarding the impact of regulatory regimes on outcomes involve assembling knowledge from a broad set of disciplines including medicine, economics, criminology and sociology. Trade-offs between different outcomes require the combination, weighting and integration of judgments across all concerns.

Faced with complex issues, individuals will often answer a simpler substitute question or problem using mental rules of thumb (heuristics) instead, usually without noticing the substitution (Kahneman, 2011). Given the complexity of drug policy, this means that surveys of people's opinions are unlikely to uncover well-constructed, informed preferences: the responses will most likely ignore choice options, disregard most concerns or outcomes, depend on prior beliefs and easily available information, and attempt to avoid facing trade-offs (Payne, Bettman, Schkade, Schwarz, & Gregory, 1999). In addition, people's stated beliefs regarding the effects of different drug policies may themselves serve primarily as expressions of cultural and political identity (Kahan, 2016a, 2016b). As a result, individuals are likely to express policy views

that are sensitive to decision-irrelevant factors, and potentially based on false beliefs regarding both the consequences of drug use (benefits, risks and harms) and the likely consequences of drug policy regimes.<sup>1</sup>

Structured decision making processes can be thought of as tools developed to help individuals and groups develop “well-constructed preferences.” These are defensible, considered judgments arrived at through a structured, systematic process designed to assist decision-makers in clarifying options and choice criteria, breaking complex judgments down into simpler issues, and helping participants access and integrate relevant information.

This study aimed to develop an analytical framework to describe, assess and discuss different drug regulatory regimes for a Western context (Western Europe and North-America). To do this, we convened a decision conference over two one-and-a-half day sessions to run a multi-criterion decision analysis (MCDA), an established and well-researched decision making process (Phillips, 2007) previously applied to subjects ranging from nuclear waste management (Morton, Airoldi, & Phillips, 2009) to the risk-benefit ratio of prescription drugs (Hughes et al., 2016). Participants were experts on the harms of drugs, addiction, criminology and drug policy. Employing the MCDA process, the participants defined policy options and assessment criteria, and evaluated each policy option on each criterion for different drugs. By combining data and expert judgments to assess real and hypothetical policy states, this new approach can contribute to the literature on comparative policy analysis (Ritter, Livingston, Chalmers, Berends, & Reuter, 2016).

## Methods

### Study design

Expert participants with varied relevant backgrounds (Panel 1) attended two MCDA sessions (September 10–11th 2015, January 20–21st 2016) to compare alternative drug policies in a Western context. The sessions were facilitated by Lawrence Phillips, an independent specialist in decision analysis modelling, and David Nutt, a medical researcher, and employed decision making software (LSE/Catalyze, 2016) to build, refine and score a model which was projected on a screen in full view of all participants.

<sup>1</sup> Arguably, government decision-making suffers from similar issues, with drug policies ignoring established research (Rogeberg, 2015) unless it conforms to implicit and unstated assumptions (MacCoun & Reuter, 2008). Stevens (2011) provides an ethnographic study of how “evidence” is used selectively to support persuasive policy stories in line with unstated ideological principles – see also Stevens and Measham (2014).

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