

Participant perceptions of different forms of deliberative monetary valuation: Comparing DMV and DDMV in the context of regional marine planning

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ABSTRACT

As conceptual and theoretical discussions on environmental valuation approaches have advanced there is growing interest in the impact that valuation has on decision making. The perceived legitimacy of the outputs of valuation studies is seen as one factor influencing their impact on policy decisions. One element of this is ensuring that participants of valuation processes see the results as legitimate and would be willing to accept decisions based on these findings. Here, we test the perceived legitimacy to participants of two approaches to deliberative monetary valuation, Deliberated Preferences (DP) and Deliberative Democratic Monetary Valuation (DDMV), in the context of marine planning in the Clyde estuary in Scotland. We compare and contrast DP and DDMV and track their emergence as responses to critiques of conventional stated preference approaches. We then present the results of our case study where we found that DDMV produced valuations that were perceived as more legitimate than DP as the basis for decision making by those involved in the valuation process.

KEYWORDS

Deliberative Monetary Valuation, Value Pluralism, Marine Planning, Deliberative Democracy

1. INTRODUCTION

Understanding the social value and distributional impacts of alternative policy options is a core component of good policy making (Costanza et al., 2014; Jacobs et al., 2016; Kenter, 2016b; Lienhoop et al., 2015). Assessment of social values of the environment has received increased attention since the emergence of the ecosystem services (ES) concept (Chan, Guerry, et al., 2012; Chan, Satterfield, et al., 2012; Costanza et al., 2017; Irvine et al., 2016; Kenter, Reed, Irvine, et al., 2016; Millennium Ecosystem Assessment, 2005; Orchard-Webb et al., 2016; TEEB, 2010; Vargas et al., 2017). There is also increasing attention to the perceived legitimacy of different valuation approaches (Lienhoop et al., 2015) and the impact valuations have on decision making (Costanza et al., 2017; Phelps et al., 2017; Russel et al., 2016). Conventional stated preference approaches have been widely criticised on ethical and conceptual grounds (Kenter, 2017; Lo & Spash, 2013). Recent assessments have also found that they only rarely inform actual decisions (Schlöpfer, 2016; Termansen et al., 2022).

Deliberative Monetary Valuation (DMV) was developed to address important theoretical and ethical issues raised with conventional stated preference methods. While various other authors contributed to its early conceptualisation and application, the term was introduced by Clive Spash, and his foundational work on DMV (Spash, 2001, 2007, 2008) and collaborative efforts with Simon Niemeyer (Niemeyer & Spash, 2001) and Alex Lo (Lo & Spash, 2011, 2013) continue to underpin the approach and inspire authors such as ourselves.

Most DMV research has focused on questions such as value theory, value and preference construction or formation, and political representation. However, a less well studied area of research is how DMV repositions valuation in relation to the policy making process. Instead of valuation being used to extract knowledge about preferences to feed into a technocratic tool such as Cost-Benefit Analysis, DMV can more directly embed valuations by citizens or

stakeholders within decision making institutions, which could help to improve the perceived legitimacy of valuation (Kenter, 2017). Perceived legitimacy of valuation approaches is understood to be a key determinant of the impact resultant valuations have on decision making (Lienhoop et al., 2015).

The many existing approaches to DMV can be loosely positioned between two poles: Deliberated Preferences, which integrate deliberation with standard stated preferences techniques and only encompass a limited departure from neoclassical welfare economic theory, and Deliberative Democratic Monetary Valuation (DDMV), developed out of the ‘deliberative turn’ in democratic theory and adopting alternative theories of value, organising principles, and valuation vehicles (Kenter, 2017). Deliberated Preferences approaches tend to elicit an individual willingness-to-pay, which as in conventional stated preferences methods are then aggregated to form social values. In contrast, DDMV typically seeks to establish shared social values in the form of either directly deliberated social willingness-to-pay (i.e. how much society should spend to secure the provision of an environmental good, as opposed to spending this on another social good) - or, at the individual level, ‘fair prices’ – an appropriate price to expect those in society to pay (Kenter et al., 2011; Kenter, Jobstvogt, et al., 2016; Sagoff, 1998; Szabó, 2011). In terms of empirical studies, Deliberated Preferences studies are dominant, with relatively few DDMV studies (Isacs et al., 2022; Orchard-Webb et al., 2016).

We contribute to the literature on DMV by exploring participants’ preferences between fair prices arrived at through DDMV as opposed to Deliberated Preferences, elicited through conventional individual willingness-to-pay, as a basis for environmental decision making. To achieve this, we present an empirical DDMV case study in the context of integrating natural and cultural heritage values in the evaluation of a draft marine plan in Scotland, working with the marine regional planning authority. Increasingly the perceived legitimacy of monetary

valuation amongst those impacted by policy decisions may increase the likelihood of policymakers acting on the findings of valuation studies. Participant perceptions are particularly important in participatory and deliberative decision-making institutions where those impacted by policy decisions are integrated into the decision-making process.

To our knowledge this is the first time a DDMV study has been conducted in the context of marine planning and one of the first to directly compare deliberated individual preferences with deliberative-democratically established monetary shared social values (Kenter, Jobstvogt, et al., 2016; Murphy et al., 2017; Sagoff, 2011). We also innovate in the way that fair prices were established as a percentage of council tax.

In Section 2, we consider the evolution of approaches from conventional stated preferences, through deliberated preferences to DDMV and discuss the relation between DDMV and policy making processes. We then present the empirical case study where DDMV was adapted to inform the Clyde Regional Marine Plan.

2. DELIBERATIVE VALUATION AND THE POLICY PROCESS

From stated preferences to Deliberative Democratic Monetary Valuation

A range of ethical and conceptual issues have been raised with the use of conventional stated preferences methods to underpin public policy (Kenter et al., 2015; Spash, 2007; Vatn, 2009; Zografos & Howarth, 2010). Key issues raised include poorly formed preference, challenges related to value plurality and commensurability, and the level of uncertainty associated with many public policy decision-making settings.

As environmental goods and services are complex and often unfamiliar, many people do not have stable, preformed preferences regarding them (Bartkowski & Lienhoop, 2018; Brouwer et al., 1999; Czajkowski & Hanley, 2015; Kenter et al., 2011; Kenter, Reed, & Fazey, 2016; Kenter et al., 2014; Lienhoop & Macmillan, 2007a; Macmillan et al., 2006; Szabó, 2011; Völker & Lienhoop, 2016). The neoclassical school frames this problem as one of

‘information overload’ or limited cognitive capacity, suggesting that respondents make ‘irrational’ valuations when confronted with such goods (Lo & Spash, 2013; Schläpfer, 2016).

Critics of stated preferences also dispute the underlying marginal utility theory of value as appropriate for reflecting the plurality of value types that people actually hold and express. Kenter et al. (2019) describe value pluralism at multiple levels: values can be considered plural in terms of: 1) *content*, for example, the difference between use and non-use values; 2) *value lenses*, for example, considering the difference between transcendental values (values as guiding principles and life goals) and contextual values (values as importance of something specific), or differences between instrumental, relational and intrinsic values (Himes et al., 2023; Raymond et al., 2023); and 3) *meta-lenses*, which describe different epistemic and procedural assumptions about the conception and elicitation of values. Stated preference approaches are only pluralistic in the first sense; in the second and third sense they implicitly assume that all values can be commensurate in a single value indicator, namely individual willingness-to-pay based on instrumental, substitutable, self-regarding preferences.

In addition to the theoretical difficulties, valuation as part of the policy process is complicated by inherent uncertainties over the impact of policy decisions on socio-ecological systems (Sagoff, 2011; Schultz et al., 2015; Zimmermann & Kenter, 2023). Although valuations can take place with hypothetical future states, in reality public policy makers are faced with a range of potential and uncertain outcomes. Focusing valuation exercises purely on end states also fails to account for elements of procedural justice within environmental decision making (Ravetz, 2006; Schröter et al., 2017).

These challenges to conventional stated preferences approaches mean that although they are widely used in environmental valuation studies, they remain contentious in policy making and their impact is questionable (Bartkowski & Lienhoop, 2018; Schläpfer, 2016).

Deliberative Monetary Valuation: Deliberated Preferences and Deliberative Democratic Monetary Valuation

Integrating deliberation into valuation is a potential solution to the issues outlined above, but the degree to which they are addressed differs between Deliberated Preferences and DDMV.

Deliberated Preferences sees deliberation as a solution to the issue of poorly formed preferences. These methods combine a traditional willingness-to-pay approach with a deliberative element focused on helping participants understand the goods and services being valued (Jobstvogt et al., 2014; Lienhoop & Macmillan, 2007b; Macmillan et al., 2006). In Deliberated Preferences studies, deliberation aims to induce valuers to behave as-if the preference assumptions of neoclassical economics held true, termed ‘choice economisation’ by Lo and Spash (2013). These studies sometimes include discussions of alternative types of value, but primarily focus on overcoming the preference formation issue with conventional stated preferences valuation (Lo & Spash, 2013). The majority of studies described as DMV studies fall into this Deliberated Preferences category (Bunse et al., 2015). Table 1 summarises the differences between Deliberative Preference approaches and DDMV.

Critics of the Deliberated Preferences approach suggest it does not move substantively from stated preferences, in that it retrains a focus on arriving at individual willingness-to-pay understood in broadly neoclassical terms (Christie et al., 2006; Kenter, Jobstvogt, et al., 2016; Lo & Spash, 2013; Macmillan et al., 2006; Orchard-Webb et al., 2016; Völker & Lienhoop, 2016).

The second approach to DMV, DDMV, has evolved out of the deliberative democratic tradition, in particular drawing on the Habermasian concept of communicative rationality (Habermas, 1986; Hansjürgens et al., 2017). Communicative rationality is a theory about what it means to think and act rationally under conditions of modernity. We are, according to the theory, communicatively rational in as much as our thoughts and actions emerge from successful communication with others in the relevant community. Such successful

communication relies on giving, if challenged, and receiving and accepting from others, good justifications for the normative and empirical aspects of any claims we make during discussion. The theory relies on a specific conception of what it is to give a good justification. Firstly, this conception is multifaceted, allowing that different standards of justification apply to the normative and empirical aspects of claims we make. Second, it is contextual, in that it acknowledges that offering justifications for a claim will require evoking accepted facts, norms, and values specific to a given social and historical context.

Deliberative democracy emphasises creating the conditions for such communicative rationality to guide actions. In our context, this requires providing space and opportunities for participants to develop their understanding of the value of the goods and services under question through a process of reasoned argumentation with fellow participants.

The core distinction of this approach is that no position of argumentation or line of reasoning is ruled out a priori, what Lo and Spash (2013) call ‘choice democratisation’. The ultimate arbiter is that positions are defended in terms that are reasonable and acceptable to the group, and where the criterion of communicative rationality dictates that deliberations should ideally be devoid of coercive power relations. As in Deliberated Preferences, information and expertise will be presented and discussed, though here alternative value positions will be explicitly drawn out through process design (Kenter, 2017; Kenter, Reed, & Fazey, 2016). This can include for example the discussion of broad transcendental values (Kenter, Reed, & Fazey, 2016), or the explicit evocation to reason from the ‘We’ or the citizen position (Lienhoop et al., 2015; Vatn, 2009).

Although Habermas’s concept of communicative rationality helps conceptualise legitimatisation through deliberation, it risks privileging the transcendent ‘We’ position over alternative value positions (Bartkowski & Lienhoop, 2018; Lo & Spash, 2013). What makes DDMV distinct is that no value positions are privileged; the ‘We’ is not prioritised at the

expense of the ‘I’. Communicative rationality does not oppose instrumental reasoning *per se*, as it can be included within it (Habermas, 1986). As noted by Lo and Spash (2013, p 784), “DMV should not be predefined as tied to any one value orientation or philosophy, otherwise it will soon fail to address incommensurability and value pluralism”. The same authors also warn against dysfunctional consensus, and highlight the possibility for deliberation to achieve more understanding and acceptance of each other’s values even when consensus is not achieved: “Deliberative institutions cannot make incompatible value positions compatible, but they can help them live peacefully and respectfully together” (Lo & Spash, 2011, p. 44).

Table 1. Summary of differences between Deliberative Preferences and Deliberative Democratic Monetary Valuation approaches to Deliberative Monetary Valuations.

Adapted, with permission from author, from Kenter (2017).

	Deliberated Preferences	Deliberative Democratic Monetary Valuation
Conception of deliberation	Informing preferences through group discussion	Deliberating on plural values to consider public good
Issues the approach addresses	Familiarity Weak value plurality	Complexity and uncertainty Strong value plurality Value aggregation
Means of establishing value to society	Aggregation of individual utility	Deliberation and negotiation
Value concept focus	Contextual & indicators	Transcendental, contextual & indicators
Value provider	Individual in group setting	Group
Rationality assumptions	Instrumental	Communicative
Scale of value and value indicators used	Value to individual (individual WTP or fair price)	Value to individual (fair price); Value to society (deliberated fair price)

Deliberative democratic monetary valuations in the policy process

DDMV recognises the uncertainties of environmental decision making and the inherently political nature of the valuation process (Ainscough et al., 2019; Ainscough et al., 2018; Lo & Spash, 2013; Orchard-Webb et al., 2016; Zimmermann et al., 2021; Zimmermann & Kenter, 2023). Rather than drawing an artificial divide between the valuation and the context, DDMV allows valuation to be situated in context as a point of contestation open to differing rationales and forms of reason. This is potentially a more appropriate approach to valuation in environmental decisions that are normatively loaded and where outcomes are highly uncertain – situations often described as ‘post-normal’ or calling for ‘post-normal science’ (Ainscough et al., 2018; Funtowicz & Strand, 2007).

It is for this reason that Kenter (2016a) advocates a move to a ‘public policy framing’ in DDMV studies, as an alternative to the ‘purchasing’ model implicit in many stated preferences or the ‘contribution model’ often adopted by participants (Kahneman & Ritov, 1994). The public policy framing aims to arrive at a judgement over whether the policy action is necessary, is likely to be effective and of the differential impacts it will have on groups within society (Dietz et al., 2009). Deliberated fair prices can be conceived to relate to deliberated social willingness-to-pay in that they represent individual (or household) contributions to the total; as such they may vary according to income or circumstances. For example, in our case study below, fair prices are implemented through an income-dependent council tax, where those on the lowest incomes would be expected to pay only a minimal amount.

Moving to fair prices in DDMV allows a move away from the monetary value as consumer surplus or exchange price, and the ethical concerns (and potential protesting) that such a framing provokes (Gómez-Baggethun et al., 2010; Potschin et al., 2016; Schröter et al., 2014; Silvertown, 2015). A fair price arrived at through DDMV cannot be understood as

comparable to market prices through the lens of neoclassical economics. It is instead a quantified expression of the monetary worth arrived at through group deliberation and can contain an array of different and potentially even contradictory logics. The valuation derives its legitimacy as an expression of an agreed position through inclusive process and reasoned, non-coercive debate, or a workable compromise between those who would have to live with the consequences.

3. CASE STUDY: DELIBERATIVE DEMOCRATIC MONETARY VALUATION APPROACH ADAPTED TO THE CLYDE REGIONAL MARINE PLAN

The validity of a DDMV derived fair price rests on it being seen as legitimate by those who are directly impacted by the change under discussion. Yet to date, few studies have assessed the perceived legitimacy of a DDMV-derived fair price as the basis for policy decisions as opposed to alternative stated preferences valuations (Kenter, Jobstvogt, et al., 2016).

In this study, participants first engaged in a process of learning and deliberation. They were then asked for an individual willingness-to-pay. Following this they were asked to collectively deliberate over a group fair price. We then elicited feedback from participants with regard to the different approaches. In this way were able to test the confidence that participants had in these two different implementations of DMV.

We applied our method in a case study of marine planning in the Firth of Clyde, Scotland, co-developed by the Clyde Marine Planning Partnership (CMPP), a regional government body with formal authority to adopt marine plans.

We were interested in three core questions:

- 1- To what degree did participants value delivery of a regional marine plan relative to other public goods, expressed as an individual willingness-to-pay and a group deliberated fair price?

- 2- Which valuation, if any, did participants have more confidence in as the basis for public policy making, an individual willingness-to-pay or group deliberated fair price?
- 3- What types of arguments were expressed through group deliberation and how might these explain the difference in confidence between the two value articulations?

In adapting DDMV to the policy process, we undertook a valuation of a draft marine plan in its entirety based on the impacts the plan was predicted to have on various social, economic, and environmental metrics. The plan under study was the pre-consultation draft of the Clyde Regional Marine Plan. This draft was prepared by CMPP over an 18-month period. The Scottish Government published a National Marine Plan in 2015 covering all activities under Scottish jurisdiction within its territorial waters. This plan is intended to inform the creation of 11 regional marine plans around Scotland's coast, with the Clyde and Shetlands regions acting as pilots before the model is expanded to other areas. The exercise took place after the pre-consultation draft was published.

The study was designed to present a representative public panel with the Plan and its likely impacts on a range of environmental, social, and economic metrics, before leading participants through a series of deliberative exercises to arrive at a valuation for the implementation of the Plan. Participants were asked to value the additional benefits of the Plan as compared to a business-as-usual scenario where no plan is implemented.

Preparation work

The CMPP is the statutory planning body for the Clyde Marine Region and includes local authorities, business representatives, community groups and statutory and independent nature conservation bodies (see Map 1 for map of the Clyde Marine Region). The planning process began with a baseline assessment of environmental and socio-economic status of the Region (The Clyde Regional Assessment). From this data, the CMPP developed a pre-consultation

draft plan including an overall vision for the Clyde, core aims and sets of general and sectoral objectives and policies. This plan was published for public comment, with feedback used to inform the creation of a draft plan for formal consultation. It was the pre-consultation draft that was taken as the basis for the valuation exercise. Our study did not have a formal status within the planning process but was conducted in coordination with and with support from CMPP – for example, the specific locations of the work were chosen to cover places that were not previously covered by other public dialogues (Phillips et al., 2018).



Map 1. Map of the Clyde Marine Region.

To help workshop participants understand the impact of the plan on the Clyde region, an expert assessment was undertaken to predict the status of a number of indicators in scenarios in which the plan had or had not been implemented over 10 and 30 year time horizons. These

indicators were selected based on topic sheets prepared by the CMPP drawing from the Clyde Regional Assessment. A description of the expert assessment process can be found in Appendix 1 and the result of this process as they were presented to participants can be found in Appendix 2. The economic activities and cultural heritage features were expressed as graphs and maps and are not included in the table below. One topic sheet ‘Clean and safe’ was removed, as all indicators are in a relatively good status and the Strategic Environmental Assessment (SEA) showed minimal impact of the plan.

Workshop logistics and audience selection

Participants should be selected to represent the social demographics and range of viewpoints towards the issue under investigation (Goodin & Dryzek, 2006). Two valuation workshops were conducted in the Clyde region in November 2019, one in a rural and one in an urban area. Participants were recruited by an independent recruiting agency to reflect the age, gender, and education-attainment make-up of the local area. Each workshop was half a day long, had 14 or 15 participants and was facilitated by members of the research team.

Facilitation followed established best-practice, including diverse ways of avoiding power dynamics, including addressing dominance of individuals and effective engagement of less vocal participants through tools such as structured go-arounds (Isacs et al., 2022).

Participants were given a significant monetary incentive to take part in the workshops to avoid self-selection bias. During recruitment, it was made clear to participants that this was primarily a research exercise, though the CMPP were aware of the work and would be presented with the results. The research nature of the work was reiterated to participants at the start of the workshops.

Workshop design

The workshop design was based on the Deliberative Value Formation (DVF) model (Kenter, Reed, & Fazey, 2016). The DVF model provides a theoretical and methodological foundation

for deliberative valuation based on an understanding of key potential outcomes and factors that influence the process towards those outcomes based on social-psychological and deliberative theory and practice. Following an introductory presentation on the regional marine planning process and the purpose of the workshop, participants were taken through the following phases:

Prioritisation

Following a warmup exercise requiring participants to recall a favourite memory or place in the Clyde, they were asked to vote for their top five transcendental values (guiding principles and life goals; Kenter et al. (2015)) from a pre-prepared list. These were compiled and the facilitator led a discussion on the top values as identified by the group.

Participants then separated into groups of 7 or 8 to undertake a cultural heritage mapping exercise. They were presented with a map of the Clyde region and asked to mark places of particular cultural significance to themselves and their communities.

Following the mapping exercise, participants were familiarised with the planning process through a presentation and the use of an informative video created by the CMPP. This presentation introduced the Clyde Regional Assessment and the topic sheets including indicators of environmental, economic, and social aspects of the Region. The next task was a prioritisation exercise, where groups were asked to deliberate over and then select the three (or more) topic sheets they considered to be most important.

Learning

In this step, participants were presented with the scenarios derived from the expert elicitation exercise described above. Given the inherent uncertainties in this exercise, the process for deriving the scenarios was described in detail to ensure participants did not misinterpret them as the result of extensive modelling.

Reflection

From here, individuals were asked to deliberate over the likely impact of the plan on the three criteria from earlier in the sessions. They were asked to consider the questions:

- Does the plan reflect the values expressed at the start of the session?
- How might the plan impact on the places identified as culturally significant in the mapping exercise?
- How will the plan impact on the aspects of the marine environment deemed to be the most important?

Valuation

After this process, participants undertook an individual willingness-to-pay exercise. They were asked to individually declare the percentage of council tax they would be willing to pay for the implementation of the plan, without discussion with other participants. They were also asked to express how confident they felt in their valuation on a 5 point-Likert scale and if they would prefer the sum was paid in addition to existing council tax or redirected from other services. An information sheet was provided with a breakdown of the percentage of council tax spent on various services delivered by local authorities in the region.

Following this, the groups joined back together to deliberate over a fair price, as a percentage of council tax, that they deemed the community should pay for the implementation of the plan. Here they were asked to put themselves in the position of policy makers and think about the valuation from the group, rather than individual perspective. Finally, participants were asked to individually complete a feedback sheet in which they expressed their confidence in the group valuation on the same 5 point-Likert scale and to state which of the two valuations they would prefer was used by policy makers.

The workshop was designed to have four stages: prioritisation, learning, reflection, and valuation (see figure 1). The latter three stages map on to the standard structure for

deliberative mini-publics (DMP): learning, deliberation, and decision making (see, e.g. Willis et al., 2022). This basic structure was amended in light of the DVF, such that an earlier stage was included to bring out broad transcendental and local contextual values early in the process. The deliberation phase in the standard DMP model is here renamed ‘reflection’ to capture the process of going back to the earlier values discussion after the contextual learning (Kenter, Reed, & Fazey, 2016).

A percentage of council tax was deemed a suitable payment vehicle because of: 1) its familiarity to participants; 2) its inherent incentive compatibility; 3) because it is more income dependent than fixed amounts; 4) it intuitively allowed participants to compare the marine environment and its ecosystem services with public services, anchoring payments at realistic levels, mitigating potential hypothetical bias; 5) the comparison with social services set the backdrop for democratic debate transcending the environment as an isolated good.

This made for a distinctly social ecological economics approach (cf. Spash, 2017).

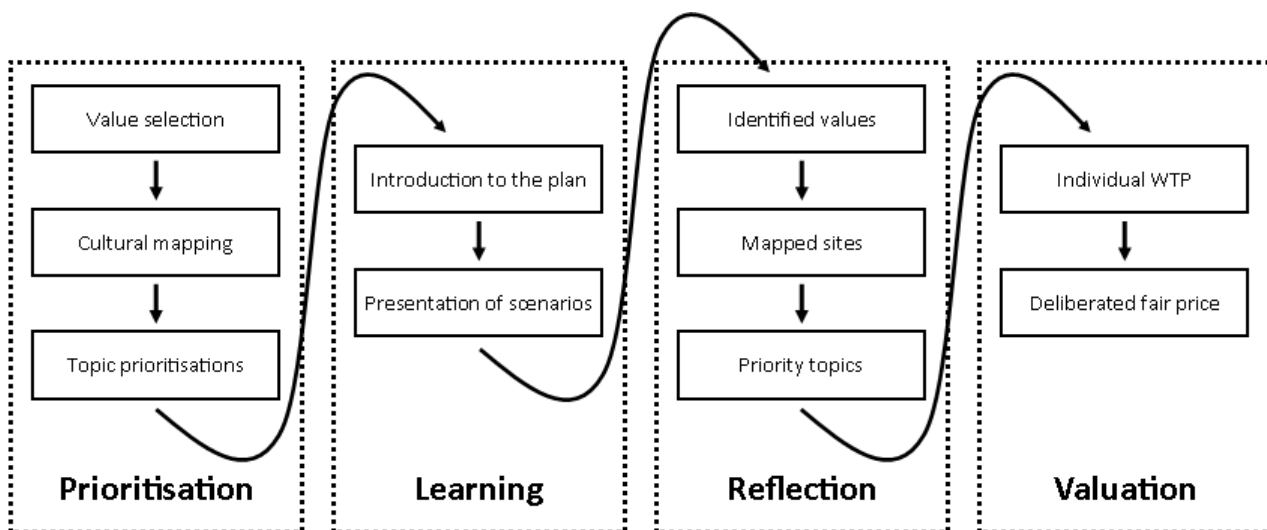


Figure 1. Flow chart summarising the design of the valuation workshops

Data analysis

All willingness-to-pay figures were expressed as a percentage of council tax. For individual willingness-to-pay at each study site, the following summary statistics were calculated: median, standard deviation, maximum value, and minimum value. Group fair price was directly agreed upon by the participants at each site and in both cases expressed as a range. These figures were used to answer research question one: *To what degree did participants value delivery of a regional marine plan relative to other public goods, expressed as an individual willingness to pay, and a group fair price?*

The five point Likert scales of confidence for each of the value expressions were aggregated into categories of 'confident' (4 or 5), 'neutral' (3), or 'unconfident' (1 or 2) and tallied for individual willingness-to-pay and group fair price for each site separately. Counts were tallied for those who favoured, as the basis for public policy making, individual willingness-to-pay, group fair price, and those who didn't know at each site. These figures were used to answer research question two: *Which valuation, if any, did participants have more confidence in as the basis for public policy making, an individual willingness-to-pay or group deliberated fair price?*

All sessions were audio recorded and a non-verbatim transcription was made by the lead author (Halcomb & Davidson, 2006). The constructions of these transcripts went through several steps. Notes from both session facilitators were written immediately following the workshop to capture key discussion points. The lead author then listened to the audio recordings and: for sections deemed less relevant to the research, the authors summarised these in their own words; for discussions deemed relevant, the author recorded the main points of each speaker in the order they were said; and wrote out verbatim contributions that clearly captured a wider point being made. These transcriptions were then compared and contrasted with post-workshop notes to ensure the major points of discussion had been

captured. These transcriptions were then coded in the qualitative analysis software Nvivo, to capture the *types* of arguments being offered by participants for the positions they expressed during deliberation. The coding was inductive and iterative. The first round of coding consisted of identifying very specific classes of arguments, which were later amalgamated and rationalised into a smaller code book for a second round of coding. The resultant code were used to assist in answering search question three: *What types of arguments were expressed through group deliberation and how might these explain the difference in confidence between the two value articulations?* The main codes are reported in the results section, in the discussion we use these codes to offer possible explanations for observed differences in preferences between the two value articulations in each site.

Finally, at the end of each workshop. Facilitators met to share thoughts and notes taken through the session about: the dynamics of the group, key points of discussion and disagreement, core arguments offered by participants, and challenges of engaging in the specific tasks. Notes from these meetings were recorded and used to corroborate the themes that emerged from the transcript coding.

4. RESULTS

The mean individual willingness-to-pay was similar at both sites (Urban: 3.2%, Rural: 3.1%), however at the rural site this was skewed by two exceptionally high valuations (10.0% and 25.0%). The median was therefore chosen as a more suitable metric. This shows a lower valuation in the rural location (Urban: 2.3%, Rural: 1.0%). In both settings, the group deliberated fair price resulted in a range of values, with the rural group opting for an escalating contribution that would start at a low value (0.2%) and elevate to higher value (1.5%) over time if benefits materialised. This achieved agreement from the majority of the group, except for three participants who did not agree with the final valuation. These participants had also registered 0% for their individual willingness-to-pay. In the urban

group, the two sub-groups settled on different valuations (2.0% and 4.0%) and there was insufficient time to reach a consensus in whole group discussion. It was agreed that the value should sit between this range but a final whole group figure was not arrived at. A summary of final values reported in Table 2 and 3.

During deliberation over the group fair price similar themes emerged in both locations, although uncertainty about the likelihood of benefits arising was higher in the rural setting. In both locations there was significant discussion over the issue of directing council spending away from other vital services, with participants in both locations having reservations about putting pressure on council budgets. Although facilitators tried to move the conversation beyond this to discuss the value of the plan relative to the importance of other services, discussions centred largely on the current underfunding of local councils. Also, in both locations, a number of participants inquired as to the cost of implementing the plan, seeking to set a price that matched the cost, rather than the value of derived benefits.

In both locations the number of people who felt confident in the group fair price valuation substantially increased as compared to the individual willingness-to-pay, and a majority in both instances (Rural = 60%, Urban = 71%) would favour the group fair price as the basis for decision making (See Table 2 and 3).

Table 2. Summary valuation statistics from the rural site

Rural					
Individual WTP		Group fair price		Favoured	
Median	1.0%	Value	0.2-1.5%	Individual WTP	4
SD	6.3%	Confident	9	Group FP	9
Max	25.0%	Unconfident	4	Don't know	2
Min	0				
Confident	5				
Unconfident	5				

Table 3. Summary valuation statistics from the urban site

Urban					
Individual WTP		Group fair price		Favoured	
Median	2.3%	Value	2.0-4.0%	Individual WTP	3
SD	2.9%	Confident	7	Group FP	10
Max	12.5%	Unconfident	3	Don't know	1
Min	0				
Confident	3				
Unconfident	5				

Thematic coding of arguments identified eight primary types of arguments offered by participants. These are summarised in table 4.

Table 4. Overview of main types of arguments offered during deliberation.

Theme	Description	Example quote
1. Uncertainty around benefits the plan would deliver.	Arguments related to the uncertainty of expert-elicited projections of goods and services delivered by the plan.	<p><i>“the data they showed at the start – if they are going to use data like that, then that rings alarm bells. If they put data in the plan, then it needs to be up to date and accurate.”</i> – Male, Rural</p> <p><i>“Might be worth putting some money in and seeing if it has an impact, then people may want to pay more.”</i> – Female, Urban</p>
2. Procedural disagreements	Arguments related to how, and by whom, the plan was being developed. Often expressing concern that certain voices were not being considered.	<p><i>“I don’t see how it is going to work – if plans like that are going to be made by people sitting Glasgow, it is not going to work.”</i> – Male, Rural</p> <p><i>“I don’t think you can make a plan that will accommodate everyone in the area, I think it needs to be split spatially”</i> – Female, Rural</p> <p><i>“Wider society hasn’t heard of marine planning... This isn’t ‘honesty and transparency’ [referring to values discussion]. There should have been more engagement from earlier on”</i> – Female, Urban</p>
3. Personal income and employment	Arguments related to how the plan may impact on personal income or employment prospects. These could be either positive or negative.	<p><i>“I don’t know if people are aware of the number of measures already in place to protect the environment. We can’t fish at weekends, have larger net gaps, GPS monitoring is coming in for smaller vessels ... we are jumping through a lot of hoops already”</i> – Male, Rural</p> <p>[regarding concern that plan over-emphasised role of tourism] <i>“I did a degree in activity tourism management, and I cannot find, on the West Coast of Scotland a full-time job, so I had to train and learn something else”</i> – Female, Rural</p>
4. Regional economic activity and employment	Arguments related to how the plan may impact on income or employment prospects within the region as a whole or specific	<p><i>‘Since that time [when a marine protected area was established locally] the fleet has gone from 15 boats to five. With two or three men per boat, that’s over 20 jobs gone... the crew were young, they had young families. The knock-on effect ... in a place like [rural location] is massive’</i> - Male, Rural</p> <p><i>“If you protect the environment, it would also help with the economics of the area – you could see it as an investment”</i> – Female, Rural</p>

	communities. These could be either positive or negative.	<i>“The environment affects everything – and people who live here use this area for so many things. With climate change and biodiversity decline, we need to do something.” – Female, Urban</i>
5. Protection of the natural world (specific)	Arguments related to the need to protect a specific species, habitat, ecosystem, or landscape.	<i>“the amount of excitement people get when they see a basking shark from the shore or they see a pod of bottlenose dolphins ... I remember seeing a woman watching a pod of dolphins and just bursting into tears”- Female, Urban</i> <i>“Marine litter is starting to impact on some of the sites [identified by participants as important] – you go down to these beautiful beaches and there is hardly anywhere to sit without litter”- Female, Urban</i>
6. Protection of the natural world (general)	Arguments related to the need to protect the natural world in general.	<i>‘If you don’t protect the environment, there is no point in anything else, you won’t have fisheries, or aquaculture or anything.’ – Female, Urban</i>
7. Relation to cost of other services provided by the council	Arguments that drew comparisons with other services being provided by councils.	<i>“I looked at planning and development [on council spending information sheet] – they get 2%, so I said 3.5% as long as they are held to account for actually doing stuff on the ground and making things happen. It is too often about writing articles and documents”- Male, Rural</i> <i>“In a perfect world – I would be happy to pay it, but there are lots of conflicting priorities. And would I fund this over something else? No, I wouldn’t – I work with vulnerable people and if there is more money it would be better [spent] on them” – Female, Urban</i>
8. Relation to cost of implementation	Arguments related to the financial and human resources required to implement the plan.	<i>“I think there should be a commitment ... to be responsive, and to have the resources to police effectively where things are breeched. Too often it all happens on paper, and you don’t get any response” – Female, Rural</i> <i>“The planning department [of the local authority] doesn’t seem to operate [effectively at the moment] with a budget of 2%”– Male, Rural</i>

5. DISCUSSION

In this study we built on the Deliberative Value formation Model (Kenter, Reed, & Fazey, 2016) to develop a DDMV approach to derive a monetary valuation of the pre-consultation draft Clyde Regional Marine Plan.

Our study design allowed us to compare which of two separate valuations was favoured by participants as the basis for policy making, one more typical of a Deliberated Preferences design and the other more typical of DDMV. Our results show a majority of participants at both sites felt more confident with the deliberated fair price than their individual willingness-to-pay and favoured it as the basis for policy making. This supports the idea that DDMV using a fair price indicator is seen as more legitimate for informing public policy decisions than the more commonly used Deliberated Preferences approach, at least by those impacted by the decisions in question.

We also did not register any protest votes. Traditional stated preferences studies frequently evoke substantial numbers of protestors (Szabó, 2011) and their subsequent exclusion is an important point of contention for ecological economic theorists (Spash, 2007). Some participants chose to register a willingness-to-pay of zero and did not agree with the final group deliberated fair price. However, deliberation provides insights into participants motivations, which allows for a more nuanced handling of outliers. All those who expressed zero bids gave an explicit and understandable reason. Either they did not think the plan was likely to produce benefits that were important to them (themes 1 and 3), or they did not approve of the way the plan had been developed and worried it would impact on employment and opportunities in the area (themes 2 and 4). Such zeros thus appeared to represent reasoned conclusions. The argumentation of these participants was considered equally in the group debate and did not challenge the deliberative democratic underpinnings of the

valuation process in the way that protest votes in stated preferences approaches defy their axiological assumptions.

We discuss below potential reasons that deliberated fair price may have been preferred to the individual WTP. We then discuss some limitations to our study and reflect on the potential use of DDMV in enhancing democratic participation in environmental decision making.

Why was there higher confidence in deliberative democratic monetary valuation?

The core purpose of DDMV is not individual preference formation, but allowing reasoned arguments to be brought out, that have a bearing on the valuation at hand, without artificially limiting the number of ‘legitimate’ positions. The process gains legitimacy as those engaged are in a position to accept or reject reasoned positions, and they are the ones that will have to live with the consequences of decisions taken (Lo & Spash, 2013). Participants made reasoned cases for their own position that in some cases caused others to change their initial valuation and helped the group move toward consensus (Orchard-Webb et al., 2016). The resultant valuation may be seen as more acceptable, not just because it is underpinned by multiple normative and epistemic positions, but also because it reflects a ‘workable agreement’ between participants (Dryzek, 2000; Lo & Spash, 2013).

The range of value positions and priorities expressed was broad and pluralistic. This came partly from research design, with transcendental values explicitly elicited and integrated through the process. There was also evidence of reasoning from both the ‘I’ and the ‘We’ position. In the rural setting in particular, the impact the plan was likely to have on the local community was a significant concern for many participants (theme 4), alongside more self-regarding values, such as concern for personal income and employment (theme 3). Because participants were quasi-randomly sampled to represent their communities, these self-regarding values and concerns could be expected to be present across the wider population, if

they would have participated in similar deliberative exercises. As such they are of equal concern to more socially- or other-regarding values.

There were also those in the valuation that expressed a desire to protect nature for nature's sake (theme 6) – expressing and becoming a voice for non-human nature and the defence of intrinsic values, pointing to deliberation as a venue for 'more-than-human' participation (Bastian, 2017; O'Conner & Kenter, 2019). The framing of the exercise made it possible to bring such concerns into dialogue with more instrumental concerns connected to the jobs and industry supported by the marine environment (themes 3 and 4) and relational value expressions justifying protecting nature on the grounds of people's experiential connections (themes 5 and 6). This supports the capacity of deliberative shared values approaches to bridge both multiple broad, transcendental values, and multiple types of specific, contextual values.

In their DDMV study on values for a large number of UK marine protected areas, Kenter, Jobstvogt, et al. (2016) found that instigating a public policy framing brought out a number of considerations also observed in our study. These include the consideration of who will benefit and over what time scale, the different needs of those beneficiaries (theme 4), competing priorities for spending (theme 7), duties to other species and future generations (theme 4 and 6) and responsibilities towards particular areas and sights (theme 5). These concerns appear to be common in group valuation tasks (Kahneman et al., 1999; Spash et al., 2009), but difficult to integrate in valuations through more conventional stated preference tools (Brouwer et al., 1999).

Participants were also able to integrate a range of institutional considerations that would be out with the scope of stated or Deliberated Preferences approaches. For example, participants inquired as to how much it would reasonably cost to implement and enforce the plan (theme 8). In the context of public policy, especially in a time of budgetary constraints, the question

of the minimum cost at which such benefits can be delivered is a highly relevant factor in valuation. There was significant debate over the burdens that local authorities are under (theme 7). Although the council tax valuation metric being used was an artificial construct, because different elements of the plan would in fact be funded from different sources in a rather complex and dispersed way (as explained to participants), there was a clear agreement that competing expenditure priorities should be a consideration reflected in a fair price.

Another reason that participants may have preferred the fair price, is that they were able to agree a valuation that integrated group concerns over uncertainty of the benefits accruing (theme 1). One group was able to reach agreement on an escalating fair price that accounted for uncertainty. The ability of DDMV participants to deal with the uncertainty and risk inherent in public policy decisions is an advantage over Deliberated Preferences approaches that rely on more rigid instruments to ensure individual preferences adhere to the same framing and can be econometrically modelled. The ability of valuers to consider and integrate issues of uncertainty, precautionary measures, and acceptable levels of risk is also noted as an advantage of DDMV by Orchard-Webb et al. (2016).

Not delineating legitimate lines of argumentation thus meant a wide array of concerns and considerations were reflected in the final valuation. Such an approach reflects Lo and Spash (2013) notion of ‘choice democratisation’ in DMV, which they suggest as necessary to ensure deliberative valuations adhere to the deliberative democratic theory on which such valuations are built.

Finally, it is also possible that the ‘fair price’ framing itself was seen as more appropriate as the basis for public policy decisions than individual willingness-to-pay. (Kenter, Jobstvogt, et al., 2016) suggest that during deliberation people will typically bring in issues of fairness and that the notion of a fair price intuitively appeals to participants as a more appropriate payment term for social goods than individual willingness-to-pay. Dietz et al. (2009) suggest that

deliberation naturally pushes people towards more of a public-policy type of reasoning, and this intuitive appeal also resonates with ethical models that point out the concerns of establishing value to society through aggregation of self-regarding individual consumer preferences (Sagoff, 2007).

Limitations of the study

Our study had a number of limitations that would need to be considered in further studies of this type. Firstly, the primary goal of this study was to develop DDMV conceptually and methodologically as a social valuation approach with influencing the marine planning process a secondary goal. The exercise was not formally part of the planning process. The authors have previously facilitated public dialogue on behalf of the CMPP (Phillips et al., 2018) and various elements of the research design in that work were replicated in this study to provide input to CMPP across more diverse locations. The results of this study were also fed back to the CMPP within a timescale meaningful to the Clyde Marine Plan decision making process and allowed CMPP to demonstrate the perceived social value of the plan through a rigorous deliberative democratic method that made uncertainties explicit, counterbalancing concerns by some stakeholder members of CMPP about some of its conservation and fisheries management aspects. However, DDMV could be developed and undertaken in even closer collaboration with decision makers and broader stakeholders to enable full integration into the decision making process (cf. Ranger et al., 2016).

This lack of formal embedding in the policy process also potentially impacted on the way that participants engaged in the process. As democratic theorist Roslyn Fuller has pointed out, people reason differently when they think their direct interests are at stake (Fuller, 2019).

This could mean that our participants found it easier to reach consensus than may have been the case if their responses were formally informing decisions that impacted on their lives. It is possible that those who registered a zero vote, or who did not express support for the

deliberated fair price, would find a way to contest any resultant decisions if this has been a real-world case study. However, prior research has shown that, even in highly contentious situations, small-group deliberation can help different parties find common ground and agree on concrete policy measures (Ainscough & Willis, 2022; Devaney et al., 2020; Dryzek, 2005; Farrell, 2013; Goodin & Dryzek, 2006).

A final limitation follows from ours being a self-contained research exercise. DDMV aims to create conditions for democratic deliberation within the process. However, what matters in real world application is how such processes are embedded into wider decision-making institutions. DDMV can be seen as a specific class of deliberative mini-public (DMP). The wider literature on embedding DMPs into decision making processes makes a number of recommendations for ensuring they are not co-opted. These include: ensuring commissioning bodies are not involved in process design, framing or delivery; aiming to secure commitments from decision makers to act on the findings of the DMP; pressuring to delegate certain direct powers to DMPs; and media and civil society group efforts to ensure accountability of decision makers following a DMP (Curato & Böker, 2015; Mulvad & Popp-Madsen, 2021; Setälä, 2017).

The data on future scenarios used in our study were also highly uncertain. Experts involved in the preparation of the workshop material were only able to provide estimates of future states. This fact was stressed to the workshop participants and caused many to be sceptical that the presented benefits would materialise. In addition to this, a reliance on the data available through the Clyde Regional Assessment meant that baseline data was in some cases many years out of date, though this limitation was a feature of the regional marine planning process as a whole.

Another important limitation was that we were unable to disentangle the effect of participants having more time to consider their views and the effect of group deliberation (Kenter,

Jobstvogt, et al., 2016; Ranger et al., 2016). It is possible that the fair price valuation taking place after the individual willingness-to-pay meant participants had had more time to consider their views, and that this ordering had a significant bearing on the results. This sequencing issue could have been addressed by running multiple processes at each site, and eliciting just one of the two value indicators in each process and asking about confidence and perceived legitimacy in these. Resource limitations meant this was not possible in this case, though such a design represents a potential avenue for future research on different forms of deliberative monetary valuation.

Finally, we did not include specific attitudinal questions in our recruitment of participants; doing so would have further improved representativeness.

6. CONCLUSION

Despite these various challenges, we follow Orchard-Webb et al. (2016) in concluding that deliberative methods grounded in deliberative democratic theory have substantial potential to address concerns with environmental valuation regarding value plurality, uncertainty, procedural justice, recognition of voice, addressing key drawbacks of both stated and deliberated preferences approaches. Lienhoop et al. (2015) suggest that policy makers need more than a single number, they require contextual information as to the reasons and arguments that are compelling to people impacted by decisions. Similarly, Church and Ravenscroft (2011) conclude that, to decision makers, the defensibility of evidence to those impacted by decisions it informs is as important as its 'quality' (defined in strictly scientific terms). Further, for our participants, the DDMV derived fair price had more legitimacy as the basis for public policymaking than individual willingness-to-pay, even when this willingness-to-pay had been assisted by a significant process of learning and deliberation. This perceived legitimacy in itself is likely to increase the confidence that policy makers have in acting upon the output of the valuation.

Our study demonstrated the value of DDMV for environmental valuation in the context of public policy formation. We were able to arrive at deliberated fair prices for the introduction of a new package of policies that had broad support from participants. Such an approach has particular salience to democratic processes by allowing for direct comparison between the value of new environmental policy with existing public services, in a way that has previously only been demonstrated by conventional tools such as cost-benefit analysis, but without the well-established drawbacks of CBA, such as value-monism. By integrating learning, valuation exercises and deliberation, we were able to create a valuation process where a wide plurality of value types were expressed and discussed. Participants had higher confidence in the fair price valuation arrived at through deliberation than in their individually stated willingness-to-pay valuations. This provides support for the benefits of deliberation as an approach for dealing with valuation tasks characterised by high uncertainty and value incommensurability. These findings should cast further doubt on the appropriateness of neo-classically derived stated preference approaches for the valuation of complex environmental goods and services.

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