

1 **Informing biodiversity policy: the role of economic valuation, deliberative institutions**  
2 **and deliberative monetary valuation.**

3

4 **Abstract**

5 In the past years, monetary valuation of changes to biodiversity and ecosystem services has  
6 received increased attention in the scientific community and in the policy arena. Regardless  
7 of the abundance of valuation methods, there is a particular interest in obtaining monetary  
8 estimates via stated preference methods. While some experts regard these methods as  
9 useful means to recognise, demonstrate and integrate biodiversity concerns in policy design,  
10 others voice severe criticism and advocate the use of deliberative approaches to biodiversity  
11 valuation. In view of these debates, this paper outlines the rationale and characteristics of  
12 three valuation avenues: stated preference methods, deliberative institutions, and  
13 deliberative monetary valuation. We develop criteria that guide the selection of an  
14 appropriate valuation approach in different decision contexts and discuss the advantages  
15 and drawbacks of each approach against these criteria. The aim of the paper is to illuminate  
16 the portfolio of valuation methods available to guide policy design and to improve the  
17 applicability of these methods in practical biodiversity policies.

18

19 **Extended Abstract**

20 **Introduction**

21 Since stated preference (SP) methods are the only methods capable of quantifying the  
22 economic value of changes to non-market environmental goods or services they are  
23 regarded by many researchers as indispensable (Arrow et al., 1993; Pascual et al., 2010).  
24 There is a general belief that monetary values of non-market ecosystem services and  
25 biodiversity aspects are a suitable means to facilitate their recognition, demonstration and  
26 consideration in decision-making. Accordingly, many practitioners are interested in monetary  
27 values of non-market biodiversity and ecosystem services benefits associated with  
28 environmental protection or management measures so as to justify the costs of such  
29 measures (Carpenter, 2009). Examples are the EU Biodiversity Strategy envisaging the  
30 mapping of biodiversity and all ecosystem services values in monetary terms (European  
31 Commission, 2013), and planners that promote accounting and monetary valuation as a  
32 means to highlight the potential contributions of biodiversity and ecosystem services to  
33 regional development (von Haaren and Albert, 2011).

34 Given that valid and reliable social values for ecosystem changes are essential for public  
35 policy advice, this paper will disentangle critical arguments regarding economic valuation  
36 with SP approaches and present alternative approaches that address these concerns by  
37 making deliberation an important aspect in the valuation procedure. Given the portfolio of  
38 valuation methods and the range of ecosystem services and biodiversity aspects the paper  
39 aims to give guidance to policy-makers regarding the selection of the appropriate valuation  
40 method in a given decision context. We will elaborate on three methodological avenues —  
41 namely standard SP, deliberative institutions from political sciences, and deliberative  
42 monetary valuation – and pinpoint the potentials and limitations of the different valuation  
43 methods.

#### 44 **Why deliberation?**

45 A general message from advocates of deliberative approaches is their capability to address  
46 many of the shortcomings of SP methods. In this paper we elaborate how the psychological  
47 and ethical/political concerns related to SP can be addressed with deliberation. For  
48 example, a deliberative setting motivates respondents to reflect why and how much they  
49 value an ecosystem service or biodiversity and thus raises the opportunity to carefully  
50 construct informed preferences. Furthermore, deliberation allows individuals to look beyond  
51 immediate self-interest and to orient their decisions more toward the common good  
52 (Niemeyer, 2004).

#### 53 **Deliberative approaches**

54 Many deliberative institutions (e.g. Citizens' Juries) have been developed and tested in  
55 different contexts such as, e.g., market research (Merton and Kendall, 1946) and  
56 environmental planning (Crosby, 1999). In recent years, a number of different *deliberative*  
57 *monetary valuation methods* emerged with Market Stall and Valuation Workshops being the  
58 most common approaches.

#### 59 **Theoretical underpinnings**

60 Conventional economic valuation is rooted in the neoclassical economic theory, based on the  
61 assumptions of rationality (full information, self-interest, predefined preferences; *homo*  
62 *oeconomicus*), consequentialism/utilitarianism, social welfare as additive aggregate of  
63 individual welfares and, thus, need of statistical representation.

64 Conversely, deliberative democratic theory views the individual as a reflexive citizen with  
65 socially constructed, non-myopic preferences. It is, as already mentioned above, a  
66 procedural approach, so it cannot be easily defined within the common distinction  
67 consequentialism-deontology-virtue ethics. As it views citizens as deeply embedded in

68 society, it does not require (and is in most cases not suitable for) statistical representation  
69 (see also section 4.4).

70 Meanwhile, deliberative monetary valuation combines these two approaches, leaning mostly  
71 more towards economics, but trying to incorporate the most important insights of deliberative  
72 democratic theory, particularly social embeddedness of individuals with all consequences  
73 (social formation of preferences, social values, etc.). The idea is to combine “the best of both  
74 worlds” (Spash, 2007, 691). Thus, while still relying on questionnaire-based SP methods,  
75 deliberative monetary valuation methods include deliberation as an important component in  
76 the process of preference formation and elicitation.

### 77 **Recommendations for policy advice**

78 Given the abundance of valuation approaches, each of which consists of distinct features  
79 and the range of ecosystem services and biodiversity aspects with differing levels of  
80 complexity and familiarity, we aim to give policy-makers guidance for the selection of the  
81 appropriate method for the valuation object under investigation. We present here a set of  
82 criteria that enable the comparison of valuation methods and guides the selection of a  
83 suitable approach. The criteria include: (i) valuation purpose, (ii) unfamiliarity with and  
84 complexity of the considered ecosystem service and biodiversity change, (iii) value  
85 assumptions (in particular (in)commensurability of values), (iv) costs of conducting a  
86 valuation study, (v) scales and representativeness, and (vi) applicability in developing  
87 countries.

### 88 **Concluding remarks**

89 The underlying rationale for presenting deliberative methods of evaluation in this paper was  
90 threefold:

91 Our intention was, firstly, to shed more light on deliberative approaches (including  
92 deliberative monetary valuation) and their suitability for the valuation of changes to  
93 ecosystem services and biodiversity. In our perspective, deliberative methods can be a very  
94 useful tool to overcome some of the weaknesses of traditional economic SP methods (for a  
95 similar perspective, see Vatn, 2009). From a political philosophy point of view, deliberative  
96 methods are in line with principles of discourse ethics on how to properly design political  
97 discourses, as developed by Habermas (1981) and others. From an economic point of view,  
98 these methods are particularly interesting because they focus on citizens' preferences and  
99 thus fit in the economic approach. In particular, by addressing deliberative monetary  
100 valuation methods, such as Market Stall or Valuation Workshops, the specific strengths of  
101 both underlying approaches – economic SP and deliberative methods – can be exploited.

102 Secondly, by presenting all three types of valuation approaches for ecosystem service and  
103 biodiversity valuation – economic SP methods, deliberative approaches, and deliberative  
104 monetary valuation methods – we wanted to elaborate the particular strengths and  
105 weaknesses of each approach. Reflecting the arguments put forward in favour and against  
106 each of the methods, we would argue that none of the three approaches is superior or  
107 inferior *per se*, but that their suitability and applicability in real-world decision-making  
108 processes is highly dependent on the valuation objective and specific framework conditions.  
109 These are highly context-dependent and are typically different from object to object and from  
110 country to country (see also Brondízio et al., 2011).

111 Thirdly, by developing criteria for the applicability of the three avenues of valuation  
112 approaches, we sought to give recommendations as to what method should be given priority  
113 under what conditions (see criteria above). Clearly, the suitability of one of these valuation  
114 methods cannot be judged using just one criterion, but should rather be based on pluralistic  
115 grounds. Thus, our recommendations with regards to the applicability of one of these  
116 methods is less a binary “yes” or “no”, but rather a “more” or “less”. Accordingly, it has also to  
117 be stressed that these recommendations always have to be considered against the  
118 institutional (legal, cultural, societal, economic) background of valuation (Vatn, 2009).  
119 Nevertheless, we are convinced that the criteria and recommendations derived provide  
120 useful support for designing applicable decision processes.

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123

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