



Commentary

Towards a fair, constructive and consistent criticism of all valuation languages: Comment on Kallis et al. (2013)

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ABSTRACT

We provide critical notes to the paper by Kallis et al. (2013) on monetary valuation. We evaluate the four criteria they propose for assessing valuation studies. We argue that no clear distinction is made between monetary valuation and pricing instruments. The selected criteria are more relevant to assessing policy than monetary valuation. The examples provided are not representative of the diversity of valuation studies encountered in the literature. Moreover, no clear examples are provided of where valuation and associated cost–benefit analysis of environmental policy go wrong. We plea for a more fair, constructive and consistent criticism of all “valuation languages” and offer relevant issues for consideration.

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1. Introduction

Valuation of nature in monetary terms is controversial and has often been criticized. One reason is that different disciplines express distinct ideas on the desirability of monetary valuation as an input for decision-making on environmental policy. In a recent paper, Kallis et al. (2013) introduce the main views of political ecology (PE) on monetary valuation of nature. The authors present a set of normative criteria aiming to support researchers and environmentalists in evaluating when to make use of monetary valuation methods for policy-making purposes and when not. The authors offer a practical guide based on answers to four yes/no questions conveying the normative criteria to be fulfilled or not. While we appreciate the idea to critically judge placing monetary values on nature, we identify two main problems with the way this issue has been dealt with in their article. Firstly, we believe that both the proposed criteria and selected examples are not very representative and relevant for judging the necessity and usefulness of valuation and thus can only be of limited help to researchers and practitioners. Secondly, in much of their discussion Kallis et al. do not clearly and consistently separate between monetary valuation and pricing

instruments (a subclass of environmental policy instruments). Although the central question raised in Kallis et al. is “when and how to value with money?”, the guiding principles they provide are more suitable for assessing policy instruments than monetary valuation. While we acknowledge the fact that monetary valuation can convey information for the design of certain policy instruments (e.g., environmental taxes), the approach of Kallis et al. confuses rather than helps a good debate about the merits of monetary valuation. Moreover, if their aim is to propose how to value with money, one would expect a debate regarding theoretical and methodological shortcomings in deriving monetary values (whether using revealed or stated preference techniques) or regarding the application and use of these values (as in cost–benefit analysis, CBA). Both issues are, however, entirely missing from the article. We further will note that monetary valuation is approached in a much more critical way than other “valuation languages”, by Kallis et al. as well as by ecological economics more broadly. Hereafter we provide detailed arguments to support these statements.

2. Irrelevance of the Proposed Criteria for Assessing Monetary Valuation

In order to judge the suitability of monetary valuation, Kallis et al. propose four normative criteria, namely “environmental

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improvement”,¹ “equality”, “value pluralism”, and “accumulation by dispossession/neo-liberalism”. While the former two are reminiscent of standard criteria for evaluating policy instruments suggested in textbooks on environmental economics – next to efficiency or cost-effectiveness – “value pluralism” and “accumulation by dispossession” seem to be mainly inspired by the PE literature. The use of policy evaluation criteria illustrates the confusion in the article between monetary valuation and environmental policy (notably pricing instruments). For example, the authors note on page 99: “monetary valuation of environmental goods and services (e.g., wetland banking, carbon trading and biodiversity offsets)”. The examples in between brackets are clearly policies, however, and not valuation categories, approaches or methods. Although monetary valuation can inform the design of policies, which is an explicit aim of many (but certainly not all) valuation exercises, valuation and policy are very different things which need to be clearly separated and discussed to avoid confusion about shortcomings of valuation and its application potential and range. Therefore, the criteria for assessing the usefulness of valuation and policy are not expected to be the same. While the four criteria proposed in Kallis et al. might be suitable for the selection and design of pricing instruments, we think that none of the criteria is really very useful in deciding whether to perform a monetary valuation or not. To clarify this, we consider each criterion in more detail below.

2.1. Criterion 1: Environmental Improvement

The first criterion asks if monetary valuation will improve environmental conditions. It is fair to assume that anyone who engages in monetary valuation of environmental changes or policies aspires to improve environmental quality or protection. In practice, however, the person carrying out the valuation exercise is unlikely to know with certainty in advance the outcome of the decision process for which the monetary values (may) serve(s) as an input in the future. While monetary valuation can inform about whether a policy instrument is deemed desirable, it is not very clear how it could influence policy effectiveness. Effectiveness will depend mainly on how the instrument is designed and implemented and hence it might serve as a relevant criterion for assessing the selection and design of pricing instruments. Therefore, the first criterion of Kallis et al. will be irrelevant to judge valuation studies. Moreover, as most if not all environmental valuation studies, almost by definition, address some scenario of environmental improvement (or avoiding environmental deterioration), this criterion would not be very restrictive or selective in practice anyway.

It is important to realize that issues other than valuation are much more important for judging the effectiveness of policies. One example is rebound of well-intended strategies or policies, which means that all kinds of indirect, often unforeseen results, lower the direct intended effect of a policy. This has generated much literature, which suggests that pricing may be the best solution to minimizing rebound leakages (van den Bergh, 2011). Another example is a behavioral issue that has received some attention in recent years, namely crowding-out of intrinsic motivations due to pricing or other policy instruments (e.g., Frey and Jegen, 2001; Gneezy and Rustichini, 2000). The possibility of crowding-out does not mean, however, that one should immediately reject the respective instrument. Instead, the net effect of incentives through regulation and crowding-out should be compared with the effects that result in case no regulation or other policy instruments are implemented. Pricing is still likely to perform well as the basic price incentive effect tends to dominate the crowding-out-of-motivation effect (Fehr and Falk, 2002).

2.2. Criterion 2: Equality

The second criterion relates to the issue of equality. Like the previous criterion, this one is more appropriate to judge or steer policy design rather than monetary valuation.

A basic question here is whether valuation pays insufficient attention to equality. We think that it is not correct to suggest that this is generally the case. For instance, respondents in a survey may take their feelings about their position in an income distribution into account in their value statements. Moreover, researchers may correct for income effects by normalizing values or using respondents' income as an explanatory or moderating variable in linking monetary values to their socio-economic characteristics (in estimating so-called value functions).

The distributional aspects of environmental regulation have received serious attention in environmental policy studies (e.g., Serret and Johnstone, 2006; Fullerton, 2009; Sterner, 2011).² To accommodate distributional concerns, one can, for example, implement block-pricing (such as exists for water and energy consumption) to assure that basic needs can be fulfilled against reasonable costs. This illustrates that pricing does not necessarily involve inequity effects – something which is suggested by Kallis et al. without a rigorous argumentation or representative examples. Moreover, any type of strict environmental regulation – including standards, quotas and non-tradable permits – can have undesirable distributional effects without appropriate design or countervailing measures. We should not simplify our policy evaluation: (re)distribution effects are not a unique or distinctive feature of regulation by prices; all serious, effective environmental regulations will involve distributional effects.

Furthermore, it seems unreasonable to ask of environmental valuation (as well as of environmental policy), which is intended to help in solving environmental problems in the first place and to also “reduce inequalities and redistributive power” (Kallis et al., 2013, p.100). For environmental policy evaluation it would be fair to require that inequality is not increased. Evidently, environmental policy cannot be expected to circumvent or solve all existing inequalities. However, in some cases environmental policies can contribute to reducing inequality. For example, given that many poor people in the world tend to live in climate risk-prone areas, serious climate policy would mean avoiding increased inequality due to climate change.

Finally, given that monetary value estimates often serve as inputs to a CBA of a policy instrument or scenario which make (implicit) assumptions about how to address distribution of outcomes, this type of application deserves particular attention. It was not discussed by Kallis et al., which we feel is an omission. Addressing CBA in this context of “valuation for policy” allows for a more nuanced perspective on the relationship between monetary values, policy and equity or fairness. CBA separates efficiency from equity, which is a simplification since strictly seen distribution affects individual values and utilities (through relative income/welfare, status seeking, inequity aversion, etc.), and thus efficiency. This suggests that CBA should be treated with care in the context of considerable income inequality. One can, nevertheless, account for the fact that the marginal utility of money is falling with income by applying distributional weights in CBA – implying a lower weight for richer people or regions. This procedure was followed, for example, in the Stern Review on evaluating the net benefits of climate policy (Stern, 2007).

² Fullerton (2011) examines the regressive character (i.e. placing a disproportionate burden on the poor) of six different types of distributional effects of a carbon permit system: (1) higher prices of carbon-intensive products, (2) changes in relative returns to factors like labor, capital, and resources, (3) allocation of scarcity rents from a restricted number of permits, (4) distribution of the benefits from improvements in environmental quality, (5) temporary effects during the transition, and (6) capitalization of all those effects into prices of land, corporate stock, or house values. This illustrates that distribution is a multidimensional issue, making this criteria much more difficult to assess than is done in Kallis et al.

¹ More commonly known as “(environmental) effectiveness”.

All in all, we would judge monetary valuation more positively in the context of addressing inequality concerns. The reason is that valuation can be combined with distributional weights, and moreover can contribute to obtaining insight into the distribution of costs and benefits, as well as the variation in individual perceptions of such a distribution. In other words, monetary valuation might help to operationalize equity concerns and indicators. This means a more complete and balanced perspective than Kallis et al.

2.3. Criterion 3: Value Pluralism

The third criterion suggests that monetary valuation is likely to suppress other languages of valuation and value-articulating institutions. The crucial issue here is value pluralism and the desirability of ensuring multiple languages of valuation. We recognize the importance of alternative values, which may be appropriate and meaningful in particular contexts. However, we believe that one should be equally critical of other, non-monetary valuation approaches, recognizing that these so far have not offered very specific information or surprising insights into environmental policy making, and often do not provide opportunities for robust quantification or comparison of alternatives. This is not to say that one has to be against other methods or that monetary valuation is always necessary – if one can make a point clear in a simpler way, such as with physical indicators, this is fine.

The authors do not provide evidence that monetary valuation is more dominant than other “valuation languages”. In reality considerations like rights, safety and ethics often overrule or preclude any monetary assessment. In fact, many if not most political decisions related to rights and safety are made without any previous monetary assessments. Think of regulations on toxic metals and fine particles. Safe concentration or deposition levels for many substances are based on environmental or health considerations. To recognize the value of monetary valuation for policy, one should realize that certain arguably wrong political decisions might have been avoided if an ex-ante valuation or CBA had been undertaken. Consider in this context the huge cost of wars, like the Iraq war, which was estimated by *Stiglitz and Bilmes (2008)* to have cost more than 3 trillion US\$ to the USA only.

We disagree with Kallis et al. that full-cost pricing or markets for ecosystem services suppress value pluralism. For example, alternative values of water (social, ritual, symbolic, or ecological) do not cease to exist or have a diminished importance only because full-cost water pricing is implemented. Likewise, the authors just suggest but do not argue convincingly how markets for ecosystem services restrain valuation languages, such as territorial rights of indigenous communities, biodiversity conservation, climate/environmental justice, or monetary assessment of opportunity costs, which are referred to in the example of Yasuni ITT initiative. We believe that monetary valuation can help strengthen the case when other “valuation languages” are used. For example, one can argue in favor of basing our climate policy goals on safety margins (e.g., 2 °C or 450 ppm) rather than on the economic optimum according to CBA. However, if economic values of climate change damages, or their use in CBA, can convince politicians, firms or voters that policy needs to be undertaken to halt climate change, then the different valuation languages are not so much inconsistent but rather complementary to each other. And we suspect that this will often be the case.

Relevant questions that arise here are whether monetary valuation is doing a bad service to the environment, provides grossly wrong insights and leads to very different conclusions than (i.e. is inconsistent with) other valuation approaches. We have the strong feeling that the authors are not able to answer these questions with a clear “yes”. Therefore, we are puzzled that the authors (and many others in ecological economics) are so critical of monetary valuation and that they suggest that there is an (urgent) need to replace it with other valuation approaches. Finally, one can wonder whether the name “valuation” for such things as “human/territorial rights” is really useful and necessary.

Isn't the term “rights” clear enough in itself? “Valuation” anyway conveys the idea of a continuous scale, while “rights” has more the character of a binary variable (i.e. you either do or do not have a right). From this perspective, “valuation” is a bit of a misnomer. So far most writers in ecological economics seem to have been more critical of monetary valuation than of its alternatives. We feel it would be good to be equally critical of other “valuation languages”. In this sense, our discussion offers a starting point for further deliberation.

2.4. Criterion 4: Accumulation by Dispossession/Neo-liberalism

There are various problems associated with the fourth criterion. It is not only very ad hoc and subjective, but also ambiguous in its meaning. Furthermore, is it really good science to suggest that “neo-liberalism” is generally bad (or good, for that matter)? Should science really use such a politically laden concept, on which very distinct political viewpoints exist, to serve as a criterion for evaluating methods?

What precisely counts as “an enclosure of the commons” or a process of “accumulation by dispossession” driven by neo-liberalism is debatable. It is not clear where to draw the boundary – pricing the environment (e.g., through taxes), or for that matter any other policy instrument, can be defended as *anti neo-liberal* as it tries to correct for free markets and market prices that do not reflect environmental externalities (unintended social costs). The result is a market strongly regulated by environmental policy measures, which is a far cry from neo-liberalism.³ One can further wonder whether a valuation study that considers the option of a property right conveys a “neo-liberal” or “accumulation by dispossession” viewpoint. The outcome of the study may well be that respondents attach a low value to it or prefer another instrument if there are multiple instruments offered, in which case the “dispossession” would receive little support.

This criterion is associated with the idea that “commodification” of environmental resources and processes is generally bad. Being critical of this criterion does not mean we support the idea that “expansion of markets”, “free markets” or “free trade” is generally good. But the view expressed by Kallis et al. reflects more an ideological position than a carefully argued criterion that can count on broad support.

Even though there is no perfectly objective policy analysis (*Bromley, 1990*), we think that more general criteria, with outcomes that are as objective as possible, need to be used to inform environmental policy making. Criteria like efficiency (welfare-enhancing, which includes cost-effectiveness as a special case), equity and environmental effectiveness (and several others – see *Russell and Powell, 1999*) are widely supported precisely because they are the least subjective among a wider set of possible policy criteria. No general ideological position for or against markets is required. The fact that free markets (can) generate externalities does not mean that regulated markets and markets for pollution permits, which are quite different markets, are to be judged negatively. Notably, if a permit market is assessed as effective, efficient and equitable, then we do not see why one should be against it. If one can show for particular cases that on the basis of these criteria a price- or market-based policy does not work well then such a policy should not be implemented and the performance of alternative policy approaches on these criteria should be examined to see if they can do a better job.

Discarding the relevance of “neo-liberal” approaches, supposedly meaning pricing and market instruments, to achieve efficiency or cost-

³ Pricing the environment does not require perfectly correct pricing based on perfect monetary valuation of externalities. Regulators can, through trial-and-error, experiment with prices (taxes) until targeted problems are controlled. This would then approximate theoretically correct prices. Illustrative of this is that many payments for ecosystem services (PES) schemes have been designed without any supporting monetary valuation studies, or analysis of opportunity costs of land. Instead, incentives have been often negotiated, sometimes involving participation of different stakeholders (*Wunder et al., 2008; Kosoy et al., 2008*). Such a pragmatic approach can circumvent difficult discussions about, as well as time-consuming and costly techniques to calculate the correct prices – witness the debate about the social cost of carbon (*van den Bergh, 2010*).

effectiveness (e.g., of meeting a certain emission target) is easy if the efficiency gains are small and uncertain. However, if one finds that with one instrument the cost of reaching an environmental target can be reduced by more than, for example, 50% compared to using other instruments, could one honestly say that this is not relevant information (i.e. that cost-effectiveness is not a relevant criterion)? We seriously doubt it. A “cheaper solution” increases political feasibility, among others, as there is more money left to distribute. Of course, this does not mean one has to immediately opt for the most efficient/cost-effective instrument. But it is unavoidable that such information plays a role in selecting policy instruments.

Kallis et al. make the questionable statement that the valuation of nature very often entails a “methodological or discursive lift for a commodification that eventually degrades the socio-environments at stake” (Kallis et al., 2013, p.100). In this regard, we consider it incorrect to present the Constanza et al. (1997) study as an example of commodification. We agree with the response to similar criticisms by Costanza (2006): “Valuing ecosystem services is not identical to commodifying them for trade in private markets. Most ecosystem services are public goods (non-rival and non-excludable), which means that privatization and conventional markets work poorly, if at all.”⁴ Therefore, we think that Kallis et al. confuse valuation exercises with pricing nature, including market creation. They may be related in certain cases, but are not the same.

We do not want to deny that pricing of environmental goods or services previously not under a pricing regime could in certain cases be interpreted as bringing these within the realm of economic commodities. But here one has to be precise. For example, environmental taxation is a form of pricing that does not involve creating a new market or require market exchange as is the case with tradable permits or certain – but not all – PES schemes. Many PES schemes in developing countries involve subsidies, which means that no actual market exchange is involved (Muñoz-Piña et al., 2008; Pattanayak et al., 2010). Furthermore, such subsidies are related neither to the economic value of ecosystem services nor to their provision levels (Kroeger, 2013). Tradable permits, on the other hand, are usually about pollution, which is not the same as nature or the environment. In fact, this instrument is aimed at avoiding (too much) pollution from entering into the environment or damaging nature. So while some PES (e.g., carbon offsets from forests) can be seen as an example of commodification of nature or the environment, this is less evident for tradable pollution permits and not true for taxation. One should therefore be careful and avoid generalizations about “commodification” of nature/environment.

3. Shortcomings of the Illustrative Examples

The authors use five real-world examples to demonstrate how the four criteria can be applied to assess the desirability of monetary valuation. There are at least three problems associated with these examples: (1) the choice of examples seem arbitrary and the authors do not justify why the specific examples were selected, (2) the examples are not representative of the variation of valuation studies found in the literature, which may lead to biased conclusions about the generality of the evaluation, as well as about the usefulness of the four criteria, and (3) all practical examples provided by the authors (summarized in the article's Table 1) actually deal with economic policy instruments (namely, compensation for pollution damages, water pricing, and payments for ecosystem services) rather than monetary valuation.

Moreover, the authors never state clearly whether they think that the use of monetary valuation techniques can assist environmental policy preparation, and ultimately may increase the likelihood of choosing

and implementing good policies. As already indicated, Kallis et al. do not clearly and explicitly note that valuation is undertaken for a variety of other reasons than setting the level of environmental pricing instruments (such as taxes, charges or levies): among others, to measure the economic significance of environmental damages and externalities, to compare the benefits (avoided damages) and costs of pollution abatement, to inform environmental accounting at national, regional, municipal or firm (organization) levels, to undertake liability assessments (e.g., for legal court cases), and to provide information about non-market or public good effects (e.g., of climate change) for use in environmental CBA (Hanley and Spash, 1993; Bateman et al., 2002). Numerous publications, also in this journal, illustrate these various uses of monetary valuation. We do not suggest that the authors need to be exhaustive and cover all practical examples of monetary valuation, but we do believe that including the most common applications would provide much stronger and more objective case for illustrating the use of the criteria and arguing the (ir)relevance of monetary valuation.

It is rather surprising that the authors claim water pricing to not, or at best possibly, improve environmental conditions. For there is a broad literature that clearly illustrates the positive effects of pricing on diminishing water demand (e.g., Olmstead and Stavins, 2009; Grafton et al., 2011), which the authors omit. It is also questionable that Kallis et al. rate markets for ecosystem services with a clear “no” in terms of environmental effectiveness while public PES schemes are rated with a clear “yes”. Conclusions about the environmental (in)effectiveness of economic policy instruments for biodiversity conservation are very much premature given that robust evaluations of economic conservation instruments continue to be rare (Miteva et al., 2012; Pattanayak et al., 2010). In contrast to studies mentioned by Kallis et al., there is evidence that market-based schemes for ecosystem services can induce the expected conservation outcomes (e.g., Wendland et al., 2010; Hedge and Bull, 2011), while there is proof of both positive and negative environmental performance of public PES (Scullion et al., 2011; Arriagada et al., 2012). In any case, this issue can only be settled by a survey of all representative studies, not by selectively presenting evidence. There is agreement in the literature that better designed and targeted PES can function as environmentally effective instruments in the right settings (e.g., Wünscher et al., 2008; Wunder, 2013).

Next, Kallis et al. assess distributional effects for given examples. Although economic policy instruments are typically focused on achieving an efficient allocation of natural resources, they can also be used to promote equity objectives (Rogers et al., 2002; OECD, 2013). Alternatively, additional instruments can be introduced with the aim of improving equality (Sterner, 2003; EEA, 2006; OECD, 2013). However, the authors entirely neglect this issue and the relevant literature. For example, they assume that full-cost (water) pricing is socially regressive even though this does not have to be necessarily the case if pricing is designed well (Rogers et al., 2002; OECD, 2013), for example, if full-cost pricing is coupled with increasing block pricing (Barberán and Arbués, 2009). Once again, the treatment confuses policy instruments and monetary valuation by not acknowledging that distributional consequences are related to the design of the policy instrument and not to monetary valuation itself. In fact, on the basis of monetary valuation studies one could in principle decide about the distribution of costs, that is, who can and is willing to pay more or less for a certain environmental policy or project.

Finally, a serious omission in the article, which claims to offer a critical discussion of valuation, is that the important distinction between revealed and stated preferences approaches does not receive any attention. Surprisingly, the terms are not even mentioned. It should be recognized that one cannot generalize too much about monetary valuation as each valuation approach has its specific advantages and disadvantages. Moreover, the two approaches are to some extent complementary. Assessing revealed preferences is important as they show the fundamentals that have driven decisions and trends in the past. An important advantage of stated preference techniques is that they can explore

⁴ By the way, a main problem with the Constanza et al. (1997) study was not so much the monetary valuation dimension per se, but the linear aggregation of constant per unit of area monetary values, which meant taking insufficiently into account specific geographical circumstances of demand for ecosystem goods or services (relative scarcity), and neglecting diminishing marginal utility.

hypothetical issues that are not reflected in historical data, which invites their application to future, planned policies and expected or potential environmental changes. This approach to valuation can be seen as democratic, especially if income effects are accounted for. In fact, many stated valuation techniques take the form of a referendum, something which many critics of monetary valuation embrace enthusiastically as a sign of real democracy and freedom. Adding a monetary dimension to a referendum format just means that one can measure preferences in a more subtle way – it is like asking how strong your preferences for a certain thing or change are. One can be more critical of revealed preference studies in the context of extreme income inequality when they do not include income information, so that the findings are very much influenced by the income distribution without one being able to correct for it. Nevertheless, revealed preference valuation increasingly relies on controlled field experiments which allow adding information on incomes of respondents (e.g., Löschel and Vogt, 2013; Jack et al., 2008).

4. Towards a Fair and Constructive Criticism of Monetary Valuation and Other “Valuation Languages”

We think it is good to be critical of monetary valuation. But one has to focus on real weaknesses then. Notably the assumption of rational behavior (consumers maximizing utility) is a serious weakness and means that any assessed values are an approximation at best. This has perhaps received too little attention so far in methodological progress of valuation techniques. Nevertheless, studies to compare values between methods, and experiments to examine preference stability and formation, have provided much insight into the robustness of the valuation results under various conditions (Ariely et al., 2003; DeShazo and Fermo, 2002; List, 2003; Braga and Starmer, 2005; Holmes and Boyle, 2005; Brouwer et al., 2010). Generally, monetary value estimates make sense in terms of signs and order of magnitude, as can be derived from a range of methods and applications. Valuation studies provide otherwise unobtainable information for estimating damages of environmental degradation, including climate change, which can favorably affect political decisions to implement environmental and climate regulation. More importantly, we have a good understanding of which environmental, spatial and socio-economic factors contribute to high or low values, so that policies can be fine-tuned to the specific behavioral features of individuals. Last but not least, there is no evidence that monetary valuation studies contribute to worsening environmental problems or to weak policies, or that they provide insights that are very different from those obtained by other “valuation approaches”.

We would propose completely different criteria (or associated questions) than Kallis et al. to evaluate the validity, policy relevance and quality of monetary valuation exercises. Some examples, in random order, are as follows:

- Does it concern a public or private good (relevant for assessing strategic, free-rider bias)?
- Does it in some way affect the access and use by respondents or their emotional connection with it?
- Do respondents have prior experience with the good or issue valued?
- What does the hypothetical nature of the questions imply for hypothetical bias?
- What is the complexity of the ecosystem or the function/service involved and can respondents be expected to understand it well?
- Are mental account and part-whole biases likely?
- What is the experience of respondents with formal markets and monetary exchange, in general, or associated with the particular good being valued?
- What value elicitation mechanism is used and what biases may be expected from it (e.g., an open-ended question, a dichotomous choice format, a payment card or choice experiment with a monetary attribute)?

- Are respondents presented an opt-out option or can they protest against valuing?
- Are values generated by revealed and stated preference techniques similar (testing convergent validity)?
- Are market costs and behavior consistent with estimated values (e.g., travel expenditures with travel cost values)?
- Is the welfare measure (willingness to pay or willingness to accept) appropriate given the combination of problem (environmental degradation/improvement) and choice at hand (change vs. forgone change)?
- How well is the welfare measure predicted by theoretically expected factors (testing construct validity)? For example, is a relationship between respondents' income and willingness to pay positive and significant?
- Is the payment vehicle used credible?
- Are the results expected to serve as inputs in a policy CBA?
- How relevant is the topic of the study given the current policy context?

We could easily extend this list based on the various biases that have been identified in stated preference research and the solutions that have been offered to minimize these (see any chapter on valuation in a good textbook on environmental economics; e.g., Chapter 7 in Perman et al., 2011). Note that the above criteria/questions are much more specific (and thus more informative and more fair) than a judgment like “neoliberalism”, while some touch upon concerns associated with it. If multiple valuation studies are available using different “valuation languages”, one might add a “higher-level” criterion like: are outcomes or insights of different valuation languages applied to the same case mutually consistent? Note that this is related to, but not entirely the same as, criterion 3 of Kallis et al. The previous suggestions are merely illustrative and not in any way meant as a definite or complete list of criteria for evaluating valuation. Such a list should draw upon the large literature on valuation which has extensively discussed shortcomings and improvements in monetary valuation.

Concluding, a more balanced and fair assessment of valuation methods and pricing policies is needed. One should, however, not mix up monetary valuation and pricing instruments as this only leads to confusion and unclear insights. To avoid likely confusion, we are of the opinion that the four criteria proposed by Kallis et al. are more suitable for assessing policy instruments than monetary valuation (but we don't think they are all needed, especially the fourth one). We agree with the authors that the goal of “an egalitarian socio-ecological transition” means giving more attention to distributional impacts – as well as barriers (vested interests). But this does not justify being so critical of monetary valuation and pricing without proper evidence that it necessarily performs badly on equity (and environmental effectiveness). We would argue that this depends on many additional factors, which suggests that one should avoid generalizations. Instead, the authors just stress arguably negative consequences, suggesting that monetary valuation has enhanced, or will enhance, “accumulation by dispossession”, “privatization, enclosure and the institution of private property rights” and “free market”. These are very big claims, while the article does not offer any convincing empirical evidence for them. On the other hand, the authors do not provide any guarantees that more effective environmental policies will result from the suggested PE approach.

Our first and main task as environmental scientists is to assist in the design and implementation of effective policies and strategies to address the diversity of environmental problems. In our view, a modest, constructive approach would be to provide a clear insight about the conditions under which monetary valuation and pricing instruments function well and can help in policy making, rather than being generally skeptical about them. We are strongly in favor of value pluralism. But we have the impression that so far most writers in ecological economics have been much more critical of monetary valuation than of its

alternatives. It would be good to be equally critical of other “valuation languages”, rather than pay lip service to these. As noted in the discussion of criterion 3 (“value pluralism”) in Section 2, there are various reasons to be critical of these. In this sense, our discussion offers a starting point for further deliberation about the comparative performance of different valuation languages. In fact, this type of research is at the heart of ecological economics.

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