

## Tilburg University

### Talking money

Neuteleers, S.; Engelen, B.

*Published in:*  
Ecological Economics

*DOI:*  
[10.1016/j.ecolecon.2014.06.022](https://doi.org/10.1016/j.ecolecon.2014.06.022)

*Publication date:*  
2015

*Document Version*  
Peer reviewed version

[Link to publication in Tilburg University Research Portal](#)

*Citation for published version (APA):*  
Neuteleers, S., & Engelen, B. (2015). Talking money: How market-based valuation can undermine environmental protection. *Ecological Economics*, 117, 253-260. <https://doi.org/10.1016/j.ecolecon.2014.06.022>

#### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

#### Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.



Contents lists available at ScienceDirect

Ecological Economics

journal homepage: [www.elsevier.com/locate/ecocon](http://www.elsevier.com/locate/ecocon)

## Talking money: How market-based valuation can undermine environmental protection

Stijn Neuteleers<sup>a,\*</sup>, Bart Engelen<sup>b</sup>

<sup>a</sup> Centre de Recherches et d'Etudes Interdisciplinaires sur le Développement Durable, Université de Technologie de Troyes, bâtiment T, rue Marie Curie 12, CS 42060, 10004 Troyes Cedex, France

<sup>b</sup> Centre for Economics and Ethics, KU Leuven, Naamsestraat 69, 3000 Leuven, Belgium

### ARTICLE INFO

#### Article history:

Received 19 August 2013

Received in revised form 12 June 2014

Accepted 26 June 2014

Available online xxxxx

#### Keywords:

Monetary valuation

Commodification

Environmental morale

Corruption

Crowding-out

### ABSTRACT

In this paper, we want to analyze conceptually whether and when merely using economic discourse – talking money – can crowd out people's positive attitudes towards environmental goods and their reasons to protect them. We concentrate on the specific case of market-based or monetary valuation (MV) as an instance of 'commodification in discourse' and argue that it can have the same moral problems as real commodification. We aim to bring together insights from philosophy (pluralistic value theory), ethics (corruption), economics and psychology (crowding-out) to argue that there are good reasons to think about how and when to apply MV in environmental cases. On the basis of this interdisciplinary analysis and in order to promote further empirical research, we develop four empirically falsifiable hypotheses. (i) Commodification in discourse can bring about real commodification. (ii) MV can have framing and crowding effects on those who come into contact with it. (iii) Intrinsic motivation is more robust than extrinsic motivation and leads less to freeriding. (iv) MV's framing and crowding effects can decrease (demand and support for) environmental protection.

© 2014 Elsevier B.V. All rights reserved.

### 1. Introduction

Many economists see markets as the main instruments to deal with environmental cases. In their view, environmental problems are caused by the absence of markets for environmental goods, such as clean air, water quality and biodiversity. Both Pigovian and Coasean solutions to market failures in providing or sustaining public goods consist in incorporating externalities into the pricing mechanism (e.g. by having the polluter pay) and thus incentivizing people to take the costs and benefits of these goods into account (Gómez-Baggethun and Ruiz-Pérez, 2011, p. 618). In short, 'the market is not perfect, but it is the best solution to our ecological problems' (Smith, 1995, p. 72). In recent years, much environmental policy is based on two types of so-called market-based instruments (MBIs), namely markets for ecosystem services (MES) such as emission trading schemes, and payments for ecosystem services (PES) such as paying farmers for wildlife protection (Gómez-Baggethun et al., 2010; Pirard, 2012). These types of marketization consist in offering real monetary incentives for environmental protection but have received much criticism (Martinez-Alier, 2002; McCauley, 2006; O'Neill, 1997, 2001; Sagoff, 2008).

However, there is also a marketization of the discourse we use to talk about environmental goods. We talk about environmental goods as if

they are commodities with costs, benefits and, most importantly, prices (talking money), which we will call 'commodification in discourse'. Here, we want to analyze whether such commodification in discourse is problematic and whether it can influence the way we value environmental goods. While this topic has been touched upon by several authors, we aim to make this discussion conceptually more precise and empirically falsifiable by doing three things. First, we will focus on a specific kind of commodification in discourse, namely market-based or monetary valuation (MV) in which a monetary value is attributed to (environmental) goods. This also allows us to connect our discussion to already existing debates between proponents and opponents of MV. Second, and this is the main contribution of our analysis, we want to bring in insights from ethics (moral problems of commodification and marketization) and philosophy (value theory) in order to clarify conceptually the problems with MV. Third, we will connect all this with empirical evidence from economics and psychology on the phenomena of crowding-out and framing. Based on our increased understanding of the problems of commodification in discourse and MV, this will enable us to formulate falsifiable hypotheses about their effects.

This paper consists of seven sections. In Section 2, we will first clarify our central concepts, such as MV. In Section 3, we will briefly review the main criticisms MV has already encountered. Section 4 discusses the insights from ethics (on commodification and corruption) and philosophy (on value) and Section 5 those from economics and psychology (on crowding-out and framing). In Section 6, we will use this interdisciplinary analysis to examine more closely whether the problems with

\* Corresponding author.

E-mail addresses: [stijn.neuteleers@gmail.com](mailto:stijn.neuteleers@gmail.com) (S. Neuteleers), [bart.engelen@kuleuven.be](mailto:bart.engelen@kuleuven.be) (B. Engelen).

commodification and crowding-out also apply to MV, namely whether MV changes people's valuations, motivations and behaviors with regard to environmental goods. Here, we will formulate a number of falsifiable hypotheses about the potential effects of commodification in discourse and MV. In the concluding Section 7, we briefly sum things up.

We believe this fills an important gap in the literature, which typically overlooks the distinction between two sorts of market-based instruments, namely those using real monetary incentives (giving money as in MES and PES) and those using forms of economic discourse (talking money as in MV). This allows us to further bring together the debate on crowding-out (which focuses exclusively on real money) and the debate on MV (which focuses exclusively on talking money). Moreover, we believe this is relevant because it sheds light on the roles MV can and should play. MV is commonly understood as input in policy decision-making, but while there is much debate about the nature of MV and its potential for environmental protection, its real-world use is relatively little discussed in scientific literature. Based on a literature review, one of the conclusions of Laurans et al. (2013, p. 217) is that MV 'is primarily geared towards an informative role for general influence and awareness-raising'. If this is true, the impact of MV on people's valuation is of crucial importance and should be scrutinized carefully.

## 2. Concepts and definitions

First we need to clarify and define some crucial concepts. To begin with, the market here is understood broadly as institutionalized voluntary trade: 'As participants in a market, people's relationships are those of voluntary exchange. Each obtains what he wants by offering some equivalent benefit in return' (Miller, 1989, p. 18). This contrasts with a narrower view of the market which restricts it to higher-volume, recurrent exchanges of specific kinds of commodities. MV, however, is not a form of market exchange. Next to institutions that coordinate behavior, some institutions can also articulate people's preferences and values and thus help choose between different coordinating institutions. MV, as input to cost-benefit analyses (CBA), is such a value articulating institution (VAI). In the environmental sphere, the most widespread VAIs besides MV are non-monetary valuation methods such as multi-criteria analyses (MCA) and deliberative methods (Jacobs, 1997; Vatn, 2009).

Narrowing down the distinction between coordinating and value articulating institutions to their market-based versions, one can distinguish between real and hypothetical markets, or between literal commodification and 'commodification in discourse'.<sup>1</sup> In real markets (or literal commodification), environmental goods are commodified and transformed into market goods by defining property rights that can be traded for real prices. In hypothetical markets or 'commodification in discourse', environmental goods are treated and valued *as if* they were commodities or market goods. Think for example of the talk about the economic costs of environmental disasters and about the benefits (services) of ecosystems and other environmental goods in the media, not only in public debates but also in everyday life. Such commodification in discourse has been on the rise over the last decades in both academic and public debates about the value of environmental goods.

Now, MV is one specific kind of commodification in discourse. It is a set of methods economists use to estimate and construct these shadow prices as a proxy for people's preferences and valuations. Even when there is no real market for environmental goods, one tries to estimate their price *as if* there were a market for them.<sup>2</sup> MV's main advantage

<sup>1</sup> Jane Radin (1996) was the first to make this distinction, followed by Kenneth Arrow (1997, pp. 761–62) in a review of her book and later also Mark Sagoff (2008, p. 32).

<sup>2</sup> This focus leaves out cases where there are actual markets for environmental goods. In such direct market valuation approaches, data from these actual markets can be used since they reflect actual preferences or costs.

is thus to make explicit, comparable and commensurable the extent to which people value different goods.

One can distinguish between two types of monetary valuation methods (Pascual et al., 2010: 196–204). First, revealed preference methods infer a shadow price for some environmental good from changes in some proxy market good (e.g. hedonic pricing) or from the costs incurred by individuals to enjoy that environmental good (e.g. travel cost method). Second, stated preference methods ask people directly in surveys how they trade off monetary and environmental quality. The contingent valuation method (CVM) for example uses questionnaires to ask people how much they are willing to pay (WTP) for a good or to accept (WTA) in compensation for its loss. CVM thus literally asks people to talk money in order to express how much they value some environmental good. In contrast, choice modeling studies ask people which of different (policy) options, each with a price tag, they prefer. As we will stress later on, such more recent and sophisticated methods may but do not necessarily avoid the problems that earlier and cruder methods face. What is crucial for now is that both revealed and stated preference methods ultimately result in shadow prices for non-market environmental goods. Both share what is characteristic of all market-based instruments (MBIs) to environmental problems, namely giving environmental goods a price: 'the only common characteristic for all these "MBIs" seems to be the fact that a price is attributed to nature' (Pirard, 2012, p. 62).

## 3. Main criticisms of MV

Before analyzing whether MV can change the valuations it aims to measure, we look at the two standard criticisms that have been leveled against it. First, it has been argued that it is simply impossible to value different environmental goods using a single monetary scale. Comparing goods is always done with regard to a specific comparative value (such as beauty, healthiness or economic benefit). Since there is no overall comparative value ('betterness'), converting all goods to a single scale can only be done by favoring one comparative value. Asking people to express what they are willing to pay for environmental goods, is thus inevitably reductionist with regard to the spectrum of values. Some aspects of the good may be highly valuable but hard or impossible to express in terms of willingness to pay. In short, this first criticism holds that MV is not an adequate measure of the extent to and the ways in which people value environmental goods. The idea that MV cannot take into account the plurality of reasons people have for valuing something is heavily discussed in the debate on value (in)commensurability (Anderson, 1993, 1997; O'Neill, 1993, pp. 115–122). Here the criticism is that MV fails to achieve its primary purpose, namely to adequately estimate the extent to which people value environmental goods.

However, the second criticism states that MV does not provide the relevant criterion for environmental policy design. Even if it would succeed in measuring the value of environmental goods, EV can only estimate the extent to which people *prefer* a good, expressed in monetary terms. However, there is a difference between what people personally want (consumer perspective, preferences) and what they believe is good for society (citizen perspective, reasons) (Howley et al., 2010; Sagoff, 2008, pp. 46–47). Policies should be based on what people deem in the public interest rather than (or next to) their private interest. Whereas MV only measures the latter, policy makers should base their decisions on the former (or at least on both). Again, this argument stresses the need for a more inclusive consideration of the reasons people have for protecting environmental goods. Oft-cited non-monetary alternatives – such as MCA or deliberative methods – perform better in articulating this plurality of reasons (Gregory et al., 1993, pp. 434–436; Wilson and Howarth, 2012).

Most of the debates on MV have centered around these two criticisms. With respect to contingent valuation methods (CVM), critics argue that 'contingent valuation is a deeply flawed methodology (...)

that does not estimate what its proponents claim to be estimating' (Diamond and Hausman, 1994, p. 62), while proponents claim that it is not a problem of methodology but rather of poorly conducted technique (Hanemann, 1994, p. 38). Twenty years later, critics still argue that 'contingent valuation is hopeless' (Hausman, 2012, p. 43) and proponents still want 'to focus instead on making it better' (Carson, 2012, p. 40).

Some defenders of MV and CBA, such as Schokkaert (1995), acknowledge both problems but argue that we should nonetheless stick to MV because it provides better results than its alternatives: (i) it offers transparent and accountable information; (ii) it is more feasible than deliberative methods; and (iii) it offers the most influential argument in public affairs: 'if you want influence, talk money'. This paper, however, wants to discuss a pragmatic argument against the use of MV, namely that talking money can negatively influence valuations and motivations.

#### 4. Insights from ethics and philosophy: commodification, corruption and pluralistic value theory

In order to do this, we need to introduce a number of insights from outside the literature on MBIs and MV. Let us first focus on commodification in general, properly defined as the process of turning non-market goods into market goods or commodities or products that are bought, sold and traded. While there is a long-standing debate on commodification, especially in the Marxian tradition, it has recently been revived in the debates on the moral limits of markets (Anderson, 1993; Radin, 1996; Sandel, 1998, 2012; Satz, 2010). Michael Sandel (1998, pp. 94–96) argues that there are two moral arguments against the increasing trend of commodification. The first is that markets can imply coercion. If there are severe inequalities or if people are in dire need of basic necessities, market exchanges are often not as voluntary as they seem. This argument holds only if people buy and sell goods against a background of inequality severe enough to create coercive bargaining conditions. If the background conditions are fair, this argument no longer has teeth. The second objection, however, does. It states that the commodification of goods – regardless of bargaining conditions – can imply their corruption. In what follows, we will focus on this more fundamental objection, according to which some goods lose their moral value once they are put up for sale.

Sandel (2012, p. 81) gives the example of selling permits for shooting endangered species such as black rhinos. Well-organized trophy hunting can contribute to conservation goals, e.g. 'by creating economic incentives for conservation over vast areas' (Lindsey et al., 2007, pp. 462–463). An approach that focuses exclusively on instrumental efficiency considerations simply asks whether such a scheme works and has a positive effect on rhino population (which it has in South Africa). Regardless of such desirable consequences, however, selling hunting permits can be considered morally wrong in itself: shooting wildlife should not be a product up for sale. The crucial argument here is that of corruption: our relation to wildlife is entrenched with moral norms and values, which can get lost if it is turned into a market exchange. Most people feel that big wild animals deserve some kind of respect, which puts a moral limit to its commodification. Sandel argues that 'we can't decide whether to buy and sell the right to shoot rhinos without resolving the moral question about the proper way of valuing them' (Sandel, 2012, p. 81).

While perhaps a less vivid example, Sandel argues that corruption through commodification can also occur when emission permits are traded. Pollution then becomes a matter of calculation rather than of concern for the environment, with international emission-trading schemes undermining 'the sense of shared responsibility that increased global cooperation requires' (Sandel, 2005, p. 95). In short, the marketization of emission permits turns pollution into a commodity and risks changing people's attitudes and norms towards it.

While the notion of corruption points to something important, its exact meaning is not always clear. In order to clarify what exactly is going on here, we need a philosophical value theory. Elizabeth Anderson (1993, pp. 1–16) bases her criticism of commodification on what she calls a 'pluralistic theory of value'. She crucially states that there are different ways or modes of valuing things: to use, respect, appreciate, consider, love, honor, admire, et cetera. This plurality also holds for disvaluing: to shun, humiliate, mock, despise, ignore, et cetera. Because of the complex range of attitudes we have towards an object of care – perception, emotion, deliberation, desire and conduct – we can value the same good in different modes. Take a forest, which we can use (when collecting wood for a fire), enjoy (when hiking) but also admire (when being in awe of its fauna and flora). Now, valuing is not the same as having an experience of value. We experience something as good or bad if we are respectively favorably aroused (inspired, attracted, interested, pleased, awed) or unfavorably aroused (shocked, offended, disgusted, irritated, bored, pained) by it. Valuing is more fundamental than such positive or negative emotional responses. We can value abstract realities that we have never experienced, such as a just distribution of wealth or a stable ecosystem. Next to valuing and having an experience of value, we can also evaluate something, namely when we judge the appropriateness of a specific mode of valuing with respect to a specific good. To evaluate means to judge in which respect the properties of an object meet certain standards of value, which in turn depend on the modes of valuing.

Take a rural landscape: we can experience it as agreeable (experience of value) but we can also appreciate and admire it as a beautiful landscape (valuing). If we want to evaluate it, we first have to judge whether beauty is a relevant criterion. If we consider a specific mode of valuing as appropriate, we can judge to what extent the landscape meets the relevant standards of value. Comparing it to other landscapes, we can come to evaluate this particular landscape as more or less beautiful. Crucially, certain modes of valuing a good are more appropriate than others and a particular mode of valuing can be downright inappropriate for a specific good. Consider an economic mode of valuing personal relationships such as friendship, which sees these as things that have costs and benefits and that can be exchanged, bought and sold.<sup>3</sup> Offering money to someone to become one's friend can never result in real friendship. Any attempt to commodify this good corrupts it and can even make its very existence impossible. Or consider selling one's pet for laboratory experiments, which implies a misunderstanding of what it means to have a pet (Anderson, 1993, p. 208). The good of 'having a pet' would be corrupted and would be transformed into 'having livestock' (a stock of living commodities). Anderson's pluralistic theory of value thus underpins Sandel's notion of corruption and clarifies Sandel's claims that to commodify non-market goods is 'to value them in the wrong way' and that 'we have to debate, case by case, the moral meaning of these goods and the proper way of valuing them' (Sandel, 2012, p. 10).

How do these ethical and philosophical analyses relate to MV and its pitfalls? MV focuses on one particular mode of valuing, namely a market-, money- and preference-based one. While it measures to what extent some environmental good is preferred in comparison with other goods, people can value it in different ways as well. Since MV relies on one mode of valuing, it is partial in nature. Valuing a landscape or a species on a monetary basis (how much money is it worth to you?) is reductionist, because other modes of valuing (how would you rate its beauty or intrinsic value?) also and possibly better suit such goods. Merely putting the question in monetary terms is a form of commodification in discourse that does not reflect people's diverse ways of valuing. This problem is more prevalent the more explicit money is used

<sup>3</sup> This broad use of the notion 'economic' in 'an economic mode of valuing' is based on the widespread tendency of economists to think of value in terms of utility and/or exchange: 'the mental model used by economists is that value is based on want satisfaction, pleasure or utility goals' (Farber et al., 2002, p. 379). In our view, there are aspects of valuation that cannot be grasped in such 'economic' terms.

in framing the question (as in older CVM studies) but is lessened when money is only one of the many aspects that come to the fore (as in more recent choice modeling studies). In Sections 5 and 6, we analyze not whether MV misrepresents people's valuations and motivations towards environmental goods but whether it corrupts these.

Anderson's pluralistic value theory thus explains the two standard criticisms on MV discussed earlier and ties in neatly with important insights about people's motivations. Since Amartya Sen (1977) has criticized utility-maximization by focusing on motivations like commitment or the desire to express (rather than satisfy) preferences, psychologists, behavioral economists and evolutionary theorists have provided widespread evidence for the claim that people's (value) judgements are based on a complex amalgam of intuitions (Haidt and Joseph, 2004), beliefs, norms, principles, dispositions, attitudes, emotions, passions and sentiments. All these have evolved through natural and cultural selection and, *pace* conventional economic practice, cannot be captured in one-dimensional preference-rankings (Hodgson, 2013).

### 5. Insights from economics and psychology: crowding-out

Now, Anderson's pluralistic value theory allows one to ask not only whether favoring one mode of valuing is reductionist but also whether it can be detrimental to other modes of valuing. To analyze whether the economic mode of valuing induced by MV can corrupt and thus negatively impact other modes, we propose to make use of insights from both economics and psychology. From the early days of capitalism, authors such as Alexis de Tocqueville, Karl Marx, John Stuart Mill, Friedrich Hayek and now Michael Sandel have understood that real markets are not as neutral as economists often take them to be: instead of merely distributing goods, they can also influence those goods and people's attitudes towards them (Hirschman, 1982).

Markets and other economic institutions do more than allocate goods and services; they also influence the evolution of values, tastes, and personalities (...). One risks banality, not controversy, in suggesting that these allocation rules therefore influence the process of human development, affecting personality, habits, tastes, identities, and values. (Bowles, 1998, pp. 75–76)

Still, it is not obvious how exactly markets and MBIs influence individuals' attitudes towards goods. This is partly why preferences have mostly been assumed stable and exogenously given. Only recently have economists and psychologists analyzed more fully how preferences are shaped by the economic system they are part of (endogenous preference formation) (Bowles, 1998). Crowding theorists study the impact of monetary incentives on people's diverse and heterogeneous motivations to maintain a specific good. While the best-known version of crowding theory is formulated by Frey (Frey, 1997; Frey and Jegen, 2001), early research on crowding effects dates from the seventies, both in the fields of public policy (Titmuss, 1970) and psychology (Deci, 1971). Especially Titmuss' claims about the effects of monetary rewards for blood donors gave wide resonance to the idea that commodifying a good does not always have the desirable effects predicted by conventional economists.<sup>4</sup> From the end of the nineties, crowding theorists have begun to examine explicitly environmental management, both theoretically (Frey, 1997, pp. 56–78, 2012; Frey and Stutzer, 2008) and empirically, including both experimental (Ostmann, 1998) and field research (Cardenas et al., 2000; Frey and Oberholzer-Gee, 1997). Interest in such research is still growing (d'Adda, 2011; Kerr et al., 2012; Volland, 2008).

In general, crowding-out refers to the process of external incentives diminishing intrinsic motivation (Frey, 2001, pp. 52–72; Goodin, 1994,

p. 581). It is a psychological mechanism that can be labeled 'motivational corruption' with the introduction of money corrupting or undermining people's intrinsic motivation to uphold or protect some good.<sup>5</sup> People who protect an environmental good because they think it is inherently valuable, for no other reason but itself, are motivated intrinsically: 'One intrinsically values something when one values it in itself – that is, apart from valuing anything else' (Anderson, 1993, pp. 2–3).<sup>6</sup> The notion of 'environmental morale', defined as 'a conglomerate of internalized norms and intrinsic motivation' (Frey and Stutzer, 2008, p. 412) captures the idea that people can be intrinsically motivated to protect environmental goods. In contrast, one is extrinsically motivated if one performs an activity in order to achieve a goal external to that activity. For instance, people who protect the environment because they believe this is necessary for health reasons are extrinsically motivated. Crowding-out occurs when the force of people's intrinsic motivation is lessened because a change in the choice setting (the introduction of a sanction, a financial reward or a regulation) stimulates extrinsic motivation. Consider the following example.

A boy on good terms with his parents willingly mows the lawn of the family home. His father then offers to pay him money each time he cuts the lawn. The crowding-out effect suggests that the boy will lose his intrinsic motivation to cut the lawn (he may go on doing so, but now he does it because he is paid), but he will not be prepared to do any housework for free. (Frey, 2001, p. 54)

While a higher price induces an increase in supply according to the relative price effect, crowding theory suggests that it may lead to a decrease as well. Contrary to what conventional economic theory suggests, the example shows that monetary incentives can actually be counterproductive. Whether introducing or increasing a price leads to more or less of the desired activity depends on the relative strength of both the price effect (increased price increases supply *ceteris paribus*) and the crowding-out effect (increased price decreases intrinsic motivation which in turn decreases supply *ceteris paribus*). All this depends on specific conditions. External incentives have been shown to crowd out intrinsic motivation if they are perceived as controlling and to crowd in and thus increase intrinsic motivation if they are perceived as supportive (Frey, 2001, pp. 53–56, 68–69). A famous real-life example of crowding-out is that of a day-care centre that introduced monetary fines for parents who arrived late to pick up their children (Gneezy and Rustichini, 2000). Transforming the relationship into a purely economic one, the fines reduced the intrinsic motivation to do the appropriate thing and increased the amount of latecomers. Crowding theory thus provides empirically falsifiable claims that substantiate Sandel's general idea that the marketization of goods can corrupt (the norms that surround) them.

This is relevant to environmental cases, because people are often intrinsically or morally motivated to uphold an environmental good. When they believe, for example, that an ecosystem has value in itself or when they consider it their moral duty to protect a species from extinction, the introduction of monetary incentives to protect these goods risks to alter the norms that shape their attitudes and behaviors towards them. Once one gets paid to save a species, this goal can lose its intrinsic and moral importance. An example is provided by a field experiment with three small villages in rural Colombia. Subjects had to choose anonymously how much of a common pool resource (tokens

<sup>5</sup> While Sandel himself makes no reference to crowding-out in his earlier work on the limits of markets (Sandel, 1998), he does so in his more recent work (Sandel, 2012, p. Ch. 3), but does not elaborate on it.

<sup>6</sup> We do not adopt the definition of Frey (1997, p. 13), who follows Deci (1971, p. 105): 'one is said to be intrinsically motivated to perform an activity when one receives no apparent reward except the activity itself. This suggests that there is some reward that motivates the activity. In our view, someone who protects an environmental good because it makes him feel good is extrinsically motivated, since he aims to achieve a goal that exists and can be achieved independently from the environmental good itself.

<sup>4</sup> Titmuss' study was criticized for not providing compelling empirical evidence with regard to crowding-out (Arrow, 1972), but later research confirmed its relevance in the case of blood donations (Bowles, 1998, p. 91).

which are verbally framed as ‘wood in the forest’) to withdraw, in full knowledge of the negative side-effects (Cardenas et al., 2000). The introduction of regulatory controls (withdrawing too much ‘wood’ resulted in a probability of being fined), led to the opposite of what could be expected: villagers started to collect even more ‘wood’. As with the day-care centre, the fine was regarded as a price, inducing the villagers to disregard social and moral norms surrounding the common resource. When they were able to communicate, however, they managed to diverge from their narrow self-interest and deplete less of the resource.

Several empirical studies indicate the existence of crowding effects with regard to biodiversity protection. In one study, for example, participants in PES schemes show increased extrinsic motivation but only at the cost of decreased intrinsic motivation: ‘the longer the time having been receiving PES, the less likely it is that people will support an intrinsic, culturally based principle for conservation that gradually becomes replaced by monetary interests’ (Rico García-Amado et al., 2013, p. 99). A review of existing studies with respect to crowding effects, however, concludes that ‘empirical evidence remains inconclusive, largely due to methodological and data limitations’ (Rode et al., 2013, p. 17). Given the empirical nature of this debate, more research is needed.

Next to direct crowding effects, indirect effects can arise as well (Frey, 1997, pp. 35–39, 2012, p. 82). So-called ‘motivational transfers’ or ‘motivational spill-overs’ occur when crowding-out spreads into other areas where external incentives are not yet at play. In Frey’s example of the lawn, the son can become less willing to do other household chores, even though the reward only applies to mowing the lawn. If selling hunting permits for rhinos changes our valuation of rhinos, it can spill over to our attitudes towards other wildlife, which are on the same value dimension. Next to such intrapersonal motivational transfers, interpersonal motivational transfers are conceivable as well with crowding-out spreading to other people (Frey, 1997, p. 36). Consider the son telling his friends that his father pays him for mowing the lawn, which makes them think that a financial reward is appropriate, decreasing their intrinsic motivation to do household tasks.

## 6. Applying the insights to commodification in discourse and MV

In our discussion of corruption and crowding-out, most of the examples – selling pets and rhino hunting permits – concern the introduction of real monetary incentives. While MV can have real consequences (e.g. favoring policy decisions to replace a wild river by a dam), it does not involve any real money and is thus purely hypothetical in nature. Several authors have argued that market-based approaches may actually undermine rather than foster environmental protection (Goodin, 1994; O’Neill, 1997, 2001; Sandel, 2005, pp. 93–96), but they rarely make the distinction ‘commodification in discourse’ and ‘real commodification’ (Radin, 1996, p. 180). Take Sandel (2012, p. 9) who not only focuses on real cash incentives but also states that ‘putting a price on the good things in life can corrupt them’. Sandel never really explains how simply putting a price rather than selling it for a price can have such consequences. Radin (1996, pp. 180–183) herself argues that this can indeed be expected because speech is often an act itself. Think of (the consequences of) burning a flag, massive advertising or screaming ‘fire!’ in a crowded cinema. While the conceptual distinction between real and hypothetical markets remains clear – are monetary transactions involved? – we wonder whether the latter can have the same effects as the former. Granting that real markets are likely to have a greater corruptive impact on environmental morale and protection, we want to claim that hypothetical markets can have such effects as well. Below, we formulate four empirically falsifiable hypotheses about the effects of commodification in discourse and MV in particular. Given our theoretical, conceptual and interdisciplinary focus, which we believe to be our main contribution to the debate, we have not done the required empirical research but strongly encourage others to do it.

### 6.1. Commodification in discourse leads to real commodification

The most obvious way how commodification in discourse can have problematic effects is by bringing about real commodification, which in turn is problematic because of its potentially coercive and corruptive effects. Imagine you find a hurt wild animal. While you initially want to take it to an animal shelter which can treat it and reintroduce it to the wild, your friend suggests selling its meat on the black market. Merely suggesting this – talking money – can make real commodification a more salient option and increase its likelihood. Talking hypothetically about a market might ultimately bring about a real market. This criticism ultimately hinges upon a slippery slope argument (Radin, 1996, pp. 95–101). Here, X (commodification in discourse) is considered morally permissible as such but is ultimately immoral, because it is said to increase the probability of an immoral situation Y (the coercive and corruptive effects of real commodification) (Lafollette, 2005, p. 478). For such a slippery slope argument to hold, however, empirical support is needed for each of the causal claims it makes. Does talking money really lead to more market transactions? It can have the opposite effect as well. You can, for example, feel outraged at your friend’s proposal to sell the wild animal’s meat and become even more convinced that you should take it to a shelter. The question is thus whether the commodification in discourse that increasingly characterizes environmental policies has opened up a slippery slope towards real commodification with MBIs (like MES and PES) being increasingly put into practice.

Gómez-Baggethun and Ruiz-Pérez (2011) make exactly this case in their analysis of the historical and conceptual development of the notion of ‘ecosystem services’, arguing that growing commodification in discourse (ecosystem service valuation) has led to more real commodification (MBIs for conservation): ‘monetization of ecosystem services will act directly or indirectly as a precondition and driver of commodification (...). Monetary valuation of ecosystem services does not equate to commodification of ecosystem services, but it paves the way (discursively and sometimes technically) for commodification to happen’ (Gómez-Baggethun and Ruiz-Pérez, 2011, p. 624). The underlying idea is that ‘monetary valuation techniques (...) are not neutral categories. They frame the society-nature relationship into one of utility and exchange.’ (Kallis et al., 2013, p. 99). In this light, we formulate our first hypothesis as follows:

**Hypothesis 1.** More commodification in discourse (hypothetical markets, talking money, MV) leads to more real commodification (real markets, exchanging money, MBIs).

Because such a causal relation is difficult to prove and because, as we have just seen, the link between both forms of commodification has already been addressed by others, it is not our primary focus. In what follows, we return to the crux of our argument and formulate hypotheses with respect to MV and possible experimental setups to test them.

### 6.2. MV crowds out non-economic modes of valuing

The central moral problem with commodification in discourse follows from the insight that speech is often an act as well. In psychological and economic research on the impact of how choice situations are ‘framed’, seemingly irrelevant aspects – such as choice of words – are shown to heavily influence people’s choices by making some of the options more accessible and salient (Kahneman, 2003, p. 1459). The way in which survey questions are posed, for example, has an impact on the responses subjects give. Ample evidence exists that expressed preferences heavily depend on the procedure used to elicit them. In one CVM study, respondents were asked how much they were willing to donate for the protection of a single panda. Answers depended heavily on whether this panda was depicted by a dot on a map (average of \$11.67) or with a cute picture (average of \$19.49). In line with framing theory, the authors took this to show that the extent to which people

rely on emotion or calculation influences their valuation (Hsee and Rottenstreich, 2004). The underlying problem here has been acknowledged for quite a while now. It concerns the fact that people's preferences for environmental goods may not be as stable or exogenously given as often assumed. Because 'people do not have well-ordered preferences for unfamiliar objects like ecosystem goods and services' (Wilson and Howarth, 2012, p. 438), they formulate answers on the fly causing CVM studies to suffer from scope, response and framing effects (Diamond and Hausman, 1994; Hausman, 2012).

As psychological research has long shown, asking people at what price they are willing to buy or sell something yields completely different results than asking them more directly what they choose or what they deem more attractive (Lichtenstein and Slovic, 1971). Framing a question in monetary terms implicitly signals which kind of responses is considered appropriate. For example, simply using market terms like 'sellers' and 'buyers' to describe the payoffs in game theoretic experiments, already makes subjects diverge from what fairness norms prescribe towards more self-interested responses (Bowles, 2008, p. 1606; Hoffman et al., 1994, p. 370). When a repeated Prisoner's Dilemma game is labeled 'the Community Game', for example, roughly twice as much respondents are willing to cooperate compared to when it is labeled 'the Wall Street Game' (Lieberman et al., 2004, p. 1777).

The commodification that characterizes MV can thus be expected to frame (the valuation of) environmental goods as (preferences for) commodities. As such, it may weaken environmental morale and undermine (moral) norms and (intrinsic) motivations to protect environmental goods. One might suggest that these framing effects only affect a very small number of people, namely the participants in MV studies. However, the results of MV studies are often presented to researchers, policy-makers, conservationists and the broader public, as with the Stern review that the media picked up on (Stern, 2007). Given the importance of experts and policy-makers, one should thus not underestimate the impact of framing effects. A policy-maker listening to a researcher who claims that 'the value the local population attaches to this landscape is € 100,000' may well come to adapt his underlying valuation.<sup>7</sup> As we have seen, MV often functions as a discourse in order to increase awareness. But due to framing and crowding effects, the effects might be rather different than hoped for.

The extent to which economic discourse influences people's valuations of environmental goods is 'first of all an empirical question' (Arrow, 1997, p. 762). While such empirical evidence is hard to find, some of the crowding studies do not focus on real monetary incentives but on the hypothetical scenario what people would do if they were offered money. These studies in a way talk money. Consider Frey and Oberholzer-Gee (1997) which measured the effects of mentioning – not actually offering – financial compensation on the willingness of Swiss citizens to accept a nuclear waste repository in their hometown. The respondents' willingness to accept such a facility in their backyard dropped from 50.8% when no financial compensation was mentioned to 24.6% when it was.<sup>8</sup> Whereas the initial percentage reveals high degrees of public-spiritedness and civic duty, talking money induced a more selfish frame of mind and reduced support for 'a socially desirable, but locally unwanted, facility' (Frey and Oberholzer-Gee, 1997, p. 753).

**Hypothesis 2.** MV has framing and crowding effects on those who come into contact with them (direct participants, researchers, policy makers, conservationists and the broader public). In particular, MV reduces the importance of non-economic modes of valuing.

<sup>7</sup> The direct effects on participants in a study can differ from the indirect effects on those confronted with its results. A significant difference, for instance, is that participants can still express protest bids, while the latter cannot.

<sup>8</sup> The questions in this study were posed purely hypothetically: 'Suppose that (...) the federal parliament decides to build the repository in your community. Moreover, the parliament decides to compensate all residents of the host community with 5000 francs per year and per person (...). In a townhall meeting, do you accept this proposition or do you reject this proposition?' (Frey and Oberholzer-Gee, 1997, p. 754).

We believe that this hypothesis can be tested experimentally. While developing an experimental setup is not our first aim and conducting such an experiment lies beyond the reach of this conceptual paper, we think it could consist of five randomized groups of subjects.

- (1) A reference group;
- (2) a group that is directly subjected to MV by participating in CVM and thus being asked their WTP for some environmental good;
- (3) a group that is indirectly subjected to MV by being presented the results of an MV study;
- (4) a group that directly participates in CVM after participating in a deliberative process<sup>9</sup>;
- (5) a group that participates in some purely deliberative process that does not involve MV.

For each of these groups, a proxy for environmental morale needs to be measured. One can, for example, ask subjects to rank in order of importance a number of economic reasons (instrumental value) and non-economic reasons (intrinsic value, beauty) to protect some environmental good.<sup>10</sup> Given our analysis, our hypothesis is that participants subjected to MV – either directly (group 2) or indirectly (group 3) – will attach less importance to non-economic reasons than those who are not subjected to MV (group 1 and group 5). If non-economic reasons are indeed given less weight, this is arguably due to the 'economic' frame of mind induced by the commodification in discourse that characterizes MV. Again, the more explicit money is used in framing the issue, the more likely it will have an impact on people's valuations of environmental goods. More subtle methods, such as discrete choice experiments in which money is but one of many relevant aspects, not only provide a more adequate and less reductionist measurement of people's valuations, but are also less likely to crowd these out. Still, any method that ultimately puts a monetary value on environmental goods remains market-oriented in nature and risks having framing effects when such price tags are explicitly mentioned. More refined methods may have less or even no framing effects on the participants, but the framing effect on policy-makers and/or the broader public remains the same when the results are communicated in monetary terms.

Such framing effects can thus arguably be counteracted by making people more aware of the non-monetary reasons. With respect to group 4, which participates first in some deliberative process, the hypothesis would be:

**Hypothesis 2bis.** MV's framing and crowding effects can be reduced when people are first asked to consider a plurality of modes of valuing (e.g. in a deliberative process).

Of course, further research would be needed to assess how big and lasting the hypothesized impacts are of different MV methods. In the next section, we analyze whether a shift in modes of valuing also has an impact on people's behavior. In short, the question is whether weakened environmental morale also undermines (levels of) environmental protection.

### 6.3. MV undermines environmental protection

Proponents of MV may grant that one mode of valuing can be crowded out by another but still argue that this does not necessarily imply that MV makes people value environmental goods less. One mode of valuing and its accompanying motivation can simply be replaced by another, which can have different net behavioral effects.

<sup>9</sup> This is known as 'deliberative monetary valuation' (DMV) (Spash, 2007; Szabó, 2011; Vatn, 2005, pp. 360–361).

<sup>10</sup> While ranking reveals the relative importance subject attach to different reasons, one can also ask them to give different weights to each (e.g. on a scale from 1 to 10). In this revised setup, MV might turn out to decrease not only the *relative importance* of non-economic reasons but also their *absolute importance*. In our hypothesis, we leave both options open by focusing on 'importance' in general. This discussion ties in with the third hypothesis, which centers around the net motivational and behavioral effects of MV.

Just like selling rhino hunting permits can increase the amount of rhinos in the wild, MV's negative impact on environmental morale can be outweighed by a positive impact on other reasons to protect environmental goods. MV can thus cause environmental protection to remain at the same level or even increase, only now because of different reasons.

We move here from (modes of) valuing environmental goods to actual behavior. To link both, we focus on the relation between different modes of valuation and different motivations. Non-economic modes of valuing typically result in intrinsic motivation. If one values an environmental good in itself or because of esthetic, historical or ecological reasons (valuation), one is likely to protect it regardless whether doing so helps to achieve some other goal (motivation). In contrast, economic modes of valuing typically result in extrinsic motivation. If one values an environmental good because of what it gets done, for instance providing wood (valuation), one is likely to protect it only if it helps achieving this goal (motivation).

Framing environmental goods in terms of money, MV studies can elicit extrinsic motivation to protect them at the risk of reducing intrinsic motivation. The net result depends on the force of both mechanisms and should be measured empirically. However, we are worried because intrinsic motivation relates more directly to fundamental elements in people's identities and psychologies and is therefore typically more robust than extrinsic motivation. Ultimately, all of one's motives, reasons and preferences are based on what one cares about: one's ideals, principles, values and the people one loves (Frankfurt, 1988, pp. 80–94). Now, extrinsic motivation – I want to do X in order to achieve goal Y which I care about – can disappear as soon as something else (Z) is a better instrument to realize the goal at hand (Y). If I protect nature because it provides an income, then I am willing to put nature protection aside if some other activity brings in more money. By contrast, intrinsic motivation, which is based on the valuation of some good for no other reason but itself, provides for a *prima facie* reason to protect it. While scarcity always requires the money, time and effort spent on its protection to be weighed against other priorities, a good valued non-instrumentally is not that easily replaceable. Intrinsic motivation can thus be said to be more robust over time and encourage behavior in different circumstances.

**Hypothesis 3.** Intrinsic motivation is more robust than extrinsic motivation.

This is why intrinsic motivation leads less to free-riding than extrinsic motivation. Extrinsic and thus instrumentally motivated people will for example stop helping in saving a species from extinction if (a) others achieve that very goal or (b) if that goal can no longer be achieved. But intrinsically motivated people care about wildlife or biodiversity as such and will try to protect the species, regardless of whether they or others succeed in doing so. The fundamental difference is that intrinsic motivation can give rise to expressive behavior: one expresses what one thinks is important, notwithstanding the consequences (Hargreaves Heap, 1989, pp. 148–152). Real fans keep on cheering for their favorite team, even if they are certain it is going to lose. Cheering expresses who they are and what they care about, even if it does not enable them to change the outcome of the match. Or take voters who vote for a party which they know will never be in power. Even though they cannot promote the political values they deem important, they want to express them. The same can apply to environmental goods. People may refuse to use pesticides not because this contributes to the stability of some ecosystem but simply to express their views about nature and the appropriate attitude towards it. If one thinks of environmental protection as a collective action problem, intrinsically motivated people will cooperate no matter what. In game theoretic language, their expressive behavior consists in contributing to the public good, independently of the choices made by other players.

**Hypothesis 3bis.** Intrinsic motivation leads to less free-riding than extrinsic motivation.

In short, while a change from intrinsic to extrinsic motivation – possibly due to MV – does not necessarily have a negative impact on the valuation and protection of environmental goods, there are good reasons to think that in practice they do. The worry is that both real commodification and commodification in discourse will undermine the intrinsic motivation for environmental protection. Such a decrease in environmental morale might ultimately lead to less environmental protection.<sup>11</sup>

**Hypothesis 4.** MV's framing and crowding effects have a negative impact on intrinsic motivation and, as a result, on (the demand and support for) environmental protection overall.

Such a decrease in environmental morale is likely to result in less demand and support for environmental policy and nature preservation. Commodification practices and discourses might thus undermine their very reason for existence. The less demand and support for environmental policies, the less the need for MBIs to implement such policies.

## 7. Conclusion

Recently, powerful arguments have been developed why markets should have moral limits and why certain goods should not be for sale. In this paper, we focused on one specific kind of MBIs, namely MV. This focus, together with the interdisciplinary nature of our analyses, allowed us to formulate falsifiable hypotheses and to transcend the rather general discussion on commodification in discourse.

Based on a pluralistic account of valuation, we identified three types of problems with MV as a (hypothetical) market-based (value articulating) institution. First, it is often an inadequate measurement of the many ways in which people value environmental goods. Expressing these valuations in terms of willingness to pay reduces them to a single monetary scale, which does not do justice to this plurality. Second, environmental policies should not be based on such reductionist measurements of valuation but on the underlying values and reasons themselves. Third, and most relevant here, merely the discourse of MV can undermine environmental morale and protection.

We identified three potentially problematic effects of commodification in discourse in general and MV in particular. First, they can bring about real commodification (e.g. MES and PES). Second, they can have framing effects not only on the participants of such studies but on all those confronted with its discourse. These framing effects can thus reduce the importance and thus crowd out non-economic modes of valuing. Third, this is worrisome because the intrinsic motivation related to such modes of valuation is more robust than extrinsic motivation and leads less to free-riding. Commodification in discourse and MV can thus ultimately lead to less demand and support for environmental policies.

We formulated several hypotheses surrounding the potential effects of commodification in discourse and MV on people's valuations, motivations and behaviors. More empirical research is needed because of both theoretical and practical reasons. First, it would reveal whether the debates on MV, crowding theory and the moral limits of markets are indeed related. Second, if such effects are to be found, their relevance should not be underestimated, given the fact that MV is also often used in order to raise awareness (e.g. among policy-makers, conservationists and the broader public). We do not argue that MV methods should be abolished but believe that it should be used only sparsely and cautiously or that they should be adapted so that monetary considerations are given less prevalence. Due reflection about its proper role

<sup>11</sup> This is also how to understand the 'tragedy of well-intentioned valuation' (Kallis et al., 2013, p. 100), with MV studies intending to strengthen environmental morale and protection but inadvertently, as a negative and unwanted side-effect, suppressing it.

and use is needed whenever MV is to be applied to environmental cases. Third, knowledge about the impact of MV can shed light on the dangers of the broader evolution of growing commodification in discourse. As we are concerned about (demand and support for) environmental protection at both the individual and the policy level, we believe that economists, psychologists, ethicists and philosophers should come together to investigate the discursive effects of (all kinds of) talking money.

## Acknowledgments

The authors wish to thank Erik Gómez-Baggethun, Clare Heyward, Paul Knights, Julian Rode, Antoon Vandevelde and three anonymous referees of this journal. In addition, the comments from participants of the ANR (Agence Nationale de la Recherche) workshop Environmental Technocracy (Troyes, April 2013) and of the conference of the European Society of Ecological Economics (Lille, June 2013) were helpful in revising earlier drafts.

## References

- Anderson, E., 1993. *Value in Ethics and Economics*. Harvard University Press, Cambridge, MA.
- Anderson, E., 1997. Practical reason and incommensurable goods. In: Chang, R. (Ed.), *Incommensurability, Incomparability, and Practical Reason*. Harvard University Press, Cambridge, MA, pp. 90–109.
- Arrow, K.J., 1972. Gifts and exchanges. *Philos. Public Aff.* 1 (4), 343–362.
- Arrow, K.J., 1997. Invaluable goods. *J. Econ. Lit.* 35 (2), 757–765.
- Bowles, S., 1998. Endogenous preferences: the cultural consequences of markets and other economic institutions. *J. Econ. Lit.* 36 (1), 75–111.
- Bowles, S., 2008. Policies designed for self-interested citizens may undermine “the moral sentiments”: evidence from economic experiments. *Science* 320, 1605–1609.
- Cardenas, J.-C., Stranlund, J., Willis, C., 2000. Local environmental control and institutional crowding-out. *World Dev.* 28 (10), 1719–1733.
- Carson, R.T., 2012. Contingent valuation: a practical alternative when prices aren't available. *J. Econ. Perspect.* 26 (4), 27–42.
- d'Adda, G., 2011. Motivation crowding in environmental protection: evidence from an artefactual field experiment. *Ecol. Econ.* 70, 2083–2097.
- Deci, E., 1971. Effects of externally mediated rewards on intrinsic motivation. *J. Pers. Soc. Psychol.* 18, 105–115.
- Diamond, P.A., Hausman, J.A., 1994. Contingent valuation: is some number better than no number? *J. Econ. Perspect.* 8 (4), 45–64.
- Farber, S.C., Constanza, R., Wilson, M.A., 2002. Economic and ecological concepts for valuing ecosystem services. *Ecol. Econ.* 41, 375–392.
- Frankfurt, H.G., 1988. *The Importance of What We Care About: Philosophical Essays*. Cambridge University Press, Cambridge.
- Frey, B.S., 1997. *Not Just for the Money. An Economic Theory of Personal Motivation*. Edward Elgar, Cheltenham.
- Frey, B.S., 2001. *Inspiring Economics. Human Motivation in Political Economy*. Edward Elgar, Cheltenham.
- Frey, B.S., 2012. Crowding out and crowding in of intrinsic preferences. In: Brousseau, E., Dedeurwaerdere, T., Siebenhüner, B. (Eds.), *Reflexive Governance for Global Public Goods*. MIT Press, Cambridge, MA, pp. 75–83.
- Frey, B.S., Jegen, R., 2001. Motivation crowding theory. *J. Econ. Surv.* 15 (5), 589–611.
- Frey, B.S., Oberholzer-Gee, F., 1997. The cost of price incentives: an empirical analysis of motivation crowding-out. *Am. Econ. Rev.* 87 (September), 746–755.
- Frey, B.S., Stutzer, A., 2008. Environmental morale and motivation. In: Lewis, A. (Ed.), *The Cambridge Handbook of Psychology and Economic Behavior*. Cambridge University Press, Cambridge, pp. 406–428.
- Gneezy, U., Rustichini, A., 2000. A fine is a price. *J. Leg. Stud.* 29 (1), 1–17.
- Gómez-Baggethun, E., Ruiz-Pérez, M., 2011. Economic valuation and the commodification of ecosystem services. *Prog. Phys. Geogr.* 35 (5), 613–628.
- Gómez-Baggethun, E., de Groot, R., Lomas, P.L., Montes, C., 2010. The history of ecosystem services in economic theory and practice: from early notions to markets and payment schemes. *Ecol. Econ.* 69 (6), 1209–1218.
- Goodin, R.E., 1994. Selling environmental indulgences. *Kyklos* 47 (4), 573–596.
- Gregory, R., Lichtenstein, S., Slovic, P., 1993. Valuing environmental resources: a constructive approach. *J. Risk Uncertain.* 7 (2), 177–197.
- Haidt, J., Joseph, C., 2004. Intuitive ethics: how innately prepared intuitions generate culturally variable virtues. *Daedalus* 133 (4), 55–66.
- Hanemann, W.M., 1994. Valuing the environment through contingent valuation. *J. Econ. Perspect.* 8 (4), 19–43.
- Hargreaves Heap, S., 1989. *Rationality in Economics*. Blackwell, Oxford.
- Hausman, J., 2012. Contingent valuation: from dubious to hopeless. *J. Econ. Perspect.* 26 (4), 43–56.
- Hirschman, A.O., 1982. Rival interpretations of market society: civilizing, destructive, or feeble? *J. Econ. Lit.* 20 (4), 1463–1484.
- Hodgson, G., 2013. *From Pleasure Machines to Moral Communities: An Evolutionary Economics without Homo Economicus*. The University of Chicago Press, Chicago.
- Hoffman, E., McCabe, K., Shachat, K., Smith, V., 1994. Preferences, property rights and anonymity in bargaining games. *Games Econ. Behav.* 7 (3), 346–380.
- Howley, P., Hynes, S., O'Donoghue, C., 2010. The citizen versus consumer distinction: an exploration of individuals' preferences in contingent valuation studies. *Ecol. Econ.* 69, 1524–1531.
- Hsee, C.K., Rottenstreich, Y., 2004. Music, pandas, and muggers: on the affective psychology of value. *J. Exp. Psychol.* 133 (1), 23–30.
- Jacobs, M., 1997. Environmental valuation, deliberative democracy and public decision-making institutions. In: Foster, J. (Ed.), *Valuing Nature? Economics, Ethics and Environment*. Routledge, New York, pp. 211–231.
- Kahneman, D., 2003. Maps of bounded rationality: psychology for behavioral economics. *Am. Econ. Rev.* 93 (5), 1449–1475.
- Kallis, G., Gómez-Baggethun, E., Zografos, C., 2013. To value or not to value? That is not the question. *Ecol. Econ.* 94, 97–105.
- Kerr, J., Vardhan, M., Jindal, R., 2012. Prosocial behavior and incentives: evidence from field experiments in rural Mexico and Tanzania. *Ecol. Econ.* 73, 220–227.
- Lafollette, H., 2005. Living on a slippery slope. *J. Ethics* 9 (3/4), 475–499.
- Laurans, Y., Rankovic, A., Billé, R., Pirard, R., Mermet, L., 2013. Use of ecosystem services economic valuation for decision making: questioning a literature blindspot. *J. Environ. Manag.* 119, 208–219.
- Liberman, V., Samuels, S.M., Ross, L., 2004. The name of the game: predictive power of reputations versus situational labels in determining prisoner's dilemma game moves. *Personal. Soc. Psychol. Bull.* 30, 1175–1185.
- Lichtenstein, S., Slovic, P., 1971. Reversals of preference between bids and choices in gambling decisions. *J. Exp. Psychol.* 89 (1), 46–55.
- Lindsey, P.A., Roulet, P.A., Romañach, S.S., 2007. Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa. *Biol. Conserv.* 134 (4), 455–469.
- Martinez-Alier, J., 2002. *The Environmentalism of the Poor: A Study of Ecological Conflicts and Valuation*. Edward Elgar, Cheltenham.
- McCaulley, D.J., 2006. Selling out on nature. *Nature* 443 (7107), 27–28.
- Miller, D., 1989. *Market, State, and Community: Theoretical Foundations of Market Socialism*. Oxford University Press, Oxford.
- O'Neill, J., 1993. *Ecology, Policy And Politics*. Routledge, London.
- O'Neill, J., 1997. Managing without prices: the monetary valuation of biodiversity. *Ambo* 26 (8), 546–550.
- O'Neill, J., 2001. Markets and the environment: the solution is the problem. *Econ. Polit. Wkly.* 36 (21), 1865–1873.
- Ostmann, A., 1998. External control may destroy the commons. *Ration. Soc.* 10 (1), 103–122.
- Pascual, U., Muradian, R., Brander, L., Gómez-Baggethun, E., López, M., Verman, M., Armsworth, P., Christie, M., Cornelissen, H., Eppink, F., Farley, J., Loomis, J., Pearson, L., Perrings, C., Polasky, S., 2010. The economics of valuing ecosystem services and biodiversity. In: Kumar, P. (Ed.), *The Economics of Ecosystems and Biodiversity. Ecological and Economic Foundations*. Earthscan, London, pp. 183–256.
- Pirard, R., 2012. Market-based instruments for biodiversity and ecosystem services: a lexicon. *Environ. Sci. Pol.* 19–20, 59–68.
- Radin, M.J., 1996. *Contested Commodities: The Trouble with Trade in Sex, Children, Body Parts, and Other Things*. Harvard University Press, Cambridge, MA.
- Rico García-Amado, L., Ruiz Pérez, M., Barrasa García, S., 2013. Motivation for conservation: assessing integrated conservation and development projects and payments for environmental services in La Sepultura Biosphere Reserve, Chiapas, Mexico. *Ecol. Econ.* 89, 92–100.
- Rode, J., Gómez-Baggethun, E., Krause, T., 2013. Economic Incentives for Biodiversity Conservation: What is the Evidence for Motivation Crowding?, UfZ Discussion Papers (19/2013). Helmholtz-Zentrum für Umweltforschung, Leipzig.
- Sagoff, M., 2008. *The Economy of the Earth: Philosophy, Law, and the Environment*, 2nd ed. Cambridge University Press, Cambridge.
- Sandel, M.J., 1998. What money can't buy: the moral limits of markets. In: Peterson, G.B. (Ed.), *The Tanner Lectures on Human Values*, vol. 21. University of Utah Press, Chicago, pp. 87–122.
- Sandel, M.J., 2005. *Public Philosophy. Essays on Morality in Politics*. Harvard University Press, Cambridge, MA.
- Sandel, M.J., 2012. *What Money Can't Buy: The Moral Limits of Markets*. Farrar, Straus and Giroux, New York.
- Satz, D., 2010. *Why Some Things Should Not Be for Sale: The Moral Limits of Markets*. Oxford University Press, Oxford.
- Schokkaert, E., 1995. Cost-benefit analysis of difficult decisions. *Ethical Perspect.* 2 (1), 71–84.
- Sen, A., 1977. Rational fools: a critique of the behavioral foundations of economic theory. *Philos. Public Aff.* 6 (4), 317–344.
- Smith, F.L., 1995. Markets and the environment: a critical reappraisal. *Contemp. Econ. Policy* 13, 62–73.
- Spash, C.L., 2007. Deliberative monetary valuation (DMV): issues in combining economic and political processes to value environmental change. *Ecol. Econ.* 63 (4), 690–699.
- Stern, N. (Ed.), 2007. *The Economics of Climate Change: The Stern Review*. Cambridge University Press, Cambridge.
- Szabó, Z., 2011. Reducing protest responses by deliberative monetary valuation: improving the validity of biodiversity valuation. *Ecol. Econ.* 72, 37–44.
- Titmuss, R., 1970. *The Gift Relationship*. George Allen and Unwin, London.
- Vatn, A., 2005. *Institutions and the Environment*. Edward Elgar, Cheltenham.
- Vatn, A., 2009. An institutional analysis of methods for environmental appraisal. *Ecol. Econ.* 68, 2207–2215.
- Vollan, B., 2008. Socio-ecological explanations for crowding-out effects from economic field experiments in southern Africa. *Ecol. Econ.* 67, 560–573.
- Wilson, M.A., Howarth, R.B., 2012. Discourse-based valuation of ecosystem services: establishing fair outcomes through group deliberation. *Ecol. Econ.* 41, 431–443.