

PhD in Economics

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“The Relevance of Monetary Valuations of Biodiversity for Public Decision Making”

Abstract

There is a profusion of researches on environmental monetary valuation methods, and particularly in ‘biodiversity valuations’ because biodiversity losses have become one of the two environmental iconic problems of the 2010s¹. Often, it is the neoclassical/welfare theory of the economic value and environmental asset valuation that is applied to value biodiversity. However, this theory raises many concerns, by itself, but also regarding its applicability to biodiversity.

We can schematically categorize those concerns as ethical, technical and pragmatic concerns²; and so valuations studies have focused on those concerns via empirical cases or theoretical studies, highlighting the pros and cons of different valuations methods or of the overall monetary valuation approach to biodiversity. However, there is still a lack of conceptual thinking about the nature of biodiversity as an economic object, i.e. its economic status, and about the desirable conditions of use of monetary values.

Those gaps in knowledge are particularly problematic, once we realize that valuations are often seen as a necessary and relevant tool to made public decisions. And public decision making about biodiversity is indeed fundamental because the state is responsible for preserving biodiversity by regulating the uses humans make of it, in a way that private entities are not and cannot be. Biodiversity may not be considered a public good or an externality per se, but it is not provided by - and incorporated in - markets either, and so it does require state intervention able to take into account long-term and equity issues raised by biodiversity losses.

Many arguments and rationales exist for justifying the counsel of public decision makers with biodiversity valuations, but the most fundamental of those is that human uses of biodiversity result in some costs and some benefits for different economic agents that are not known yet, and that should be known for managing efficiently biodiversity and our impacts on it.

¹

Zaccai (2012)

²

Scherrer (2004), existing tools to measure and manage biodiversity do not yet satisfy simultaneously methodological, ethical, and pragmatic criteria.

However, many authors also argue that such valuations are not necessary to grasp the importance of biodiversity for human societies, including for human economies, and to take it into account in decision making.

Those disagreements about the role and relevance of monetary valuations in biodiversity research are strong today, and made even stronger by the fact that an interdisciplinary branch research on biodiversity is developing and confronting mainstream economists to other branches of economics (ecological, behavioral, neuroeconomics), and economists to other scientists (ecology experts, natural sciences in general but also humanities). Misunderstandings, but also fundamental re-questionings of the theory result from those confrontations, and suggest the need of framing the recourse to monetary valuations of biodiversity.

This PhD tries therefore to deal with the fundamental conceptual principles of the mainstream theory of monetary valuation, and with the notion of biodiversity, in order to identify the type of information that monetary valuations of biodiversity can and cannot bring, but also should and should not attempt to bring to public decision makers. This approach requires acknowledging the normativity and lack of neutrality of the mainstream theory, and realizing that biodiversity is a particular object of study that cannot be studied as a good, or as a natural resource or even as an environmental asset.

To be more precise with the methodology of this work, we first (1st article) review the roles that monetary valuations of biodiversity are expected to play, according to the literature (pragmatic concern). We notice that actually, not only valuations are they expected to play a role of support for decision-making and management, but they are also expected to be informing, sensitizing and convincing, which may undermine the instrumental and supposedly neutral role of valuations. We also realize that two major dimensions of valuations (or valuations uses) are recurrently evoked, either for the promotion of the relevance of valuations or for the criticism of such promotion and relevance. One is the recourse to the monetary unit, the second is the use of valuations in Cost-Benefit Analysis (CBA). While a significant literature exist on monetary measures and CBA, we found few studies dealing with the influential power of money and CBA, even though it seemed to exist and explain among other things why disagreements on the relevance of valuations for public decision makers were so vivid. We therefore explore other humanities literature on this power, and conclude that it should be carefully taking into account if valuations were to be relevant but not manipulative.

We then explore the ethical approach of monetary valuations, however not by restricting ourselves to the neoclassical vision of what economics and economic values are. We rather attempt to discuss the ethical approach of economics itself (referring to numerous well-accepted definitions of biodiversity), and to deduce the ethical and conceptual shift that valuing monetarily an object, in addition to study it economically, could bring (whether the theory behind the monetary valuations was neoclassical or not). We conclude that economics is anthropocentric (strongly or weakly) and instrumental (or merely instrumental) and that the particular approach of valuing monetarily biodiversity often tended to transform the economic

approach to biodiversity into a strongly anthropocentric and merely instrumental approach. This implies that the recourse to monetary valuations for valuing existence value, but also other non-use values and experience-value may be inappropriate or at least provide an incomplete picture of those values, a fact that public decision makers should be aware of.

After dealing with quite general aspects of the economic theory, we focus on a particular technical dimension of valuations, discounting, in order to explore the relevance of valuations at a more detailed level. We study the relevance of the traditional discounting approach (the exponential utility discounting model) and of the alternative hyperbolic discounting approach, for estimating social environmental valuations. Reviewing different economic fields literature (behavioral, neuroeconomics, evolutionary economics), we suggest that hyperbolic discounting is more appropriate than exponential discounting to reflect human decision making, but also that this adequacy is not sufficient to promote hyperbolic discounting for public decision making, as what is (positive) should not necessarily be the standard for what ought to be (normative). We analyze valuations as social construct and illustrate the limited informative content of the individual-preference/utility base of valuation theory for the question of how social decisions about the future, including biodiversity issues, should be made.

Finally, in the 4th and last article, we attempt to conceptualize the notion biodiversity, to discuss the biodiversity's economic status, and to ultimately confront our result with the vision that mainstream valuations of biodiversity adopt of biodiversity. This allows us to analyze which dimensions of biodiversity valuations seemed to take into account or not by valuations, and we realize that those valuations are far for valuing biodiversity per se and in particular its functional dimension, even though it is at the basis of biodiversity's ecological value. Highlighting the limits of biodiversity valuations help us to start framing the conditions of use of valuations, and so the domain of relevance of monetary valuation of biodiversity.

To summarize, this PhD attempts to identify some major factors playing a role in the relevance of valuations for public decision makers, a relevance that schematically results from the content and the legitimacy of valuations. The first factor we deal with is the influential power of money and CBA. The second is the shift in ethical approach that monetary valuations risk to bring to the general economic approach (strongly anthropocentric and merely instrumental). The third factor is the methodological recourse to discounting and the fourth factor is the complexity of the notion biodiversity and particularly of its functional dimension (its functioning and its contribution to nature's functioning). To work on those factors, we emphasize the relevance and necessity, of an interdisciplinary research, and of a constant effort on the part of economists, to clarify the nature of their fundamental approach to biodiversity.