Ecological Economics as an Epistemic Community

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1. Introduction

An epistemic community "is a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy relevant knowledge within that domain or issue-area" (Haas, 1992, p.3). The main characteristics of this network are that it is grounded on a knowledge-based expertise, it implies transnationality – the notion has been brought forward in the frame of the theory of international regimes (Krasner, 1982), and it is policy focused (problems definition, solutions identification, and outcomes assessment). Epistemic Communities are trusted to promote coordination bringing trustworthy information in disputes or conflicts. In the case of Ecological Economics, instead of focusing on the reliability of the knowledge provided, we rather question the cognitive proximity/distance shared by its "members[1]" (Boschma, 2005; Nooteboom, 2000). The underlying idea is that helping actors to achieve cooperation require sharing certain set of characteristics. In this case, these characteristics are function of the scientific paradigm developed within the field of ecological economics, which includes – but not exclusively, concepts and methods.

But recent evidences suggest that very little is currently shared by the advocates of ecological economics (Spash, 2012 (In Press, Corrected Proof)). From a cognitive conception of epistemic communities, conceptual fuzziness is not necessarily a bad thing since the variety (of knowledge produced, of methodologies used, of theoretical backgrounds, of disciplines) can increase the chances of reaching agreements (Evans and Jones, 2008; Strunz, 2012). Focusing on the "epistemic community" dimension of ecological economics is rather a way to address the question of the diversity constituent of ecological economics (Costanza and King, 1999; Røpke, 2005; van den Bergh, 2001). Rather, we would ask what do the tenant of ecological economics share?

2. What has been done until now, and what is attempted here

An interesting feature of ecological economics is that it has evolved through time with the constant care of defining what it is – or should be. In this respect, the history of ecological economics is filled with many reflexive works attempting to stress the shared points or emphasizing its differences. We can establish a classification of these works according to two criteria. The first one concerns the axiological position of these works, depending on the way they look at ecological economics and on how they deal with data: some of them are descriptive, focusing on the history of ecological economics (Costanza, 2003a; Martinez-Alier and Schandl, 2002; Røpke, 2004, 2005; Spash, 2006), its institutionalization (Douai and Vivien, 2009; Passet,

[1] The question of assessing who is part of the epistemic community and who is left aside is problematic, partly because its fuzzy frontiers are set in regard to collective shared knowledge which may often be tacit (Cowan et al., 2000).

1997; Patterson, 2006; Spash, 1999) or differences with neoclassical economics (Gowdy and Erickson, 2005; Illge and Schwarze, 2009; Ma and Stern, 2006; Söderbaum, 1992; van den Bergh, 2001), or on material published in the review "Ecological Economics" (Costanza and King, 1999; Costanza et al., 2004; Hoepner et al., 2012 (In Press, Corrected Proof); Ma and Stern, 2006); others are more positive and are not supported by data *per se* (Costanza, 1989; Costanza et al., 1997; Costanza and Daly, 1987; Martinez-Alier et al., 1998; Söderbaum, 1999; Spash, 2012 (In Press, Corrected Proof)). The second criterion regards the type of foundation that is consensual or creates differences: topic (Castro e Silva and Teixeira, 2011; van den Bergh, 2001), reference (Mayumi, 2001), citations (Costanza et al., 2004; Hoepner et al., 2012 (In Press, Corrected Proof); Kastenhofer et al., 2009; Ma and Stern, 2006), methodology (Costanza, 2003b; Max-Neef, 2005; Norgaard, 1989; Passet, 1997), conceptualization (Costanza and O'Neill, 1996; Jollands, 2006; Kallis and Norgaard, 2010), epistemological perspectives (Müller, 2003)…

Of course, this typology is rather artificial since ecological economics attempts becoming what it has priory meant to be. Nevertheless, differences may appear in what ecological economics should be and what it really is. In particular, the editorial choices made by the review "Ecological Economics" seem a good indicator of the reality of ecological economics. This work therefore will focus on the published material. In this respect, this work will attempt to address ecological economics in a descriptive way. But contrary to most of the previous work, it will deal with three main empirical data attempting to catch the various epistemic dimensions of ecological economics: first, abstracts will be analyzed through textual analysis; second, keyword analysis will draw the main topics of EE; third, network analysis of selected co-publications will provide elements of institutionalization of EE.

3. Data and methods

Data concerning the articles published in "Ecological Economics" were collected through the WebofScience® database. They go from 1994, first year for which data are exhaustive, from 2011. All published material was selected (articles, editorial material, and book reviews), representing 3,425 published material (without reprinted articles). But since only abstracts, keywords and the authors have been used in analysis, sample has been reduced to 2,746 articles for which all these data were available.

Abstract have been analyzed by mean of the Alceste method of textual data treatment (Reinert, 2003). This method leads to the construction of a semantic classification of words. The method starts by locating all the words used in every abstract in a contingency table. It then proceeds by testing all the possible grouping of abstracts with a khi-square test. The resulting classification of vocabulary from every group of abstract – becoming a semantic class, is obtained when the khi-square for the classification is the higher. Proportion of a given word belonging to a semantic class is also assessed with a khi-square test. Each class constituted with the most significant words, refers to a specific epistemic dimension of ecological economics. Moreover, this method allows introducing variables. When used to analyze interviews, they may refer to the type of actor that has been interviewed. Here, a variable coding the date of publication (from 1994 to 2011) has been introduced. This will reveal the main dimensions of ecological economics, as well as their evolution through the period considered. Interpretations will be confirmed with a statistical analysis of the keywords provided by authors when publishing an article. This will provide the semantic core of ecological economics, grounding the possibility of an understanding it under common "epistemic" foundation.

A second step of the reasoning consisted in assessing the "community" dimension of ecological economics. For this purpose, institutional aspects have been apprehended jointly through the choices of publication and through the choices of collaborations in publishing articles in the review "Ecological Economics". We have then considered the network of co-publications between various type of authors: institutional authors (those who have been Presidents of the International Society for Ecological Economics, of the European Society for ecological Economics, and of the United State Society for Ecological Economics), distinguished authors (recipient of the Boulding Award, and of the Nobel Award), and influential authors (top ten publishing authors). Three questions have been tackled: do co-publications picture a network (is there a centrality and enough ties between authors)? What are the crucial ties for the network and how can they be explained? Which variable explains the existence of the network (the institutionalization of authors, the scientific distinction within the field, or publish a lot in the journal)?

4. Results

Hopefully, preliminary research findings and conclusions will be available to discuss at ISEE 2012 conference.

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