

Title: Relational Environment and Intellectual Roots of ‘Ecological Economics’: An Orthodox or Heterodox Field of Research? by Aurora A.C. Teixeira and Manuela Castro e Silva

This is an interesting and well-written contribution to the debate on the roots and key characteristics of “Ecological Economics” (EE) as a science.

However, I have my doubts that the approach chosen (bibliometric analysis of citations of core journals) indeed captures the essence of EE; nevertheless, I think it could be published in case a potentially controversial discussion on this approach and the findings should be promoted. I would however suggest to then first revise the publication based on the comments made below.

- a) the references used for motivating the focus on citations are quite old; assumingly, there is newer research that can be cited for this.
- b) I would suggest to add some discussion on how to deal with “core areas” that are dispersed over a diverse range of journals and papers; by focusing on the most important journals, scholars and contributions, there is a danger that a more heterogeneous body of knowledge goes without being noticed, as it is embodied in the part that is not very prominent in single journal contributions, or in single papers or authors, but in the total of a huge mass of those. I could imagine that this broad range of second-to-most-important work is essential in defining what EE is.

This could play a role, for example, regarding “policies, governance and institutions” that are reported to be important in another work (page 35) but are not found to be so in this analysis.

This also relates to the “puzzle” noticed with respect to Robert Costanza: “The evidence relating to the author Robert Costanza (Portland State University, USA) is quite puzzling. Despite being a highly influential ecological economist, ranking 1st in the overall top-50, having contributed to theory-building in the field of ‘ecological economics’, particularly by promoting the field as a sustainability and biodiversity science (Solomon, 2007), he only appears in the top-50 of EE and is modestly ranked in all the other journals.” (page 14). Costanza is an ecological economist and not a neoclassical environmental or resource economist, thus it is not puzzling that he is not of key importance in those fields, if measured in contributions and citations.

- c) A challenge with such bibliometric studies is the context of citations. It is found that some methodological papers play a key role, but this does not necessarily mean that methodological discussions do so, but maybe that many papers apply those methods (e.g. the book of Greene). – Similarly, the prevalence of mainstream economics does not mean that EE also follows this line of thought, but it could also mean that it takes up topics from mainstream economics to discuss them controversially; more light could be shed on such issues.

It would be good to add some words on how bibliometric analysis is to be judged for gaining insights into the constituents of a scientific field, and which prerequisites need to be fulfilled in order to fully capture what is aimed at. I could imagine that transdisciplinary aspects of EE cannot be captured well by analyzing citations in peer-reviewed literature. I assume that there is some literature on such methodological challenges and limits of bibliometric research.

- d) Regarding the “invisible college”, the authors state that “This group of productive elite scholars share the same motivations for performing research within each field and new knowledge is communicated both formally and informally.” (page 10). From the analysis undertaken, no conclusions on motivations of those people can be derived. Looking at the names of these scholars, I would also doubt that there is a common motivation for doing research in EE; many of these scholars would not see themselves as ecological economists anyway and their importance in the field is owed to publications in environmental and resource economics that are taken up in EE discussions.

- e) Linked to this, I think that it would be interesting to investigate, whether the core citations and works identified indeed comprise a core of EE or rather comprise a basis for the discussions that are important for EE, i.e. that this research rather defines topics important for EE, but not how they are dealt with. Thus, more discussion should be done for the hypothesis that EE takes up topics from other disciplines and addresses them within a different frame and approach.

It would also be interesting to address the following issue: ethics may be discussed in a few and important papers only in EE, but this is already enough to settle or discuss the related questions, while valuation case studies may be several times more frequent, but for shaping the field, they may not be that important.

- f) Given the development of EE, it is no surprise that economics and environmental and resource economics play a key role, and that ecology as a science is negligible (the “ecology” in the name rather refers to the characteristics that EE is an approach to economics that takes up aspects of the natural and social systems, etc. – dealing with core ecological topics has never been to the fore).
- g) Figure 4 on page 23: based on the top-most 50 citations, and their ISI fields, the disciplinary background of the journals has been determined; however, for the analysis here, the fields assigned to the top EE authors or to the citations used in the first analysis should rather have been taken, not the fields the journals are assigned to. Imagine that a large share of EE papers published in AJAE, for example, may be assigned to “Environmental Issues” – then, these publications should rather be assigned to this subject area than to the subject area as identified by the total publications of this journal.
- h) Pages 24/15: the issues of transdisciplinarity/multidisciplinarity are key for EE and it is stated that the analysis here may not fully account for this; such issues are however key to capture the essence of EE. Transdisciplinary work first may not show up in scientific papers’ citations, as it relates to “non-scientific” inputs and outputs; Multidisciplinarity may be reflected in citations, but it may be atomized in a “thick tail” of in toto relevant research, which however cannot be traced back to single most important journals or scholars. Thus, it would have been interesting to somehow incorporate such a “collective category” of diverse and disperse journals and authors that are in toto relevant for EE to the analysis, and not only the top 50.
- i) On Page 38, the authors state in the conclusions: “The basic set of journals which delineates the environment of ‘ecological economics’ by 2009 is a necessary but not sufficient condition for drawing conclusions about the maturity of the field in terms of its disciplinary substantive development (van den Besselaar and Leydesdorff, 1996); in other words, to what extent it skilfully embodies and develops knowledge.” The authors are thus rightly cautious on their analysis, but they should include in the paper a more detailed discussion on the lacunae in their analysis, and on how their bibliometric methods are adequate to capture mode1 and mode2 science, normal and post-normal science, resp. transdisciplinary work in particular.
- j) Interestingly, the authors do not seem to be fully at ease with their findings; they state on page 39 that “Analyzing the global picture of ‘ecological economics’, first and foremost we can infer that pluralism is a conspicuous label of the field.” They thus attempt to give a somewhat different interpretation than their results suggest, trying to come back to the heterodox, diverse picture EE has in the view of most people; however, their results rather suggest that EE has a very strong core in neoclassical economics.

On pages 39/40 they further state “Ecological economics’ at this level is not based on a well-established corpus of “tools, methods, procedures examples, concepts and theories” (Klein, 1990: 104) that creates identity in the field. An advance on this reasoning is the fact that the field of ‘ecological economics’ is bounded by a set of journals with alternative perspectives on economics (i.e., mainstream, e.g., JEEM, AJAE, ERE and LE, and heterodox views, e.g., EE). They share most of their knowledge as a combined cognitive and social endeavor that serves to confirm the heterodox and multidisciplinary nature of the field. At this level, we believe that this does not express fragility but diversity, and pluralism, which is characteristic of

heterodox disciplines (Dow, 2008) and inevitably follows from the nature of the subject matter.” - Well, I think this is true, but their analysis in large parts shows the opposite; given the core journals, mainstream is predominant (JEEM, AJAE, ERE, LE as they state, but also EDE) and only EE may in part publish a significant number of non-mainstream economics research; then only LUP remains, but this has a different focus and may not count as decisive regarding economic approaches. I could expect that they would find results that support their conclusions when including a category of “diverse research” to their analysis, as suggested above.

- k) Finally, on pages 40/41, they conclude “We should also be mindful of the fact that although some authors have regarded ‘ecological economics’ as being a policy-driven, action-oriented discipline since its foundation, issues on this topic in the most influential studies did not support this claim.

If ‘ecological economics’ is to attain the status of being a keystone in the decision-making policy arena it has to take care about how its scientific language is interpreted by those at whom it is directed. It has to deal expertly with the questions of ethics, power, judgment, poverty and distribution, in addition to environmental matters, as all these dimensions are at the core of the sustainability process where ‘ecological economics’ hopes to have a crucial role. Only thus will the translation of the reasoning behind its formalism be possible, and then its influence can be a fact.”

I don’t think that this analysis can reveal much on the influence of EE in policy making, etc.; – for this, the analysis would rather have to focus on governmental reports, institutional developments, consultancy services and how they are shaped by EE thinking and EE scholars, etc. Doing the same analysis as undertaken here with “neoclassical economics” would neither reveal much on the influence of this field on policy making, etc., I expect, as the body of scientific research analyzed via citations in scientific papers has a different focus than identifying policy impact.

In this, it would be good to emphasize that the study has a strong focus on how EE is represented or embedded in the peer-reviewed literature, and that this may not allow conclusions on how it performs regarding policy support, etc.