

Assessing Ecological Economics at 30: Results from a Survey of ISEE members

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Highlights:

- A survey of Ecological Economists was conducted to complement the meeting which produced this book.
- Ecological Economists pursue a wide range of research questions.
- Ecological Economists seek collaboration with diverse academic communities.
- Ecological Economists are moderately optimistic about scientific progress.
- The identity of the field is still coalescing and changing after 30 years.

Abstract:

To compliment the workshop from which this book emerged and help take stock of the field, I conducted an online survey of members of the International Society for Ecological Economics. About 9% of members responded. The respondents identified research themes in traditional and new areas within Ecological Economics. The traditional themes of sustainable scale of economic activities, just distribution of resources and to a lesser extent, economic efficiency, were frequently discussed, as were cross-cutting themes of policy design and sustainability communication. While not discussed in previous summaries of the field, Ecological Macroeconomics emerged as an area with substantial interest. Respondents have interest in collaborating with a wide range of other fields, and the field is yet to reach consensus on its transdisciplinary identity. Overall, respondents were moderately optimistic about progress in the field, and displayed wide ranging interests in using scientific research to positively transform the relationship between humans and the rest of nature.

1- Introduction

"Is ecological economics a transdiscipline; a new paradigm; something different from environmental economics or, rather, a part of environmental economics, etc.; open for anything with a relation to the environment, or something more well defined?" (Rørpke 2004, 293)

Costanza and colleagues (Chapter 1, this Book) define Ecological Economics as "a transdisciplinary effort to understand and manage the complex system of humans and the rest of nature toward the goal of sustainable wellbeing." Similarly, the journal *Ecological Economics* defines the field as "an interdisciplinary field defined by a set of concrete problems or challenges related to governing economic activity in a way that promotes human well-being, sustainability, and justice." (Ecological Economics n.d.)

Both these definitions agree that Ecological Economics concerned with both describing how interconnected human and natural systems behave and promoting meaningful changes to how these systems function. The intersection of descriptive and normative goals brings its social nature into stronger relief- Ecological Economics is a community of practitioners who study similar topic areas with similar vested moral interests.

Transdisciplinary science is particularly prone to contested meanings (Dube, forthcoming)- there are multiple possible interpretations for why and how scientific work should be conducted across disciplines. Ecological economics has variously been interpreted to include “the economics of ecosystems” (environmental economics), the linkage and overlap of economic and ecological models (“ecology and economics”), the application of ecology to the study of economies (“bio-economics”, “industrial ecology”), the study of economies embedded within their social and ecological contexts, integrating natural sciences with critical social sciences (socio-ecological economics) or “the science and management of sustainability,” encompassing any trans-disciplinary, problem-oriented scholarship on human-environment interactions. This broadest definition is the one use in this volume, but not all who work in this area call themselves Ecological Economists, and not all self-described Ecological Economists endorse such a broad definition.

Since its foundation in the late 1980s, the field has pursued a “big tent” strategy of methodological pluralism (Norgaard 1989), which allowed the continued coexistence of these different interpretations. The pluralism has been so strong that Røpke (2005, 274) argued that “it is a difficult, if not impossible task to identify the main topics and research programmes of ecological economics.” Moreover, Ecological Economics was a pioneering trans-disciplinary research community but now is one of many identities available to transdisciplinary scholars working on environmental issues. In the 30 years since the founding of the society and journal, numerous complementary or competing fields of interdisciplinary scholarship on humans and the rest of nature have also blossomed, including journals for *Environment and Resource Economics* (1991), *Political Ecology* (1994), *Industrial Ecology* (1997), *Environmental Health* (2002), *Sustainability Science* (2006), *Sustainability* (2009) and *Ecosystem Services* (2012) among others, as well as the foundation of the “International Society for Biophysical Economics”, the “Ecosystem Services Partnership”, “Research and Degrowth”, and several other societies or associations by current and former allies of ecological economics.

It is unclear what distinguishes ecological economics and some of these fields, but others have narrower conceptions of their subject matter or methodology. Some of these discourses were originally articulated in Ecological Economics (or proto-ecological-economics) as specific research areas within the field but have since grown much larger. For instance, though Ecosystem Services research largely emerged from EE, the International Platform for Biodiversity and Ecosystem Services (IPBES) claims many more expert participants (1,745) than ISEE claims members (1,200). While Ecological Economics endeavors to be a unifying framework for work in all these areas, in social terms it has not succeeded, as most people doing this work do not appear to strongly identify with EE.

This chapter presents the results of a survey of Ecological Economists about the past, present and future of the field. In section 2, I review the work of other scholar who have “taken stock of” Ecological Economics. In section 3, I present the methods and structure of the survey. In section 4, I present the results qualitatively and quantitatively. In section 5, I discuss the coherence and differences of the results with previous work.

2- Previous examinations of the field:

Since the mid-2000s, several authors have made theoretical or empirical contributions to understanding the various manifestations of ecological economics, to better inform future research. In this section, I review some of these.

2.1 Historical review

Røpke (2004, 2005) examined the history of the field in two articles, the first covering the field's history up to the founding of the society and the journal, and the second up to the year 2005. She argues that there are 3 main areas of work within EE:

- 1- Critique of "Neo-classical economics", especially with regards to issues of economic growth, well-being, and technological change.
- 2- "Calculations in nature", as means to study and operationalize "scale" and "resilience"
- 3- Decision-making and valuation.

She noted that the presence of different types of actors in the EE community is influenced by dynamics and intellectual trends outside of the field; for instance, she argues the European Society has been much more influenced by socioeconomics, because European socioeconomics societies had paid so little attention to ecological issues.

She identifies several weaknesses in social organization of the field. She argues that "the knowledge structure of the field as such is obviously not well structured and systematically organized... virtually unrelated contributions can appear as parts of the field," and that "core beliefs... give little specific guidance" for research (Røpke 2005, 285). Further, "the identity of the field is relatively weak... these researchers do very different kinds of research, and most of them have double identities (or more than double) and also relate to other reputational organizations." (Røpke 2005, 286)

2.2 Bibliometric Analyses: Citations, Influence and Discourse Analyses:

Several authors have conducted bibliometric analyses of the journal ecological economics, or of "influential publications," while others classified samples of articles over time, and while others have used quantitative textual analysis to examine abstracts of published articles. These methods lend quantitative rigor to subjective impressions about the evolution of scientific fields or discourses. They can thus inform discussions on the direction of ecological economics but cannot resolve disputes which might arise.

Costanza and colleagues (2004) surveyed the most influential publications in ecological economics, based on a combination of editors' recommendations, highly cited publications by the journal and highly cited papers published in the journal. From this list, a list of "most influential papers" was developed, and the list was updated again in 2016 (Costanza et al. 2016). Only two of the 30 most influential publications were articles published in *Ecological Economics*, though most of these were not journal articles at all, rather books or reports. They showed that ecosystem services and valuation were among the most important themes in the journal and demonstrated a trend of decreasing citations to

conventional economics journals and more to interdisciplinary journals, in part because of the rise in trans-disciplinary journals to cite.

Two analyses compared the *Journal of Environmental Economics and Management* (JEEM) with *Ecological Economics*. Ma and Stern (2006) compared citation patterns for 1994-2003 between JEEM and EE. They showed overlap, but substantial differences between the journals- the twenty top journals citing and cited by JEEM were all economics journals, while EE cited many ecological science and interdisciplinary environmental journals and had more diverse citations in general. Based on their lists of most-cited articles, they conclude that JEEM was primarily concerned with valuation, while Ecological Economics had a broader scope, including growth, policy and the "Environmental Kuznets Curve." Plumecocq (2014) likewise analyzed the content of abstracts in EE and JEEM, and showed that 1990-2013, the discourse in the two journals converged, that this convergence was driven mostly by changes in EE. Specifically, EE adopted more conventional economic language and discourses of valuation, in what is widely interpreted as an attempt at policy relevance. These two analyses do not necessarily contradict one another; much of the convergence found by Plumecocq took place from the year 2000 onward.

Castro e Silva & Teixeira (2011) conducted a temporal analysis of papers published in the first 20 volumes of *EE*, based on methods and subject matter. They show increasing emphasis on empirical methods. While 1989-1994, the majority of papers were solely "formal" or "appreciative" in their methods, these papers represented only 26% of those published 2004-2009, and 70% of papers published 2004-2009 were fully or partly empirical. Similarly, papers classified as "Theory Building" were over 1/3 of the papers published from 1989-1994, but less than 1/10 of those from 2004-2009. Over this period, increasing proportions of publications investigated methodological issues, policy, and valuation, these topics collectively were the majority of papers published in the journal by the final period. The authors argue that this evolution is indicative of ecological economics becoming a "policy science," and possibly a "post-normal science" as defined by Funtowicz and Ravetz (1994).

Hoepner et al. (2012) analyzed the development of "environmental and ecological economics" through a citation analysis of papers appearing in JEEM, EE and 12 journals heavily cited by the two. He follows Ehrlich (2008), among others, in denying a distinction between the fields, though many ecological economists disagree, sometimes vehemently (Spash 2013). This analysis showed that ecosystem services, along with GDP relationships between GDP growth and energy use, carbon emissions and consumption were the most prominent subjects.

2.3 Surveys

Clive Spash (2009; 2013) argued that the publications in the journal *Ecological Economics* are actually a poor representation of the field, publishing much work that is grounded in mainstream neoclassical methods and theory. In response, Spash and Ryan (2012) conducted a survey of attendees at three European Economics Conferences. They showed large differences, though modest overlap, between Ecological Economists and mainstream environmental economists. Furthermore, they found more similarities between Ecological Economists and attendees at the Association for Heterodox Economics, but the Heterodox Economists were less familiar with environmental issues.

These analyses generally show a field that is evolving in the direction of pragmatism and attempted policy relevance, but with a range of opinions about whether this has been prudent or

successful. This survey, in addition to examining key emerging areas in Ecological Economics, adds to these examinations of the field and opinions within it.

3 Methods:

In preparation for the “Research Agenda for Ecological Economics” symposium at the University of Vermont in August of 2018, we sent out a survey invitation to members of ISEE who were not able to attend. This workshop was limited in funds and could not sponsor much attendance from outside of North America; this survey was initiated to solicit opinions and ideas from the broader Ecological Economics community. The survey was shared through the ISEE list serve. The survey had several components:

-Open-ended questions asking participants to identify the most important goals of EE, its most important research questions, and the best potential allies and collaborators for the field. These questions served two purposes. The questions related to the central purpose of the workshop, allowing input from a broader array of stakeholders. Secondly, they allow this chapter to complement previous works that describe the field based on the journal *Ecological Economics* which are greatly influenced by opinions of the editorial staff. This work, by reflecting a sub-sample of Ecological Economists who self-selected to respond, gives a view of the field from a different viewpoint.

These prompts were:

“What should be the goals of Ecological Economics, as a field, a community or practice and/or as a movement?”

“Please list, in decreasing order of importance, what you believe are the top research questions facing ecological economics over the next decade. You can list as many as you like, but at least your top three.”

“What other inter- or trans-disciplinary fields, research groups and or societies do you think overlap most with ecological economics?”

“How, if at all, do these groups differ from ecological economics?”

The open-ended questions:

The next section was composed of five 5-point Likert-scale questions assessing the progress in the last 30 years on the five areas identified in the 1989 research agenda (Costanza et al 1991). Respondents were given the opportunity to make open-ended comments and offer additional questions to each of these themes. These were included in the belief that assessment of progress on previous goals is a central component of formulating new goals. Respondents were given the opportunity to make open-ended responses to these themes as well.

These five themes were:

“Sustainability: Maintaining Our Life-Support System”

“Valuation of Ecosystem Services and Natural Capital”

“Ecological Economic System Accounting”

“Ecological Economic Modeling at Local, Regional, and Global Scales”

“Innovative Instruments for Environmental Management”

The next was composed of four 5-point Likert-scale questions asking for agreement or disagreement with possible statements about the identity of the field:

- 1.) “Most new ecological economists should start their careers by establishing PhD-level expertise in a traditional discipline.”
- 2.) “Ecological Economics would benefit from stronger boundaries to separate it from other fields and modes of inquiry”
- 3.) “Using Ecological Economics to understand critical problems means utilizing a wide range of methods and viewpoints. It is not essential that these methods are theoretically or philosophically consistent with one another.”
- 4.) “The balance of evidence suggests that a just and sustainable future can only be achieved through a radical, rather than incremental, restructuring of economic systems.”

All these questions were developed by the lead author of this chapter. Question 1 emerged from his experience in a transdisciplinary Ecological Economics training program and considering the strengths and weaknesses of this approach. Questions 2 and 3 emerge from ongoing contested interpretations of ecological economics and how it relates to mainstream economics and other sciences. Question 4 probes the notions of social change brought by ecological economists.

In the final section, several demographic questions were asked, for the purposes of testing hypotheses of attitudes towards the field. Demographic data were taken to test hypotheses about factors influencing attitudes towards ecological economics, but no significant correlations were found, and they are not reported here.

4 Results:

4.1 Sample Characteristics:

The survey form allowed for incomplete responses. 110 respondents answered at least some questions, representing about 9% of the International Society for Ecological Economics. Ninety-five respondents answered some demographic questions. Of these, a large majority were male (74%-26% female, no one chose to respond “other”), reflecting longstanding concerns about representation in the field and science generally. Women were especially under-represented in the most senior cohorts, 88.5% of those who had been working in EE since the 1980s were men. 62% are primarily professional academics, and an additional 12% are graduate students, with the balance conducting work in other contexts, including civil society, government and as amateurs. The respondents were largely early to mid-career, the median respondent began their work in EE in the 00’s.

Respondents had 26 different countries of employment, 22% worked in the USA¹, 11% each in Canada and Brazil, while 28% were from Europe, 17% from Latin America, 20% from Asia and the Pacific. 35% were employed in nations of the British Commonwealth. Employment is concentrated in developed countries: 75% in a very high HDI country, (HDI>.8), 18% in a high HDI country, and 8% in a medium HDI country, all of whom worked in India. The geographic biases in this sample are unsurprising, as the survey was conducted in English, and academic societies in general are skewed towards wealthy countries.

4.2 Goals and Most Important Questions:

Unsurprisingly, the answers from these two prompts overlapped considerably; some responses to the questions prompt, such as “equity” and “economic sustainability and justice” could easily be given as “goals.” For instance, “How to reach sustainable scale and fair distribution?” was given as a question and is functionally the same as the goals “1-Reduce Poverty and Inequality 2- Strong Sustainability” except that the former is phrased as a question. Due to this, these answers were analyzed together.

Major themes:

Policy, Law and Institutions (N=45):

Nearly half of respondents mentioned questions or goals relating to policy, laws and institutions, either as an area of inquiry and as an object of change, or both. Such a focus aligns with the name “economics” for EE; economists and policy-makers generally agree that the discipline has substantial public-policy relevance and economists are generally much more willing to make policy recommendations than other social scientists.

This area included responses that involved better theorizing and studying policies and institutions, for instance, one respondent suggested a “hard, quantified look at carrots vs sticks in policy.” Many others were interested in understanding how Ecological Economics can better influence policy, including one respondent asking “how can EE best support the translation of EE theory into policy advice for corporate and national leaders?” Strong interest in this area mirrors interests in more collaborations with political scientists, psychologists and behavioral and institutional economists, and confirms the narratives of a “pragmatic turn” in EE that emerged in several analyses of the field.

Replacing Mainstream Economic Narratives and Theories (N=31):

Consistent with the many ecological economists who think of EE as a “heterodox school” of economics, almost a third of respondents gave answers relating to overturning or replacing large parts,

¹ 1 of these listed their nation as “Puerto Rico.”

or all, of mainstream neo-classical economic theory or narratives about economics linked to theory. One respondent called for “developing an alternative model of economic interactions that is rigorous, incorporates critical findings from the field of economics, but doesn’t sacrifice truth about humans,” while another stated the goal clearly “in the long run, to be the main economical [sic] model (replacing the current neo-classical model).”

Well-being, Inequality and Justice (N=30)

Nearly one-third of respondents mentioned themes of well-being inequality and economic justice. Many of the questions and goals in this area were directly policy-related: how to achieve economies and societies that are more just, equitable and promote well-being. Some comments were about normative policy goals, such as to “reduce poverty and inequality,” while others were scientific goals. Scientific goals included questions relating to both how to measure human well-being- “Develop measures for human welfare,” and understanding the processes by which it is produced, such as understanding the role of “non-monetary values in promoting socioeconomic well-being and quality of life.”

Natural Limits, Sustainable Scale and Moving Beyond Growth (N=28)

Consistent with long-running discourses in EE (e.g. Daly 1974), nearly 1/3 of respondents mentioned planetary boundaries, biophysical limits to growth and sustainable scale, as well as economic, political, and social questions about how to create economies and societies that live within these limits. Some responses were specifically about physical science questions, including quantifying planetary boundaries or scale limitations, including one respondent who suggested “ecological limits to growth” as a research question. More responses dealt with the intersection of “what” scale limitations are and “how” how to manage an economy while acknowledging them. Many specifically noted the interaction between natural limits and well-being, for instance “How do we live well, with crossing planetary boundaries?”

More than half of responses that mentioned natural limits also mentioned justice, well-being and inequality. For instance, one respondent wrote that ecological economics research should “contribute to a more equitable society, to more free and happier individuals, within the boundaries of ecosystem functioning.” Two respondents mentioned the “doughnut” model of Raworth (2017), which attempts to articulate this tension, and three others explicitly mentioned planetary boundaries (Rockström et al. 2009).

Promoting, Communicating and Justifying Sustainability (N=28)

The theme of communicating sustainability was mentioned by more than ¼ of respondents. Answers seemed to be largely about 1-way communication, about how ecological economists and environmental scientists can communicate the importance of environmental issues and sustainability to

the general public, and how to change behaviors. For instance, one respondent promoted inquiry into “how to use the data of ecological economics to change the priorities of people and governments and prioritize Climate Change.” A smaller number brought up themes of collective action and participation such as, “how can collective action be promoted that allows to translate [sic] pro-environmental attitudes into behavior?”

Understanding Relationships Between Economy, Society and Nature (N=25)

Many respondents mentioned questions or goals for better understanding the interaction of human and natural systems. This has long been a focus of ecological-economic and other interdisciplinary research. Some respondents expressed this goal solely as descriptive, for example, “ecological economics is a scientific field that explores in terms of the inter-discipline the complexity among ecology and society [sic] ... the main goal of this field is to find and express adequately these interactions and influences.” Others tied their answers to social, ecological and political goals, that developing this understanding should be done specifically to make concrete changes. One respondent set as a goal “to understand the relations between society and environments... to help society to find means to produce goods and services respecting the biological cycles.”

Ecological Macro-Economics, Replacing GDP and Monetary Theory (N=25)

Ecological Macroeconomics and Ecological Finance were mentioned in many responses, as were new indicators, including corrections or replacements to GDP and examining the causes and consequences of growth. Outside of macroeconomic indicators and growth, few of the responses gave specific guidance for what directions ecological macroeconomics should go in, though one respondent advocated for “out of the box macroeconomic modelling,” and another noted Minsky’s financial instability hypothesis as an important area of inquiry.

Efficiency, Externalities and Ecosystem Services (N=21)

More than 1/5 of respondents mentioned themes relating to efficiency and externalities, with about half of them relating in some way to ecosystem services. This is sometimes framed as the central set of questions for ecological economics, at least when the field is conceived of as a sub-field of economics; clearly, four-fifths of the Ecological Economists in this sample largely did not see it this way. The concept of Ecosystem Services is ambiguous (Barnaud and Antona 2014) and can be used in many ways. In this survey, however, the term was usually used in a marginalist manner, with relation to “valuing” “showing values” and “true costs,” while “limits” and “planetary boundaries” were used with reference to problems of large absolute values. Several respondents were clear that ecosystem services are different than limits because they mentioned both one proposed the question “How to generalize inclusion of ecosystem services and ecological limits in policy decision making?”

4.3 Related/Allied Groups:

Respondents named 92 different research groups and disciplines that overlap with the work of ecological economics. Though the question specified “transdisciplinary,” only 25 of these could reasonably be considered as such, though scholars in most, if not all, of these fields engage in inter- or transdisciplinary work. The most popular response by far was political ecology, named by 15 respondents. Political Ecology and several other often-named transdisciplinary groups share substantial history with ecological economics- including sustainability science, biophysical economics, resilience alliance/institute, and de-growth. Respondents gave twenty-four different responses including the word “economics”, including ten heterodox fields, ten mainstream subfields and four labels that overlap the two (e.g. “institutional economics”). Fifteen research areas in the other social sciences, seven in the natural sciences and six in the humanities were named, as well as nine social movements, including several radical environmental groups. The larger diversity of named groups within the social sciences likely reflects the sectarian political nature, and looser disciplinary boundaries of the social sciences as much as anything else.

Related Field or Group	# of Respondents mentioning
Political Ecology	15
Politics/Political Science	9
Sustainability Science	9
Psychology	9
Behavioral Economics/ Behavioral Science	8
Environmental Economics	8
Institutional Economics	8
Biophysical Economics	7
Earth System Science	7
Ecology	7
Feminist Economics	7
Resilience Alliance /Resilience Institute	7
“Heterodox Economics” in general	6
Industrial Ecology	6
“Social Sciences” in general	6
Systems/Complexity Science	6
Biology	5
De-growth	5

Table 1: Research groups most often volunteered as overlapping with Ecological Economics

4.4 Assessments of Previous Research Agenda:

For all five of the themes from the 1990 research agenda, “Some Progress” was the median and modal response. In general, however, more pessimistic assessments outnumber optimistic ones- “Very Little Progress” received, in total twice as many responses across the five themes as “A great Deal of Progress.” Assessments of progress in “Innovative Instruments for Environmental Management” were noticeably more pessimistic, perhaps reflecting the relative lack of policy implementation. Several respondents specifically noted that these areas are underexplored by ecological economists, while others suggested that it is due to entrenched biases and power structures fighting against change. Respondents mentioned “neo-liberal policies” and unwillingness to challenge wealth accumulation as problems. A few respondents advocated that ecological economists make more effort to engage with those with different worldviews to facilitate progress on policy development and implementation, one advocated leaving “WEIRD (Western, Educated Industrialized Rich Democratic) Bubbles” while another suggested “international faith conferences.”

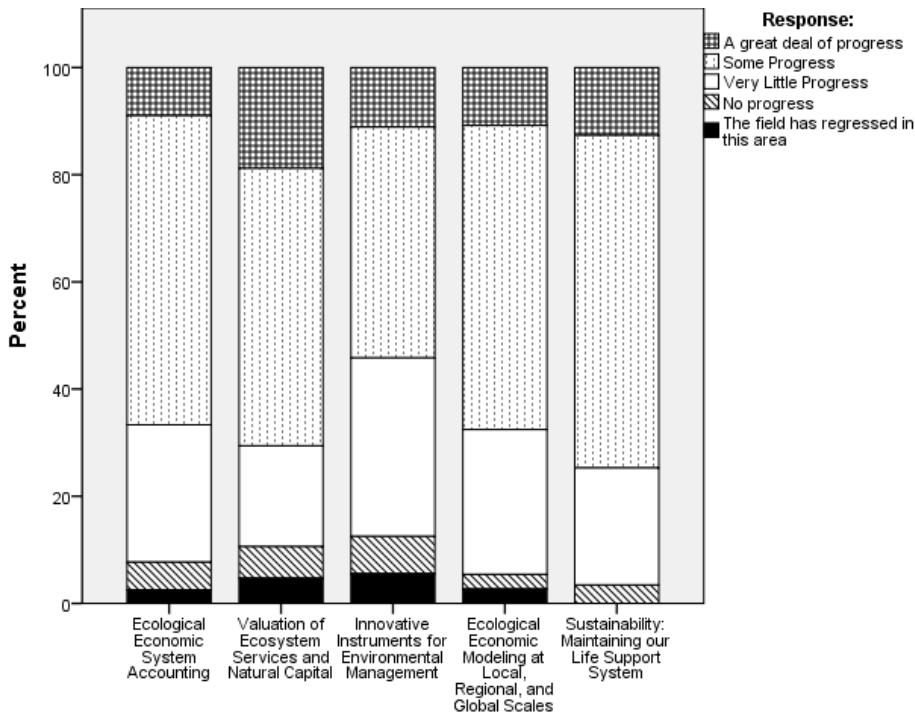


Chart 1: Ecological Economists’ Opinions About Progress on Themes in a Previous Research Agenda:

4.5 Questions on Identity of the Field:

Three of the questions concerned the meaning of transdisciplinarity in ecological economics. With regards to whether Ecological Economists are best trained by becoming experts in a traditional discipline and whether ecological economic methods must be philosophically consistent with one another, the responses were split: the median answer was “neither agree nor disagree.”

Respondents generally disagreed that Ecological Economics would benefit from stronger boundaries with other modes of inquiry, the median response was “somewhat disagree” and 66% somewhat or strongly disagreed while only 28% somewhat or strongly agreed. Several respondents clarified in their comments that they believe that the field does not need strong boundaries in general but does need stronger boundaries with mainstream economics.

With regards to the scale and types of changes needed in society, the responses were unequivocal; just shy of half of respondents said they strongly agreed with the need for radical change, agreement with this statement outnumbered disagreement by 72%-19%. A few respondents volunteered that they thought radical and incremental change are not necessarily at odds with one another, and that ecological economists ought to pursue both.

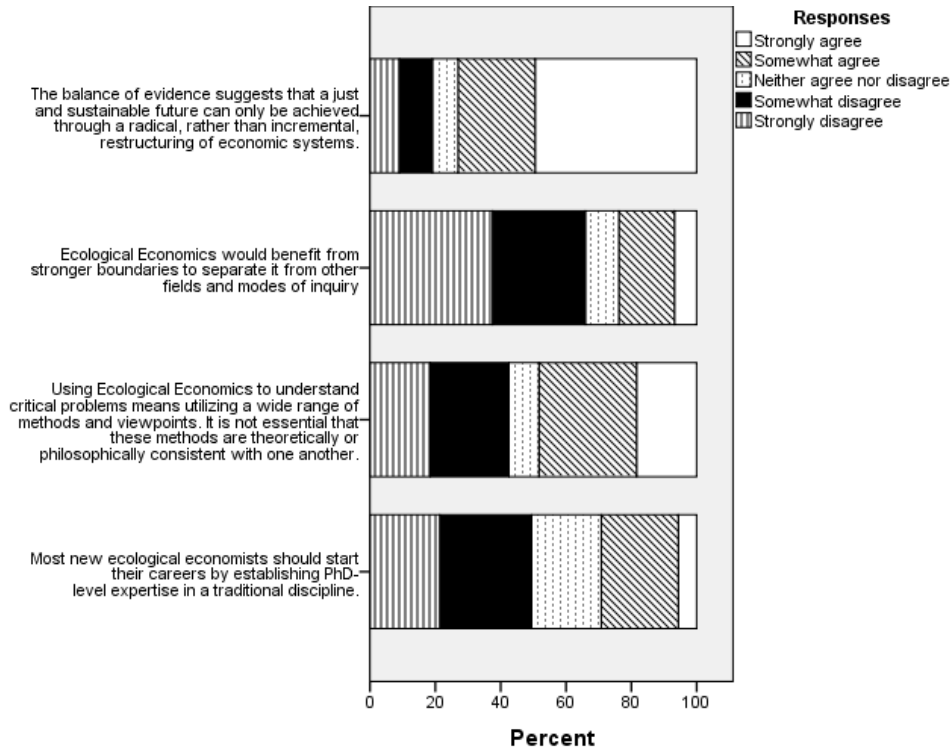


Chart 2: Agreement or disagreement of Ecological Economists with statements about the identity of the field

5. Discussion:

5.1 Coherence with Other Work:

For some, the goals of ecological economics were definitively laid out by Daly (1992) and later expanded upon in textbooks: (Daly and Farley 2011; Costanza et al 1997) sustainable scale, just distribution and efficient allocation. These goals, and related areas appeared frequently in responses. Many of the themes that did not fit into these categories concerned either instrumental questions of how to better promote ecological economics values and analyses or fell into descriptive science that could be used to further those normative goals. Efficiency received far less emphasis than the other goals, perhaps coming from the abuses of the concept as “value free” in mainstream economics, an

understanding that efficiency pre-supposes other goals or, conversely, that formulating policy implies a desire to do something in an efficient (or at least efficacious) manner (Bromley 1990). Further, posing dual goals for human society to live well within ecological limits implies a need for some manner of efficiency, as it requires improvements in both well-being and ecological functioning, without tradeoffs. Similarly, neither Martinez-Alier (1987) nor Common and Stagl (2009) explicitly mention efficiency as a primary concern of ecological economics, but sound similar themes on scale and justice or well-being. Martinez-Alier bases the field around the incommensurability between ecological and social well-being, while Common and Stagl name “individual and social health” and “sustainability” as the primary concerns.

Though elements of macroeconomics have long been present within Ecological Economics, especially with regards to alternatives to Gross Domestic Product and criticisms of economic growth, this is the first examination of the field to identify Ecological Macroeconomics as a distinct research area. In the wake of the financial crisis of 2008, macroeconomics has been subjected to intense critique from both the general public and within the academy (Caballero, 2010, Keen 2013). The obvious failures of conventional macroeconomic modelling in the run-up to the crisis provides both an exciting opportunity and a call for humility in claiming understanding of complex systems.

Like other works on the development and identity of EE, this survey showed disagreement about the relationship between mainstream economics and EE. While some scholars have a clear partisan stance on this question, some respondents seemed conflicted or perhaps confused about it. For instance, one respondent stated that the goal of ecological economics should be “internalize to the externalities of traditional economics.” Another stated the main goal of EE as “replacing the current neo-classical model,” yet also stated that a major research goal is to “establish *true costs and benefits* for environmental goods and services” (emphasis added). These responses are confusing because “internalizing externalities” and “establishing true costs” are arguably *the* fundamental concepts of neoclassical environmental economics.

In relation to revolutionizing economics, responses were also sometimes unclear as to whether this was from a scientific standpoint or changing narratives of “economism” (Norgaard, forthcoming) or economics as “elite folk science” (Ravetz 1994). There is a long history of ecological economists using standard neoclassical analytic tools to construct radical narratives, for instance Daly’s (2007) concept of “uneconomic growth.”

The results reflect the same eclecticism noted by Røpke (2004, 2005). While not all Ecological Economists are themselves pluralists, the community as a whole is pluralistic, representing a wide range of viewpoints. Results also confirm Castro e Silva & Teixeira’s (2011) observation of an increasing concern with policy and Plumecocq’s (2014) that Ecological Economics discourse shares similarities with the mainstream. Interestingly, they also appear to confirm Spash’s (2017) argument that Ecological Economics is at least partially a radical alternative.

5.2 Emergent Tensions:

“Communicating the science” and “making the science reflexive.”

Most respondents promoted at least parts of a vision of ecological economics as an activist, political project. Mirroring discourses about “believing in science” in the politics of climate change (Saltelli, et al 2017), many of the answers identified a need for EE to communicate scientific knowledge of ecological limits and to demonstrate the need for systemic economic change. When suggesting questions and priorities for the research agenda, only a small number (7) explicitly mentioned values pluralism or public participation in problem definition.

At the same time, many respondents advocated making greater connections with Political Ecology, as well as a few mentioning “Environmental Justice Movements,” both of which are highly skeptical of expert-driven problem formation in environmental governance (Robbins 2011; Martinez-Alier 2003; Schlosberg 2009; Fischer 2000). Ecological Economists have had some successes in promoting new indicator sets, most notably Ecological Footprint and Genuine Progress Indicator (GPI), that communicate the sustainability threats of overconsumption and the problematic nature of economic growth in high-income countries. While they are powerful as metaphors, these sets obscure important value judgements and problems of incommensurability in their aggregation (Saltelli 2007). GPI, for instance, implicitly contains judgements as to the relative value of phenomena as disparate as wetland loss, commuting time, unpaid housework, air pollution and economic inequality (Fox and Erickson 2018). Any aggregate index will reflect political values that may not be universally shared, and that their creators are generally western, educated and wealthy.

Many ecological economists view public policy responses to natural science findings as “overdetermined” by the science, for instance “the science says we must immediately and radically reduce greenhouse gas emissions.” This contrasts with the “weak comparability” basis of ecological economic analysis² (Joan Martinez-Alier, et al .1998). If ecological economics is “the science and management of sustainability,” then this tension can be articulated as: *Do concepts such as ‘sustainability,’ ‘planetary boundaries’ and ‘ecological limits’ exist entirely in the realm of natural sciences, or are they socially constructed based on both biophysical phenomena and human values, and therefore always contested?* Accepting this formulation means that no fully-formed policy recommendations flow directly from ecological economic theory, which creates tensions for ecological economists who seek rapid action to counter environmental crises.

This mirrors the results found by Spash and Ryan (2012), who found that while a large majority of attendees at the European Society for Ecological Economics conference agreed with the statement that:

“environmental problems are complex, can be viewed from multiple perspectives and involve values that are often incompatible. The most important role for research is to understand different disciplinary perspectives and develop institutional approaches and social processes to address the interface between economics, science and policy.”

Most of those respondents also agreed that:

“The natural sciences provide objective information that should be the primary basis for informing policy, but we face a communication problem. The most important role for research is to be

² A similar statement based on weak comparability might say: “The projects of climate science show risks that reasonable people ought to find terrifying and justify very large costs for mitigation.”

pragmatic and employ whatever approaches are effective to inform the policy community about environmental problems and their solution.”

From those results and our results here, it is common for ecological economists to believe both that environmental problems can be reduced to natural science, *and* that they are irreducibly political, involving contested human values. One could interpret that this is an (oddly tacit) embrace of the normative, value-laden approach of ecological economics. Ecological economists see themselves as contestants for strong sustainability policy, in light of scientific findings, within an arena of admittedly contested values. What is surprising is that few respondents – or authors of policy-relevant ecological economics research – explicitly admit to this stance. Instead, it seems that the EE community sees science and sustainability as contested realms overall but its own research as somehow above the fray, pointing incontrovertibly towards certain conclusions and paths of collective action.

6 Conclusions:

I surveyed members of the ISEE on their views of the state and future of the field. The sample showed cautious optimism in the progress of the field, a desire for radical social change and interest in collaborating with a wide range of other researchers. Like other examinations of the field, we found a range of opinions as to what it means for EE to be “Economics,” both as it relates to other types of economics and how it relates to public policy. Priorities for research and action were largely similar to those found in the 1991 research agenda but with greater breadth. With the continuation of environmental degradation around the world, there is consensus that ecological economics still has much work to do.

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Costanza and Colleagues: Chapter 1 of this book

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