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Scientific Opinions on the Trade-Off between Economic Development and Environmental Protection

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Abstract: -

The academic discourse surrounding economic growth, environmental sustainability, and societal well-being has persisted for decades. In 2015, a comprehensive online survey was conducted to capture the perspectives of researchers on key aspects of this ongoing debate particularly regarding the compatibility of global GDP growth with the 2 °C climate policy goal, and the anticipated timing and factors that might signal the end or continuation of growth. A total of 814 experts participated, representing diverse fields such as growth theory, general economic, environmental and ecological economics, environmental social sciences, and natural sciences.

Introduction:

The conversation has resurfaced in light of global economic instability and growing environmental threats such as climate change and biodiversity loss. These challenges have reignited critical discussions about the sustainability of economic growth within both academic and public spheres. Some prominent mainstream economists have also begun to question the conventional focus on growth. For instance, argues that the era of high growth in developed nations may be over, while critiques the excessive focus on GDP a phenomenon he terms "GDP fetishism." Similarly, Rogoff (2012) raises the question of whether the "growth imperative" should be reevaluated. Given the multifaceted nature of the growth-environment discourse, various academic disciplines have become involved in the debate. Ecological economics, in particular, has taken a leading role in critiquing growth models. In climate science, some experts argue that achieving climate goals is fundamentally at odds with maintaining short to medium term economic growth. On the other hand, mainstream environmental economists often either overlook these tensions or invoke the

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Environmental Kuznets Curve, which suggests that after a certain income threshold, economic growth can lead to environmental improvements. This article pursues two primary research objectives. The first is to identify the topics within the economic growth debate that show the greatest levels of agreement or disagreement among researchers. Drawing from previous studies, the authors propose the hypothesis that differing perspectives are closely linked to researchers' academic disciplines. The second objective is to analyze what additional factors, beyond disciplinary background, contribute to the variation in researchers' opinions on economic growth and environmental issues. Earlier research has shown that scientific perspectives, like public opinions, are shaped by a variety of influences. This study employs statistical methods to assess how variables such as level of expertise, political orientation, and country of origin correlate with researchers' views. It also examines the explanations researchers themselves offer for the disagreements surrounding the relationship between growth and the environment.

Selection of respondents

We used "Scopus," the largest global database of peer-reviewed literature, to find pertinent scientists and get their contact details. Additionally, it was useful since it gave the email addresses of the authors of the documents that came up during search operations.

The selecting process was divided into two major phases. In the first, we made an effort to guarantee that our sample had a sufficient number of researchers with pertinent subject-matter expertise. In order to achieve this, we found articles that contained the terms "economic growth" as well as a variety of environmental terms, such as "environment," "climate," "emissions," "sustainability," etc. We included alternatives for a number of search phrases by appending an asterisk to the end of the word. During the 2005–2014 timeframe, this search produced 697 documents (i.e., corresponding authors). Furthermore, we used the same search phrase combinations for the article titles as well as for the article keywords. 3425 more researchers were produced as a result of this phase. We screened the article title and, if required, the abstract of each resultant document to ensure that it was relevant, eliminating those that weren't. This implies that articles that incorporated terms like "economic growth" and "sustainable management of debt" or "human resources" were disqualified. This procedure produced 2369 distinct names in total. In the second selection stage, the names of researchers whose knowledge and viewpoints are pertinent to the growth debate but may not have published with an emphasis

on the growth-environment relationship were gathered. In order to achieve this, we selected a number of significant scientific publications in environmental and economic science, primarily due to their scientific renown or impact factor. We selected authors who wrote for these periodicals at random. The magazine of Economic Growth was an obvious initial choice, and we asked all writers whose contact information was accessible and who had published in this magazine during the previous ten years.

Survey implementation

On March 24, 2015, the members of the sampling frame mentioned above received an email inviting them to take part in the survey anonymously. Duplicate responses were avoided by using a unique identity. Offering respondents the choice to be added to an email list that would notify them of any possible survey results while guaranteeing their privacy served as a tiny professional incentive. This option was chosen by about 20% of all survey participants. For those who hadn't replied yet, we sent reminder emails on April 7 and April 28. On May 10th, the survey was closed. After adjusting for incorrect email addresses that is, surveys that could not be sent to the appropriate researchers it had a response rate of 12% (N = 814). Despite appearing relatively low, this rate makes sense for two reasons. For starters, response rates to surveys have been dropping lately, and web surveys in particular have far lower response rates than other survey formats. Second, taking into account our sample technique, we invited a large number of researchers whose primary area of interest or focus is environmental issues rather than economic growth. Actually, different subsamples had different response rates. Authors that we identified using pertinent article titles (18%) and keywords (16%) had higher rates. Response rates varied from 22% to 3% among the randomly selected researchers.

Survey questions and sample characteristics

The survey's questions were designed to address the primary points of contention around economic growth. In order to encourage academics from different fields to share their thoughts, we employed non-technical question formats and response choices. The survey was designed to be completed in about ten minutes. There were two primary parts. The first had almost 20 questions about the environment and economic growth. After each question, the participants could offer more remarks. Only in cases where noteworthy trends were found or when the comments amply qualified the responses will we use these comments. Examining each one would be outside the purview of this essay. We anticipated that the items in the second survey segment would affect researchers'

opinions on environmental issues and economic growth. For the purpose of classifying the respondents into research fields, we asked about their research focus, publication history (i.e., the total number of peer-reviewed publications on growth in general and growth and the environment in particular), formal education, professional affiliation, country of origin, age, gender, and political orientation. The supporting documentation contains the exact phrasing of every question.

Categorization of respondents into research fields

Respondents were given the choice to select up to two primary research areas in the survey. We divided the respondents into different research field groups based on their self-reports. Economists in the first group identified "growth theory" and/or "empirical analysis of growth" as their primary research fields; they did not choose environmental research as a potential second choice. Stated differently, this group is meant to represent economists who only concentrate on economic growth. This group's answers to the questions about the quantity of publications (growth/environment, growth in general) were also cross checked. Initially, a small number of respondents (n = 6) in this group published more about growth and the environment than on growth in general. Those who had chosen to focus on growth theory or empirical analysis along with an environmental (or energy) field were transferred to the second group. A third category consists of economists who study neither economic growth nor the environment or energy, such as macroeconomists or development economists. All respondents who chose environmental and resource economics as their second choice, with the exception of those who chose growth or ecological economics, make up the fourth group. Consequently, the fifth group is ecological economics. Additionally, 36 respondents selected ecological economics and environmental & resource economics as their research fields. An initial analysis of the survey data, which revealed no statistically significant differences between (nearly all) responses by the ecological economist groups and those choosing both ecological economics and environmental & resource economics as their research areas, served as the impetus for this choice. Other environmental social scientists (such as environmental sociologists and psychologists) that did not fit into any of the previous divisions make up the sixth group. Environmental scientists, or responders from the natural or environmental sciences who did not fall under any of the aforementioned social sciences, make up the seventh category. Lastly, take notice that these seven divisions will be referred to as "research

fields" from now on because they include both sub disciplines of economics and more general research topics like ecological economics, as well as even collections of several disciplines like environmental social sciences.

Favored growth environment strategy

We then evaluated responses to a broad question concerning which growth environment strategy should be adopted by governments in high income nations. The overall response distribution, was as follows: fewer than 1% supported prioritizing economic growth regardless of environmental consequences. About 42% endorsed the concept of "green growth" the idea that economic growth can align with environmental sustainability. Another 31% favored a stance that treats economic growth as irrelevant to policy making, while 17% supported halting growth altogether. Additionally, 8% chose alternative strategies, which they described in an open-response section. Analysis of these open responses revealed that the most common theme (n = 21) consisted of modified versions of the "green growth" framework. Some responses aligned more closely with the "growth" or “de growth” perspectives, while others expressed distinct views, such as advocating for no governmental role in welfare or market regulation. When disaggregated by research field, similar trends were observed. Respondents from Growth Economics (GrowEc), Other Economics (OthEc), and Environmental Economics (EnvEc) were most supportive of pro-growth strategies, predominantly selecting “green growth.” In contrast, preferences in other fields were more evenly spread across the strategies. Statistical analysis using Chi-square and post-hoc comparisons showed that respondents from GrowEc, OthEc, and EnvEc were significantly more likely to support “green growth” than those in Ecological Economics (EcoEc), Environmental Social Sciences (EnvSoc), and Environmental Sciences (EnvSci) ($p < 0.05$). Responses from the Growth and Environment (GrowEnv) group did not differ significantly from any other group, reflecting its central or moderate position in the debate.

Conclusion

This article aimed to provide new insights into the long-standing debate on economic (GDP) growth and environmental sustainability. By conducting a survey of 814 scientists, the study analyzed how views on key aspects of this debate vary across academic disciplines, and how these perspectives are influenced by factors such as subject expertise, political beliefs, and other background characteristics. The findings reveal a clear divide in perspectives on the desirability and feasibility of continuous economic growth. Mainstream fields such as growth economics, general economics, and

environmental economics tend to view endless growth more favorably, whereas researchers in ecological economics, environmental social sciences, and natural sciences are generally more skeptical. Interestingly, those with a deeper research focus or more publications on growth and environmental issues tend to be slightly less confident about the possibility of indefinite growth. Still, overall expertise does not strongly predict alignment with any particular viewpoint. Notably, political ideology emerges as the most consistent and influential factor shaping opinions in this debate, even after controlling for discipline and other variables. Ideological orientation, along with related concepts like values and personal worldviews, were most commonly cited as reasons behind differing opinions on growth and the environment. These findings suggest that disagreements on this topic go well beyond empirical evidence and reflect deeper normative and ideological divisions. The study recommends future research explores more refined metrics of ideology and values beyond the basic left-right spectrum. It also encourages investigation into whether and how the influence of political ideology can be reduced in discussions about economic growth and environmental policy. Additional research with alternative samples and focused on more specific challenges, such as climate change, is also advised.

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