How should (and can) an economics book change for better environmental sustainability? [BMF CP Special]

Thi Mai Anh Tran (1), ***Minh-Phuong Thi Duong*** (2)
(1) Michigan Technological University
(2) Faculty of Social Sciences and Humanities, Ton Duc Thang University

December 20, 2024

"Kingfisher is horrified. Market economics combined with the rising demand for fish and beer is such a devastating and dangerous combination. The more he thinks about it, the more worried he becomes, making his head dizzy."

—In "Bird Village Economics"; *Wild Wise Weird* (2024)

1. Project description

1.1. Description

In the face of escalating environmental crises, the role of economics in shaping sustainable solutions has come under increasing scrutiny. Traditional economic paradigms, often grounded in the pursuit of growth and efficiency, have been criticized for neglecting the environmental costs of human activities. This disconnect between economic theory and ecological reality has prompted calls for a profound transformation in how economics is studied, taught, and applied [1-3].

Books on economics, as key instruments for disseminating knowledge and shaping thought, hold a pivotal role in this transformation. By integrating interdisciplinary insights, challenging foundational assumptions, and prioritizing environmental sustainability, these

texts can equip future economists and the broader public with the tools needed to tackle the planet's most urgent challenges. But how can economics books effectively foster a sustainable future? How should their content, structure, and approach be to make them effective catalysts for ecological stewardship?

This study represents one of the first attempts to address these questions through a quantitative approach. Specifically, it analyzes Amazon's book reviews of *Better Economics for the Earth: A Lesson from Quantum and Information Theories* to identify factors that stimulate and influence readers' perceptions of economics and the environment.

Better Economics for the Earth is a groundbreaking work that reimagines the field of economics through the lenses of quantum and information theories [4]. It introduces a transformative framework for understanding and addressing environmental challenges, offering a redefined concept of value that goes beyond traditional paradigms of growth and profit. The book also emphasizes the concept of eco-surplus culture, which facilitates societal transitions toward a sustainable economic paradigm. There are several reasons why Better Economics for the Earth was chosen for the analysis.

First and foremost, Better Economics for the Earth represents a bold and innovative approach to rethinking economics in the context of environmental sustainability. Its interdisciplinary framework, which integrates insights from quantum mechanics and information theories, introduces a paradigm shift, reframing economics from a more science-based perspective. The book's fresh and groundbreaking concepts, such as the redefinition of value and the integration of eco-surplus culture, provide a unique opportunity to study how readers are stimulated and influenced by new ideas and frameworks that help address pressing global challenges while deviating from traditional economic narratives. Additionally, the book's demonstrated positive impact on readers further qualifies it for the current study. With a 4.8-star rating and numerous reviews highlighting significant shifts in attitudes toward environmental responsibility, the book serves as an ideal candidate for exploring how innovative economic frameworks resonate with and influence public perceptions.

1.2. Materials

The granular interaction thinking of mindsponge theory will be used for the conceptual development of this study, while Bayesian Mindsponge Framework (BMF) analytics will be used for statistical analysis [5-7]. Amazon readers's reviews, which are published online, serve to be the main source of data for this analysis. One such example follows.

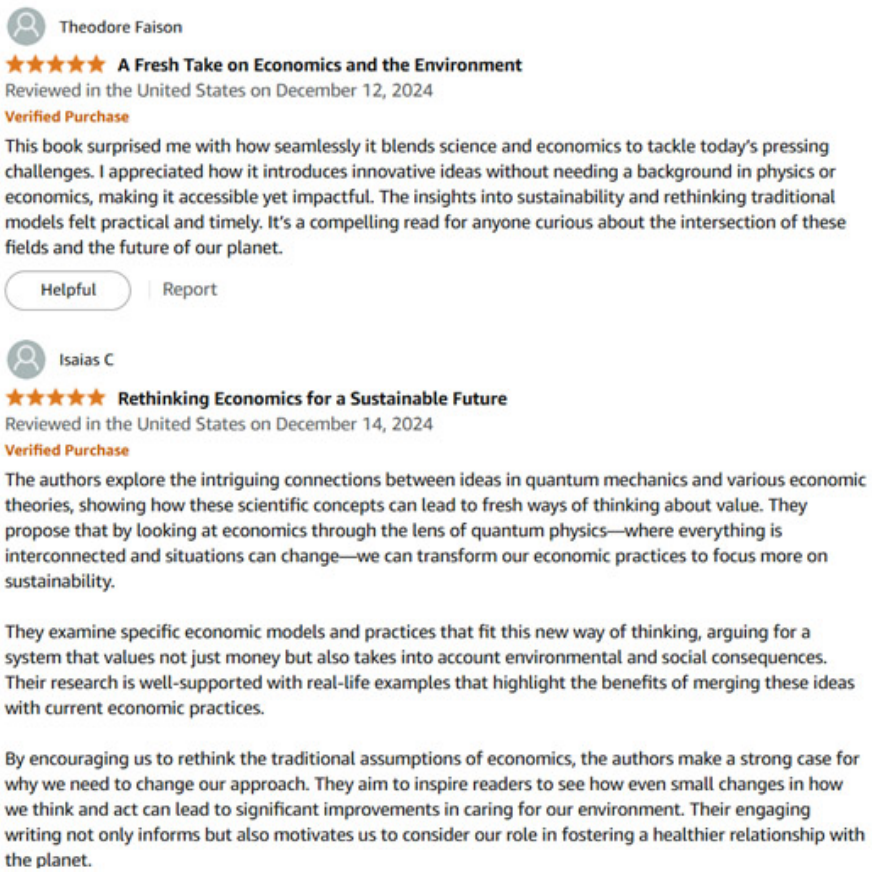

Figure 1: Amazon reviews of Better Economics for the Earth

The preliminary dataset was generated from 88 Amazon reviews in Australia, Canada, Germany, India, Italy, the United Kingdom, and the United States. The generation process consists of three main steps.

- First, variables representing the stimulation and influence of readers' thoughts, as well as factors contributing to these effects, were identified by analyzing the reviews. The variable identification process was stopped as we reached the theoretical saturation point. A reader's thoughts were considered stimulated when the following keywords were detected in the readers' description of the book and their reading process: "interesting," "thought-provoking," "compelling," "inspiring," etc. Meanwhile, a reader's thoughts were considered influenced when the following keywords were detected: "enlighten," "eye-opening," and "definitely/truly thought-provoking."
- Second, a questionnaire was created by Google Forms, comprising identified variables and other meta-information about the review (e.g., review's date, location, title, text, and reviewer name). The Amazon reviews were evaluated based on the questionnaire.
- Third, the data were curated and validated. During this process, reviews that were too short or not informative were excluded to warrant the data's quality. Three unqualified

observations were omitted, resulting in a total of 83 data points for subsequent analysis.

The validated dataset was evaluated using the bayesvl R package, which utilizes the Markov chain Monte Carlo (MCMC) algorithm for estimation [8]. Figure 2 presents the logical network of the constructed model, with ThoughtStimulating being the outcome variable.

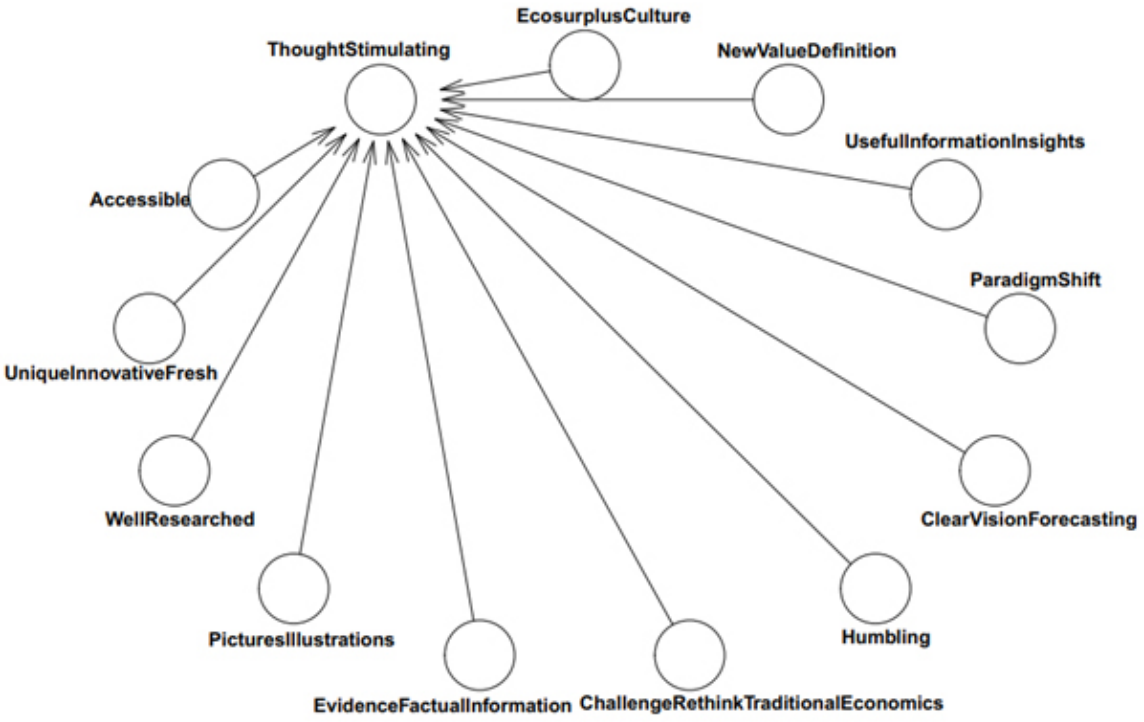

Figure 2: Constructed model's logical network

For the sake of research transparency and reducing research and reproducibility costs, we have stored all data and computer code on Zenodo: https://zenodo.org/records/14533332.

1.3. Main findings

Among 83 Amazon reviews of Better Economics for the Earth, around 37% of them express that their thoughts are stimulated, and around 33% of them express that the book's content influences their thoughts. The preliminary analysis indicates some factors contribute to the readers' love for the book. First, readers describing the book as unique, fresh, groundbreaking, and innovative are more likely to express that their thoughts are stimulated (moderate reliability). Readers who praise the pictures/illustrations and evidence/factual information are also more likely to express that their thoughts are stimulated (high reliability). Readers highlighting the paradigm shifts and the redefinition

of value are more likely to be stimulated (high reliability). Conversely, those noting that the book challenges conventional economics thinking are less likely to be stimulated (moderate reliability). These estimated posterior distributions of the first model with ThoughtStimulating being the outcome variable are visualized in Figure 3.

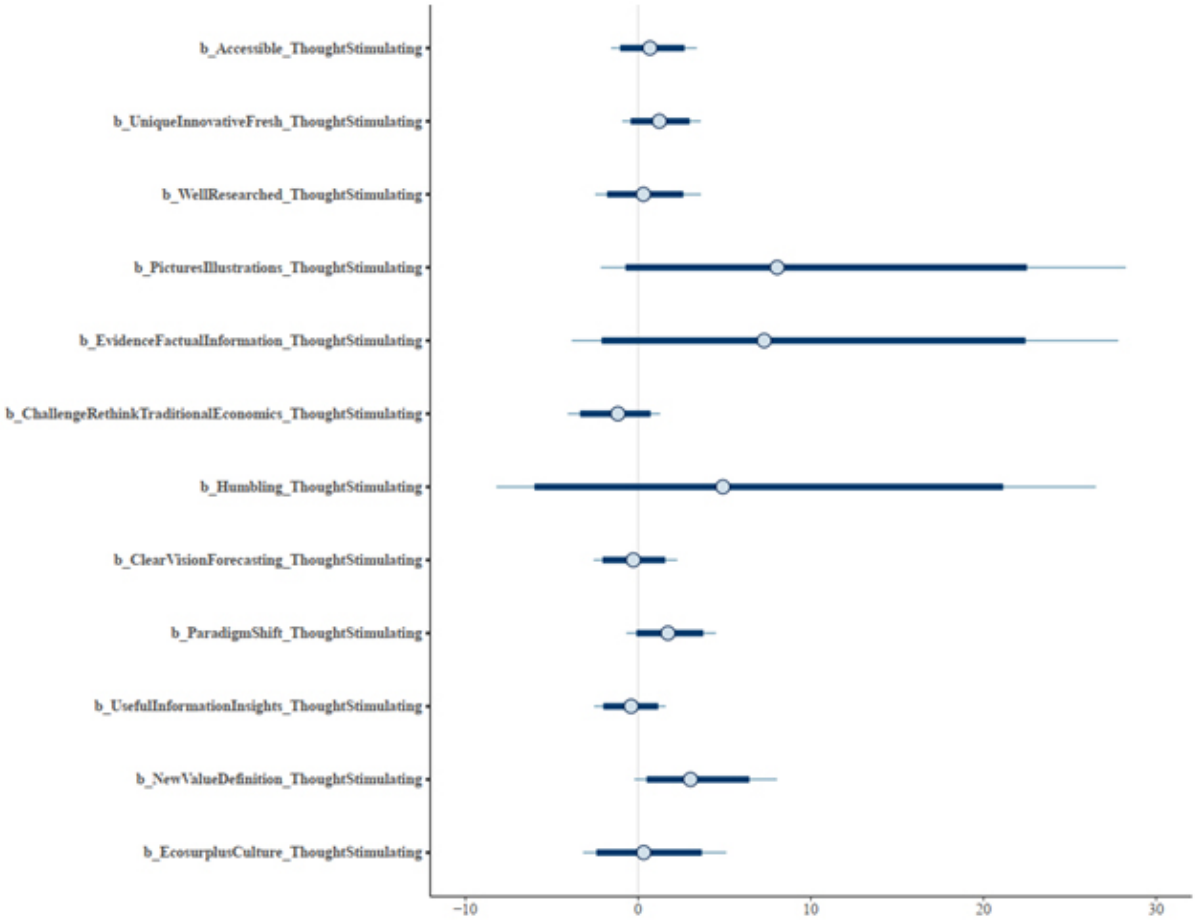

Figure 3: The estimated posterior distributions of predictors for ThoughtStimulating

Analysis of the second model shows that accessible and well-researched content and humble writing are factors positively influencing the thoughts of readers (high reliability). The economics paradigm shift, redefinition of value, and introduction of eco-surplus culture also positively contribute to influencing the readers' thoughts positively (high reliability). In contrast, readers noting the book challenges conventional economics thinking are less likely to be influenced (high reliability), which underscores the deeply ingrained paradigms of conventional economics in some readers' mindsets. These estimated posterior distributions of the second model with ThoughtInfluencing being the outcome variable are visualized in Figure 4.

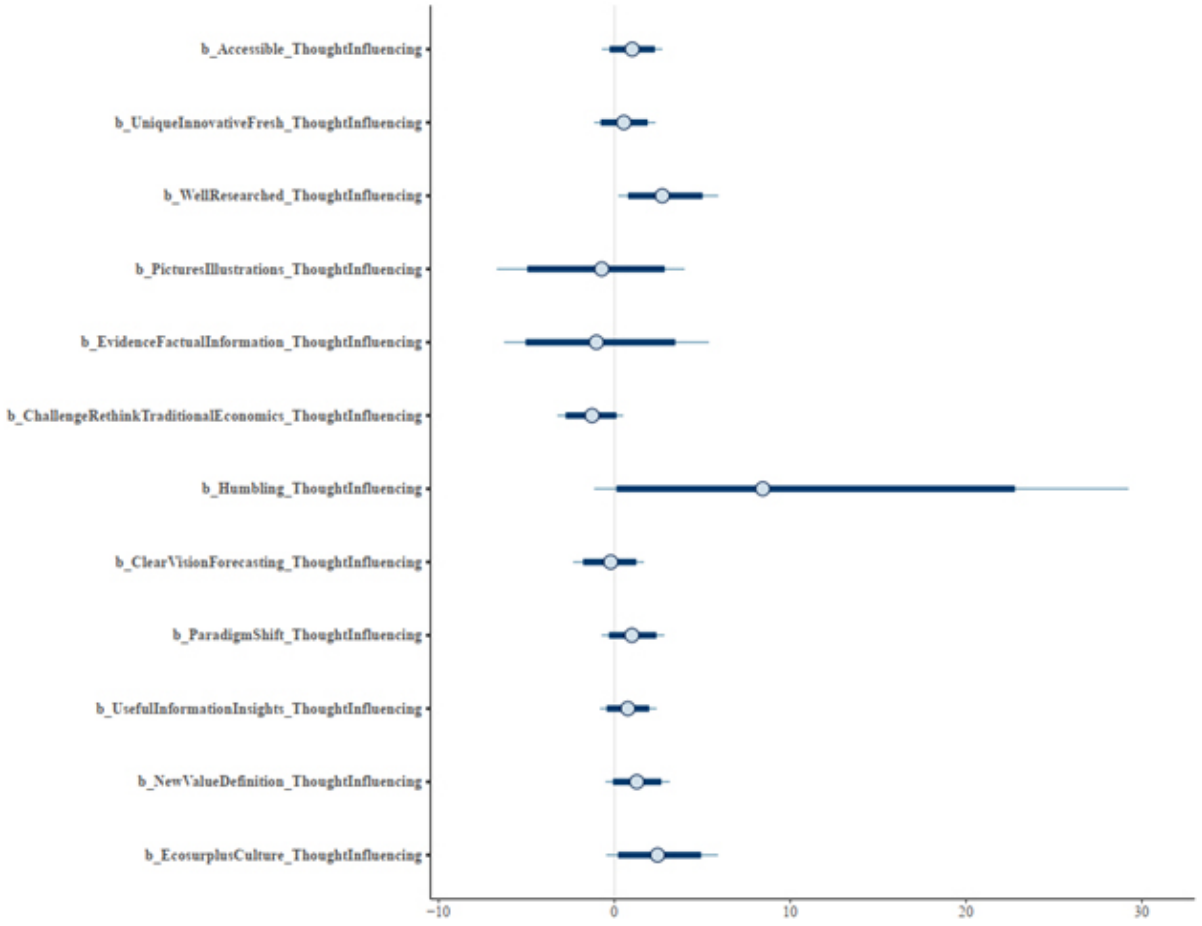

Figure 4: The estimated posterior distributions of predictors for ThoughtInfluencing

2. Collaboration procedure

Portal users should follow these steps for registering to participate in this research project:

1. Create an account on the website (preferably using an institution email).
2. Comment your name, affiliation, and your desired role in the project below this post.
3. Patiently wait for the formal agreement on the project from the AISDL mentor.

If you have further inquiries, please contact us at aisdl_team@mindsponge.info

If you have been invited to join the project by an AISDL member, you are still encouraged to follow the above formal steps.

All the resources for conducting and writing the research manuscript will be distributed upon project participation.

Coordinators for this project: ***Thi Mai Anh Tran***.

Other members who have joined this project: ***Minh-Phuong Thi Duong***.

The research project strictly adheres to scientific integrity standards, including authorship rights and obligations, without incurring an economic burden at participants' expenses.

References

[1] Nadeau RL. (2003). *The wealth of nature: How mainstream economics has failed the environment*. Columbia University Press. https://cup.columbia.edu/book/the-wealth-of-nature/9780231127981

[2] Hagens NJ. (2020). Economics for the future – Beyond the superorganism. *Ecological Economics*, **169**, 106520. https://doi.org/10.1016/j.ecolecon.2019.106520

[3] Pirgmaier E, Steinberger JK. (2019). Roots, riots, and radical change—A road less travelled for ecological economics. *Sustainability*, **11**(7), 2001. https://doi.org/10.3390/su11072001

[4] Vuong QH, Nguyen MH. (2024). *Better economics for the Earth: A lesson from quantum and information theories*. https://www.amazon.com/dp/B0D98L5K44

[5] Vuong QH. (2023). *Mindsponge theory*. Walter de Gruyter GmbH. https://www.amazon.com/dp/B0C3WHZ2B3

[6] Vuong QH, Nguyen MH, La VP. (2022). *The mindsponge and BMF analytics for innovative thinking in social sciences and humanities*. Walter de Gruyter GmbH. https://www.amazon.com/dp/8367405102/

[7] Vuong QH, Nguyen MH. (2024). Further on informational quanta, interactions, and entropy under the granular view of value formation. https://dx.doi.org/10.2139/ssrn.4922461

[8] La VP, Vuong QH. (2019). bayesvl: Visually Learning the Graphical Structure of Bayesian Networks and Performing MCMC with 'Stan'. *The Comprehensive R Archive Network*. https://cran.r-project.org/web/packages/bayesvl/index.html

[9] Vuong QH. (2024). *Wild Wise Weird*. https://www.amazon.com/dp/B0BG2NNHY6

©2024 AISDL - Science Portal for the SM3D Knowledge Management Theory