Topics in Middle Eastern and African Economies

Proceedings of Middle East Economic Association

Vol. 24, Issue No. 1, May 2022

Perspectives on the Environment: What Do Likert Values Tell Us for MEEA?

By

Mine Cinar, Loyola University Chicago

Alain Safa, Skill Partners and University of Nice Sophia-Antipolis

Denis Allemand, Monaco Scientific Center

Nathalie Hilmi, Monaco Scientific Center

Abstract:[1]

This proceeding is a short version of our study on different perceptions and approaches for mitigation to environmental problems between social and natural scientists. We discuss our survey findings of perception differences between respondents from the MENA region relative to those in the US in terms of their awareness of environmental issues. The survey used Likert values to measure attitudes, values, knowledge, intent, business ethics and corporate social responsibility with respect to climate change.

[1] We wish to thank Ramakanth Tallapragada and Stacy Beran Neier for their input in the design of the survey.

Introduction

Literature on bridging the gap between scientific disciplines focuses on several issues in approaches to solving environmental problems. Many scholars discuss divisions between different branches of academic thought and have proposals to bridge the gaps. Sauve et. al. (2016) have a holistic approach of trans-disciplinary research to study environmental problems by breaking down barriers among different disciplines. Essential to this approach are the definitions of shared vocabulary and key definitions. They state that different disciplines have different usage of identical terms and their discussions can become a "dialogue of the deaf", where the three main approaches (environmental sciences versus sustainability versus economic production/consumption) diverge in how they perceive the environment's role. They conclude that rather than arguing for the importance of one approach over the other, more attention should be paid to the concept of closed-loop economy of circular flows, where a product's waste becomes another's raw material (Sauvé, et al, 2016).

Perceptions Survey

This study uses results collected from an online survey on how different disciplines and different areas know and value environmental problems. Internet surveys were used to possibly distinguish between different categories or groups such as place of work, gender, natural versus social scientists and geography (EU, MENA, US) on attitude differences on viewing and solving environmental problems. This summary reports partial findings related to the MENA region.

Qualtrics survey was used to find differences in attitudes and perceptions of social scientists, mainly economists, and natural scientists in 2019. Our sample was chosen where the emailed surveys were sent out to professional association mailing lists, including the mailing lists of members from MEEA. The response rate for the survey was 14.88% with some missing observations.

We realize there is selectivity bias in our responses, for only those who cared or thought climate change was important or interesting responded to the survey. Ninety two responses were from those who had PhDs (90.51 %) and masters (9.41 %) degrees. In terms of geography, 25.29% were in the EU (including UK), 21.84 % were in the USA, 27.59% were from the Middle East and North Africa, and the rest were from non-EU Europe, Canada and other countries around the world. A majority of 52.33% were 50 years of age or above, 33.72% were 36-50 years old and 13.95 % were between the ages of 20-35 and 68.24 % were males. About 53% worked on the environment, and 78.8 % declared themselves as scientists such as in the fields of biology, physics, chemistry, environmental science, statistics, and mathematics. The rest were social scientists, mainly economists. The survey asked for responses in 5 Likert categories, from strongly against to strongly support.

What did we measure?

We followed the tradition of measuring different aspects of perceptions These perceptions were on **attitudes, knowledge, values and intent.** We also added questions on **business ethics and corporate social responsibility**. In constructing our survey questions, we relied on the literature abundant in terms of perceptions and we modified or added questions. Questions on attitudes toward climate change issues were based on and inspired by the work of Hofstede (G. Hoefstede, 2011). For business ethics and corporate social responsibility, we followed Singhapakdi, et. al. (1995) who used a 9 point Likert values in a survey to measure marketer's perceptions of ethics and social responsibility. We then supplemented our additional questions as part of the business ethics and corporate social responsibility inquiries. Using a similar structure to the work of Kaiser, et al. (1999), where environmental knowledge can lead to pro-environment behavior, we constructed questions on knowledge, values and intentions about the climate to the survey. There were 96 questions in total in the survey, including questions on survey respondents' individual categorical information.[2]

Analysis

We use the ordered logistic regression model to evaluate the ordinal Likert values. Likert values were developed by Rensis Likert (1932) to measure respondents' attitudes with which they agree or disagree with given statements. Our scale values are 'strongly agree/agree/neither agree nor disagree/disagree/strongly disagree', which are the ordinal dependent variables. Ordinal logistic regression models use a cumulative logit parameterization, where j represents the number of levels in the categorical response variable (from strongly disagree to strongly agree, or 5 levels), and p represents the number of explanatory variables. The parameterization is observing "Y less than or equal to j" where j is one of the ordered categories of the response variable. The model will have j-1 cutoffs, as threshold values, denoted by αj in the model below, and will have one parameter for each explanatory variable.

$$\text{Log}[(P(Y\leq j)/(1-P(Y\leq j))]=\alpha j-(\beta 1x1+\beta 2x2+\cdots+\beta pxp), \quad j=1,...,J-1$$

The explanatory variables we tested with the ordinal dependent variable were whether the respondent was a social or natural scientist (binary), and the respondent's gender (binary), age bracket, place of work (university/NGO/government/other) and the geographic region the respondent worked in (US, EU including UK, non-EU Europe, **Middle East** and Other parts of the world). We summarize the results that pertain to only the Middle East here for parsimony, and also using multiple

[2] The survey questions can be requested from the mcinar@luc.edu.

criteria of goodness of model fit, of 5% or less significance of coefficients, of test for the model fit with the parallel lines and of Cronbachs alpha test. IBM SPSS program was used to calculate the ordinal logistics regressions.

Findings

Due to selectivity bias of respondents who believed in the importance of the climate and responded to the survey, there was much agreement for many of the questions. For parsimony, we report below only the ordinal logistic regressions in which Likert values had significantly different coefficients for respondents from MENA regions. The coefficients were relative to the responses from the US.

In terms of **attitude**, the question of "*Markets are important. Rules and policy proposals for repairing environmental damage should be market based."* was different for the MENA region. Those who worked in the Middle East had a coefficient of -2.941 and they were more likely to disagree with the statement compared to respondents in the US.

In terms of **business ethics** questions, "*Primary stakeholders of a business corporation are stockholders*." was different for the MENA region. Compared to the US, those who worked in the Middle East region had a significant negative coefficient of -2.068 and were more likely to disagree with the statement.

In the **knowledge** section, almost all of the questions were similarly answered between all groups, including the respondents from the US and from MENA.

In the **values** section, 2 questions were different between respondents from MENA versus the respondents from the US. " *Keeping animals in captivity should be illegal*.", those who worked in the MENA region were more likely to agree with the statement.

"*Humans are at the top of the food chain. Other species are there to serve mankind.*" compared to the respondents in the US, those who worked in the **Middle East** region had a significant coefficient of 1.275 and were more likely to agree with the statement.

Conclusions

We found some differences in attitudes, business ethics and especially values among natural versus social scientists, three age brackets and geography of where the respondent was living. We also found the following distinguishable differences in some attitude, values and business ethics questions. In terms of attitudes, respondents from the MENA region disagreed with the statement that policy proposals for repairing environmental damage should be market based. In terms of values, MENA region respondents agreed with the statement of keeping animals in captivity should be illegal. They also were more likely to agree with the statements of humans being at the top of the food chain. In terms

of business ethics, they were more likely to disagree with the statement of the primary stakeholders of corporations. However, our survey results, in general, were relatively homogenous, given that there was selectivity bias among the respondents who responded to a climate change survey. Compared to the baseline group of survey respondents from the US, respondents from the MENA region had no differences in knowledge of environmental issues, nor of corporate social responsibility.

Selected References

Andersen, Mikael Skou. "An introductory note on the environmental economics of the circular economy." Sustainability Science, 2, no. 1 (2007): 133-140.
Balling, Robert C., and Randall S. Cerveny. "Compilation and discussion of trends in severe storms in the United States: Popular perception v. climate reality." Natural Hazards 29.2 (2003): 103-112. h

Debela, Nega, Caroline Mohammed, Kerry Bridle, Ross Corkrey, and David McNeil. "Perception of climate change and its impact by smallholders in pastoral/agropastoral systems of Borana, South Ethiopia." *SpringerPlus* 4, no. 1 (2015): 236. https://pdfs.semanticscholar.org/ec80/bee820a91aadea7a5985d749e61ff1629014.pdf

Derrick, Ben, and Paul White. "Comparing two samples from an individual Likert question." *International Journal of Mathematics and Statistics* 18, no. 3 (2017).

Guerra, Andrea Luigi, Thierry Gidel, and Enrico Vezzetti. "Toward a common procedure using likert and likert-type scales in small groups comparative design observations." In *DS 84: Proceedings of the DESIGN 2016 14th International Design Conference*, pp. 23-32. 2016.

Haque, Md Aminul, et al. "Households' perception of climate change and human health risks: A community perspective." Environmental Health 11.1 (2012): 1. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.450.3740&rep=rep1&type=pdf

Hofstede, Geert. "Dimensionalizing cultures: The Hofstede model in context."
Online readings in psychology and culture 2, no. 1 (2011): 2307-0919.

Kaiser, F. G., Wölfing, S., & Fuhrer, U. (1999). Environmental attitude and ecological behaviour. *Journal of environmental psychology*, *19*(1), 1-19.

Leiserowitz, Anthony. "Climate change risk perception and policy preferences: The role of affect, imagery, and values." *Climatic change* 77, no. 1-2 (2006): 45-72.

Sauvé, Sébastien, Sophie Bernard, and Pamela Sloan. "Environmental sciences, sustainable development and circular economy: Alternative concepts for trans-disciplinary research." Environmental Development 17 (2016): 48-56.