Green Economy and Uncertainty Avoidance as a Dimension of National Culture

Alona Sova, Maja Rožman, Romana Korez Vide
University of Maribor, Faculty of Economics and Business, Maribor, Slovenia
alona.sova@student.um.si, maja.rozman1@um.si, romana.korez@um.si

Abstract The key objective of a green economy, as an environmentally sound, low-carbon economy, is promoting sustainable development. The latter should consider national culture, which comprises the values, beliefs, and actions of a society. The main purpose of this paper is to explore the interconnectedness of uncertainty avoidance as a national cultural dimension and the levels of green economy development. In the research, we gathered secondary data from 60 countries from different parts of the world. The data for national cultural orientations were collected from the Hofstede insights website, whereas the values for the green economy indicators were gathered from the Green Growth Index. Our research shows that countries with a high degree of uncertainty avoidance perform better in green trade, green employment, and green innovation indicators than countries with a low degree of uncertainty avoidance. The research is based on descriptive statistical analysis. Its findings show that for some green economy indicators, there are statistical differences between different groups of countries with different levels of uncertainty avoidance, which brings important implications for policymakers and businesses.

1   Introduction

Over the last decade, the concept of the green economy has become a strategic priority for national governments. By transforming their economies into so-called green systems, economies should be able to meet the key challenges of the 21st century – from excessive urbanization and scarcity of natural resources to climate change and economic instability (UNEP, 2020).

A green economy requires particular skills, capabilities, and cultural characteristics of individuals. House et al. (2004) argue that the greater the desire to avoid uncertainty, the more people seek orderliness, consistency, structure, formal procedures, or tangible laws as they help lessen the need to make one's own decisions and be responsible for uncertain outcomes. People in uncertainty-avoiding cultures solve pressing problems rather than develop long-run strategies. Firms located in countries with high levels of uncertainty avoidance are expected to be less effective innovators compared to firms located in countries with low levels of uncertainty avoidance (Holmstrom, 1989). They are likely to invest less in research projects to reduce the level of uncertainty. Even if the expenditure towards R&D is the same between high and low-uncertainty-avoiding countries, firms in high-uncertainty-avoiding countries are likely to dedicate most of these funds towards low-risk endeavors, which by definition are of lower impact (Chen et al., 2017).

Despite the importance of a green economy for the sustainable development of societies, there is a research gap in identifying the links between green economy development stages and countries' particular national cultural orientations. The main purpose of our paper is to explore the interconnectedness between uncertainty avoidance as a national cultural orientation and the level of green economy development.

2   Theoretical Background

The key objectives of the green economy, as an ecologically sound, low-carbon economy (UNEP, 2020), are to reduce environmental problems and risks and to promote sustainable development. Studies on the green economy cite a fundamental shift towards more efficient, innovative, environmentally friendly technologies that can reduce harmful emissions and the effects of climate change, while coping well

with the challenges of resource depletion and degradation of the natural environment (Janicke, 2012). Key pillars of green economy development include the need to reduce carbon emissions to minimize the risks of climate change due to the overexploitation of natural resources and large-scale degradation of the natural environment which reduce the natural capital on which humanity depends.

The shift towards a green economy requires a new mindset and an innovative way of doing business. It also requires new potential in the skills of individuals who can work competently at a cross-sectoral level in interdisciplinary teams. The acquisition and use of knowledge and skills, values, ways of thinking, and acting are elements of the cultural environment of countries.

Most of the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 (UN, 2015) emphasize the role of culture at its core. It is recognized as an important factor in the economic, social, and environmental dimensions of sustainable development. Culture represents the values, beliefs, and behavior of a society. Tylor (1870) defined culture, as "a complex whole comprising the values, beliefs, norms, customs, and habits, which the individual acquires as a member of a social group". According to Hofstede (1994), culture is "the collective programming of the mind that separates members of one group of people from another". Culture plays a direct and crucial role in achieving the strategic pillars of a country's development vision (Alwakid et al., 2020). Various authors (e.g. Ratan, 2017) have attributed economic growth to the dominant characteristics of particular national cultures.

Uncertainty avoidance, as a cultural dimension, can be explained by the level of society's tolerance to ambiguity and uncertainty (Wennekers, et al., 2007; Hancioglu et al., 2014). Countries with a high level of uncertainty avoidance refuse to face novelties, try to balance optimal stability with minimal risk, and have numerous legislations, regulations, and laws to lower uncertainty. A national culture with a high degree of uncertainty avoidance enforces codes of conduct, guidelines, regulations, and laws to reduce or manage uncertainty and unstructured situations (Hofstede, 2001). On the other hand, individuals in low uncertainty avoidance countries don't like extensive regulation. They believe that rules are not necessary to solve problems and feel bound by them (Frijns et al., 2013; Matusitz & Musambira, 2013; Hancioglu et al., 2014). A low uncertainty avoidance culture is less fearful of an unknown future

and does not rely as heavily on rule-oriented uncertainty mitigation mechanisms (Hofstede, 2001). Although low levels of uncertainty avoidance in society are often associated with unethical actions (Rallapalli et al., 1994; Song et al., 2018), which can also be manifested in companies' neglect of activities to reduce their impacts on the natural environment, societies with low levels of uncertainty avoidance are predominantly oriented towards risk-taking activities. Our hypothesis is the following:

H1: There are differences in average values in higher/lower levels of uncertainty avoidance as a national cultural orientation across countries at different stages of green economy development.

3   Methodology

Our research is based on secondary data from 60 countries on six continents. Data on the dimensions of the green economy were collected from the Global Green Growth Index (GGGI) 2020 (Zabrocki et al., 2020). The GGGI comprises four dimensions: sustainable and efficient use of resources, protection of natural capital, green economic opportunities, and social inclusion. We focus on the area of green economic opportunities which comprises green investment, green trade, green jobs, and green innovation. Green investment refers to public and private investments that directly or indirectly promote the sustainable use of resources, including materials, water, energy, and land, as well as the protection of natural capital, such as environmental protection and climate change mitigation and the promotion of sustainable development. Green trade refers to the competitiveness of a country to produce and export environmental products that can contribute to the protection of the natural environment, climate change mitigation measures, green growth, and sustainable development. Green employment refers to green jobs, created and sustained by economic activities that are environmentally friendly and offer decent working conditions. Green innovation refers to product, process, and service innovations, such as energy saving, pollution prevention, waste recycling, and green product design, as well as to firms' activities that bring environmental benefits. Data on uncertainty avoidance as a cultural dimension was gathered from Hofstede's Insights (2021). The descriptive statistical analysis was carried out using SPSS.

4   Results

Our research shows that 43 countries have high levels of uncertainty avoidance, while 17 countries record low levels in this cultural dimension (Table 1). The average value/mean of green investment in countries with high levels of uncertainty avoidance is 66.06, in the countries with a low level of uncertainty avoidance, however, 70.48. Countries with high levels of uncertainty avoidance achieve on average lower minimum levels of green investment (50.9) than countries with low levels of uncertainty avoidance (55.1). On the other hand, countries with low levels of uncertainty avoidance achieve on average higher maximum levels of green investment (80.4) than countries with high levels of uncertainty avoidance (78.7). The minimum (55.1) and maximum (80.4) values of green investment are also higher in countries with low levels of uncertainty avoidance. Therefore, the countries with a high degree of uncertainty avoidance perform worse on green investment in comparison to countries with a low degree of uncertainty avoidance. This could be explained by the example of Denmark, which records low uncertainty avoidance (23), however, it scores relatively high on green investment (78.3).

Table 1: Descriptive statistics on high/low levels of uncertainty avoidance at different development stages of the green economy

	Green investment		Green trade		Green employment		Green innovation	
	High	Low	High	Low	High	Low	High	Low
N	43	17	43	17	43	17	43	17
Mean	**66.06**	**70.48**	**26.4**	**23.74**	**49.47**	**46.14**	**42.05**	**32.34**
Median	66.88	71.52	25.74	22.54	48.88	47.42	40.63	24.6
Std. Deviation	7.25	8.21	17.25	13.99	20.36	18.39	22.19	25.97
Variance	52.5	67.40	297.55	195.91	414.56	338.36	492.46	674.34
Range	27.8	25.3	66	39	85.37	69.65	99	99
Minimum	**50.9**	**55.1**	**3**	**6**	**14.63**	**13.9**	**1**	**1**
Maximum	**78.7**	**80.4**	**69**	**44**	**100**	**83.55**	**100**	**100**

Source: Authors' research.

Notes: GGGI: Green investment - adjusted net savings, including particulate emission damage (% of Gross National Income (GNI)); Green trade - share of export of environmental goods to total export; Green employment - share of green employment in total manufacturing employment; Green innovation - share of patent publications in environmental technology to total patents; Green investment, green trade, green employment, and green innovation: (1) 1-20 very low - require significant actions to improve the situation; (2) 20-40 low - identify the right policies to coordinate development; (3) 40-60 moderate - finding the right balance for development progress; (4) 60-80 high - take a strategic position for full development; (5) 80-100 very high - achieve or nearly achieve the maximum result. Hofstede's cultural dimensions: (1) 1-50 low uncertainty avoidance, (2) 51-100 high uncertainty avoidance.

The average value of green trade, measured by the share of exports of environmental goods, is higher in countries with a high degree of uncertainty avoidance (26.4). The minimum value that appears for this indicator is 3 for countries with a high degree of uncertainty avoidance and 6 for countries with a low degree of uncertainty avoidance. This shows that the minimum value of green trade is higher in countries with a low degree of uncertainty avoidance, and the maximum value (69), however, in countries with a high degree of uncertainty avoidance. The research shows that countries with high degrees of uncertainty avoidance outperform countries with low degrees of uncertainty avoidance in green trade. For this indicator, we can cite again the example of Denmark which records a low level of uncertainty avoidance, however, its green trade is on a high level (44.2). Iceland is a similar example since it is ranked in the group of low uncertainty avoidance countries (score 50), however, it records a very low score on the green trade (5.7).

The average value of green employment, measured by the share of green employment in total manufacturing employment, is higher in countries with a high degree of uncertainty avoidance (49.47) than in countries with low uncertainty avoidance (46.14). The minimum (14.63) and maximum (100) values of green employment are also higher in countries with high levels of uncertainty avoidance. Countries with high levels of uncertainty avoidance outperform countries with low levels of uncertainty avoidance also in green employment. For this indicator, we could look at the example of Switzerland, which records a score of 58 on uncertainty avoidance, however, it achieves the highest score on green employment (100).

The average value of green innovation, measured by the share of patent publications in environmental technology, is higher in countries with a high degree of uncertainty avoidance (42.05) than in countries with a low degree of uncertainty avoidance (32.34). The minimum (1) and maximum values of green investment (100) are the same in both groups of countries. We can conclude that countries with a high degree of uncertainty avoidance outperform countries with a low degree of uncertainty avoidance on the green innovation indicator. For this indicator, we can take a look at the example of Belgium which records a very high degree of uncertainty avoidance (94), however, it records also the highest score in the green investment indicator (100).

5   Discussion and Conclusion

Our research shows that countries with a high degree of uncertainty avoidance perform better in green trade, green employment, and green innovation indicators than countries with a low degree of uncertainty avoidance. Regardless of this, however, countries with low degrees of uncertainty avoidance perform better in green trade. Based on the results of descriptive statistics, we confirmed the hypothesis that there are statistically significant differences in higher/lower levels of uncertainty avoidance across countries at different stages of green economy development. Countries at different levels of development fall into different groups according to their national cultural orientation. For example, Denmark, a highly developed country, falls into the group of countries with low uncertainty avoidance, however, it scores poorly on the green trade indicator, which is unexpected. On the other hand, Denmark records high green investment. Belgium, as a highly developed country, falls in the group of countries with a high degree of uncertainty avoidance but scores the best on the green innovation indicator, which is also unexpected.

To support the development of the green economy, it is important to put in place requisite national policies. The circumstances in which a company is operating will determine its performance and decisions; if uncertainty avoidance is high, a company will be concerned about its future. The study of Hou and co-authors (2022) implies that minimizing economic policy uncertainty is supportive of companies' green activities. Their findings show that a stable economic policy plays an essential role in a firm's green activities. Our research shows that China, for example, is doing very well on green investment, with a score of 80.4 on this indicator, while on the other three green economy indicators, it scores low or medium, which tells us that it still needs to make progress in this regard.

Due to data availability, our research was limited to a certain set of indicators, and a certain number of countries and we focused on the country's macro level. We didn't explore the factors influencing the observed cultural dimension and other factors influencing the level of green economy development. For further research, it would be useful to modify the green economy indicators or add some additional ones. It would be also worthwhile to explore companies' levels of cultural orientations and their impact on particular green economy indicators. To achieve higher robustness of the research it would be also useful to observe a longer period.

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