

RESEARCH ARTICLE

The cultural dimensions of sustainable development: A cross-country configurational analysis

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Abstract

Our research emphasizes the need to explore the importance of cross-country cultural differences in shaping sustainable development. We employ the fuzzy set Qualitative Comparative Analysis (fsQCA) to analyze cross-national data, focusing on the relationship between Hofstede's six cultural dimensions and the sustainable development goals (SDGs) index of 82 countries worldwide. The empirical evidence sustains that the culture influences the modalities through which countries reach sustainable development. We identified four configurations of cultural dimensions associated with high levels of sustainability performance. The analysis informs that there are mainly two possible configurations: the first is characterized by low power distance (PDI) and high individualism, while the second is characterized by high PDI and low individualism. Given the existence of multiple modalities for reaching the same goal, we derive some policy implications to advise policymakers and governments on how to improve the sustainable development of their countries, taking into consideration their cultural characteristics.

KEYWORDS

configurational approach, fsQCA, Hofstede's cultural dimensions, SDGs, sustainable development

1 | INTRODUCTION

The United Nations has set a precise date - 2030—for the achievement of 17 sustainable development goals (SDGs) designed to align all 193 member countries in the effort to build and implement a common life model that respects individuals and our planet. SDGs configure as a common set of goals adopted by most countries and represent a commonly agreed definition of sustainability. The SDGs associate the principle of sustainability not only with activities that involve human interaction with the natural environment (SDGs 13, 14, and 15) or the consumption of raw materials (SDG 12) and the production of products (SDGs 8 and 9) but, in a broader sense, every single aspect of individual and social life (Blasi, Ganzaroli, et al., 2022). To build a

sustainable world, it is necessary to rethink global growth and human development in a way that (1) is not detrimental to either the planet or other individuals, (2) promotes the spread of the fundamental rights of health (SDGs 1, 2, and 3), education (SDG 4), and representation (SDG 16) to all, regardless of race (SDG 10) and gender (SDG 5), and (3) preserves all forms of heritage with which we are endowed (Giannetti et al., 2020; Griggs et al., 2013, 2014; Jones et al., 2016; Siragusa et al., 2020).

However, the idea of sustainability could become abstract and distant, if not declined in the socio-cultural context in which it can be expressed (Alonso-Martínez et al., 2020; Dangelico et al., 2020; Husted, 2005; Vachon, 2010; Vogel et al., 1987). Aligning with this perspective, our research focuses on the importance for governments

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and policymakers of taking into consideration combinations of cultural dimensions for the realization of the 17 SDGs. By doing so, our contribution blends two streams of literature, the one on sociology and anthropology, the other on economic, environmental, and social dimensions of sustainability, providing original findings and food for thought for the future research agenda. On the one hand, we contribute to the literature on sociology and anthropology by supporting the perspective of Hofstede (1980), who has the merit of providing statistical tools to measure cultural differences at the country level. Differently from the previous research on the nature and features of cultural differences in individual behaviors, or in the behavior of clans, groups, or other categories, Hofstede launches a hook to scientists working also in other fields, who can now benefit from comparable measures of cultural dimensions at the country level. We have been inspired by the possibility of using this aggregated measure of culture to conduct a cross-country analysis of the influence of culture on sustainable development. On the other hand, we contribute to the literature on sustainable development, because, by using the SDGs, we explore not only the environmental dimension of sustainability, like most of the previous literature (Husted, 2005; Park et al., 2007) but also the economic and social ones. Thus, our contribution overcomes the idea that sustainability is only an environmental issue and affirms the need for an integrated vision of the different dimensions of development (Sachs et al., 2020).

Moreover, cross-cultural sustainability research has been conducted solely based on quantitative methodology (Peng & Lin, 2009; Zheng et al., 2021), offering inconsistent results regarding the impact of specific cultural dimensions on sustainability. This is probably due to the use of one-to-one correlations or traditional regression analysis tools, which do not consider the complexity of the cultural dimensions (Husted, 2005; Maaravi et al., 2021). Our work intends to fill this gap by showing the interdependencies among cultural dimensions and their presence or absence in configurations associated with high sustainability performance.

Our research aims at answering two important research questions: (1) is there any single cultural dimension necessary or sufficient to lead to high levels of sustainable development? (2) is there any combination of cultural dimensions that significantly affects sustainable development?

The empirical analysis is based on a fuzzy set qualitative comparative analysis (fsQCA) to explore how different combinations of the cultural dimensions (causal factors) are associated with high levels of sustainability performance (outcome variable) across 82 countries worldwide. As a result, we identified four configurations of cultural dimensions associated with high levels of sustainability performance, leading to the conclusion that there are multiple modalities for reaching the same goal. Implications for policymakers are illustrated.

The article proceeds as follows: Section 2 presents the theoretical background; Section 3 shows the research design and the fsQCA method; Section 4 presents the results; Section 5 discusses the main findings. Finally, the conclusions, with theoretical and practical implications are presented in Section 6.

2 | THEORETICAL BACKGROUND

In this section, we will introduce the cultural dimensions included in the Hofstede model and the implications for sustainable development. Given the inconsistency of previous empirical findings, a configurational approach is required to better inquire into the directions of the effects of culture on sustainability performance.

The problem of how to quantify cultural dimensions is complex because of the difficulty in constructing an indicator that captures the full diversity of global cultures. The economic sciences, including management studies, made a key contribution to culture measurement since the 1970s, when tools and methods for classifying corporate culture began to emerge (Cameron & Quinn, 1999; Deal & Kennedy, 1983; Handy, 1976; Harrison, 1972; McGuire, 2003). In particular, Hofstede (1980) began researching cultural differences and cross-cultural communication issues at the IBM Corporation, where he compared the cultural profiles of 177,000 employees from different countries. This project evolved beyond the scope of the corporation, researching cultural dimensions in nearly 80 countries, quantifying them in indices capturing six dimensions: (1) power distance (PDI), related to the different solutions to the basic problem of human inequality; (2) uncertainty avoidance (UAI), related to the level of stress in a society in the face of an unknown future; (3) individualism versus collectivism, related to the integration of individuals into primary groups; (4) masculinity versus femininity, related to the division of emotional roles between women and men; (5) long-term versus short-term orientation, related to the choice of focus for the people's efforts: the future or the present and past; (6) indulgence versus restraint (IVR), related to the gratification versus control of basic human desires related to enjoying life.

2.1 | Power distance

Hofstede defines power distance (PDI) as “the extent to which less powerful members of a country's institutions and organizations expect and accept that power is distributed unequally” (Hofstede et al., 2010, p. 61). The level of distance from power depends on several factors, including geographic latitude (the greater the latitude, the less the distance from power); population size (the greater the number of inhabitants, the greater the distance from power); and wealth (the wealthier the country, the less the distance from power). The literature exploring the relationship between PDI and sustainable development shows mixed results. Some argue that high PDI leads to low levels of sustainable development because cultures with high PDI are characterized by the existence of formal hierarchical positions and strong resistance to changes in the distribution of power. High PDI results in low levels of innovation (Burns & Kick, 1994; Husted, 2005; Katz et al., 2001; Shane, 1993; Thompson, 1967); limited social debate; and scarce interventions for social and environmental issues (Husted, 2005; Katz et al., 2001; Onel & Mukherjee, 2014). However, Shortall and Kharrazi (2017) argue that high PDI can favor initiatives toward sustainable development, such as in the case of the creation of geothermal power

plants in areas where hot springs facilities are located. High PDI can avoid conflicts derived from the need of consulting various stakeholders (owners of the hot springs facilities and the power plants) to reach a consensus before taking action. Onel and Mukherjee (2014) showed a nonsignificant influence, and Vachon (2010) found mixed results. The reason for these divergent results might lie in the use of individual sustainability indicators (environmental-only or social-only) that appear to have different relationships with PDI.

2.2 | Individualism and collectivism

This dimension reflects the strength of the ties between individuals, which are strong in collectivist societies and weak in individualist ones. If the members of the society maintain a low degree of interdependence, which means that they show a high degree of independence between one another and do not excessively rely on other people, then this society tends to be more individualistic, while a society that maintains a high degree of interdependence between its components tends to be more collectivistic (Hofstede, 1980; Ringov & Zollo, 2007). Much research shows that individualism as a cultural dimension is significantly correlated with high sustainability performance. Regarding environmental sustainability, Husted (2005) showed a positive relationship between a country's level of individualism and that country's institutional capacity to respond to environmental problems. Individualistic societies also show a greater propensity for innovation than collectivist societies (Herbig & Dunphy, 1998; Waarts & Van Everdingen, 2005; Williams & McGuire, 2005). However, collectivism in some cases overrides the interests of the whole group to ensure the personal well-being of the population (Maaravi et al., 2021). Finally, Park et al. (2007) found a non-significant effect.

2.3 | Masculinity and femininity

This cultural dimension concerns the degree to which a society emphasizes masculine values. Societies scoring high in masculinity tend to be driven by competition, the need to fulfill specific goals, and fame; evaluation structures accompany people from school to all kinds of institutions, jobs, and organizations. On the contrary, in feminine societies, the mainstream culture is more focused on the quality of life, solidarity, discretion, and the wellbeing of the population. Some studies have investigated the relationship between masculinity and environmental sustainability, showing that high levels of masculinity are linked to low levels of environmental performance. This is because such societies might even damage the natural environment to make more profit (Hofstede, 2001; Lahuerta-Otero & González-Bravo, 2018; Palmer et al., 1995; Park et al., 2007; Peng & Lin, 2009). Onel and Mukherjee (2014) and Vachon (2010), found non-significant effects. However, the relationship between masculinity and sustainable development is unknown, as is the extent to which masculinity influences sustainability performance with other cultural dimensions.

2.4 | Uncertainty avoidance

Hofstede et al. (2010, p. 191) defined UAI as: "the extent to which the members of a culture feel threatened by uncertain or unknown situations". National cultures with a lower tolerance toward uncertainty and ambiguity tend to set more rules to reduce unpredictable events. People from countries with low UAI tend to feel much more capable of shaping their own lives due to the scarcity of rules and tend to be more adaptable to unknown situations (Kale & Barnes, 1992; Nakata & Sivakumar, 1996; Ueno & Sekaran, 1992). On the contrary, people from countries with high UAI feel impossible to change their status quo, given the strict rules regulating their life. Previous empirical studies have provided mixed results. Ringov and Zollo (2007) found that UAI has no significant effect on social and environmental performance, while Vachon (2010) found that nations scoring high in UAI are correlated with green corporatism, environmental innovation, and fair labor practices, and corporate social involvement.

2.5 | Long- versus short-term orientation

This cultural dimension describes the connection of the past to present and future actions. Hofstede et al. (2010, p. 239) stated that: "long-term orientation stands for the fostering of virtues oriented toward future rewards—in particular, perseverance and thrift. Its opposite pole, short-term orientation, stands for the fostering of virtues related to the past and present—in particular, respect for tradition, preservation of "face," and fulfilling social obligation." The literature shows a strong relationship between LTO and sustainability performance: Kucharska and Kowalczyk (2019) studying the influence of corporate culture factors on corporate social responsibility found that long-term orientation (LTO) has the greatest influence on corporate social responsibility. Sustainability-oriented corporate management policies require long-term-oriented investments, which could erode economic performance in the short term (Hofstede & Minkov, 2010; Nakata & Sivakumar, 1996). However, García-Sánchez et al. (2013) found a negative impact of LTO on integrated reporting regarding sustainable development; Lahuerta-Otero and González-Bravo (2018) found a negative effect on air quality performance and insignificant effects on other measures.

2.6 | Indulgence versus restraint

Indulgence "stands for a society that allows relatively unrestricted gratification of basic and natural human desires related to enjoying life and entertainment" (Hofstede et al., 2010, p. 519). Relatively weak control is called "Indulgence" and relatively strong control is called "Restraint." Societies with a low score in this dimension tend to show cynicism and pessimism and underestimate the value of leisure time and gratification. Societies with a high score in indulgence generally exhibit a willingness to realize their impulses and desires. Gallego-Álvarez and Ortas (2017) observed that indulgence resulted

in a negative correlation with corporate environmental sustainability reporting (CESR), while Halkos and Skouloudis (2017) claimed that there is a positive correlation between indulgence and corporate social responsibility.

3 | RESEARCH DESIGN AND CONFIGURATIONAL ANALYSIS

3.1 | Data

This study is based on a global context, analyzing 82 countries, which include a wide range of countries around the world, across Europe, Asia, Oceania, North and South America, and Africa. These countries are in different economic development stages, have different cultural backgrounds, and score differently in SDGs in terms of sustainability performance.

The research was conducted on original data coming from the blending of two databases. The first contains information on the six cultural dimensions and has been retrieved from the Hofstede insight platform (www.hofstede-insights.com), which provides the most up-to-date data related to the cultural dimensions of 119 countries. The second comes from the Sustainable Development Report (Sachs et al., 2020), which analyzes 166 countries, measuring their capacity to reach the 17 SDGs through a set of indexes. After a careful check of the two datasets, we excluded some countries due to their lack of some cultural values and/or SDGs index data. In the end, we built a database of 82 countries with information on the cultural dimensions and SDGs.

3.2 | Measures

3.2.1 | Sustainability performance measures

We adopt the SDG Index 2020 as a proxy for sustainability performance at the country level (Sachs et al., 2020). The SDG Index is an assessment of each country's overall performance on the 17 SDGs, giving equal weight to each Goal. The score signifies a country's position between the worst possible outcome (0) and the best, or target outcome (100). For example, Finland's overall index score (85.9) suggests it is, on average, 86 percent of the way to the best possible outcome across the 17 Goals. We consider the SDG Index a good measure of sustainable development for two main reasons: (1) it covers the three pillars of sustainability: environmental, social, and economic, and (2) it covers all countries, independently of their stage of economic development, including developed, developing, and underdeveloped countries.

3.2.2 | Cultural dimension measures

We adopted all the six cultural dimensions retrieved from Hofstede-insights.com. The measures are based on a 0–100 range, scores under

50 are considered relatively low, 50 is an intermediate level, and scores over 50 mean that the cultural dimension value is considered high.

The first four cultural dimensions are based on the IBM Attitude Survey, which was collected from its subsidiaries spread around the world within 70 countries, through the administration of 117,000 questionnaires. The fifth cultural dimension, LTO, was elaborated on the Chinese Value Survey, developed by Harris Bond in Hong Kong, this survey was built on a 9-point scale; the initial factor scores of LTO varied from -1.00 to $.91$, but they were later transformed into 0 to 100 like the other cultural dimensions with a linear transformation method. The last cultural dimension is IVR, which was developed by Minkov (2007) based on the analysis of the World Value Survey, by asking the respondents information on their subjective well-being, how satisfied they were with their lives, how happy they felt, etc.

3.3 | Fuzzy set qualitative comparative analysis

We analyzed data adopting the fsQCA methodology, which identifies combinations of explanatory variables (called causal conditions) that influence the levels of a dependent variable (called the outcome). This configurational methodology has been applied in management science research in an increasing trend (Cheng et al., 2021; Greckhamer, 2011; Oyemomi et al., 2019; Rihoux & Ragin, 2008; Schneider & Wagemann, 2012), but its use in cross-culture and sustainable development research is still in its infancy. The method overcomes the limitations of conventional correlation analysis by allowing for causal complexity, equifinality, and asymmetric relationships, thus considering the combination (and not the individual impact) of a variety of causal conditions on an outcome (Fiss, 2007, 2011; Ragin 2000). These causal patterns are then studied identifying the degree of membership of the observations in one or another subset according to the values of the outcome and the values of a combination of causal conditions through Boolean algebra. Hence, according to Ragin (2000), measurement occurs both in terms of the presence/absence (1/0, crisp sets) of the causal condition and in terms of the degree of membership in the set (values between 0 and 1, where the value 0 indicates full non-membership and the value 1 stands for full membership). The application of the fsQCA analysis requires a process of four steps, namely data calibration, analysis of necessary conditions, truth table analysis, and truth table minimization.

3.3.1 | Fuzzy set calibration

The first step is data calibration, needed to transform variables into fuzzy set scales of degrees of membership. According to Ragin (2000), this means specifying three qualitative anchors: the threshold for full membership, the threshold for full non-membership, and a crossover point of maximum ambiguity regarding membership. We, therefore, transformed our measures into scores ranging from 0 to 1, where 1 means full membership; 0 means full non-membership; and 0.5 means crossover point (Rihoux & Ragin, 2008). Adopting a sample-

dependent method, we set the full non-membership threshold as the mean minus standard deviation, the crossover point equal to the mean, and finally the full membership as the mean plus the standard deviation (see Table 1).

3.3.2 | Necessary conditions analysis

The second step is the analysis of the necessary conditions, which includes the identification of the conditions that must be present for the outcome to occur, even though their presence does not guarantee the occurrence of the outcome. Hence, the first thing is to check if some causal conditions could be considered necessary conditions and then drop them from the truth table procedure (Apa and Sedita, 2017); which is essentially an analysis of the sufficient conditions (Ragin, 2009). Conventionally, a condition is necessary if its consistency score exceeds the threshold of 0.9 and the coverage score exceeds 0.5 (Ragin, 2006).

We applied the necessary conditions analysis function through fsQCA software with the six cultural dimensions (and their negations with “~”) as causal conditions and SDGs index as the outcome, and, as the analysis results show in Table 2, none of the measures of cultural

dimensions is above the thresholds neither in terms of consistency nor of coverage. Therefore, none of the cultural dimensions is a necessary condition for reaching a high sustainability performance.

3.3.3 | Truth table analysis and minimization

The third step is the generation of a truth table, to test the sufficient conditions. This truth table has 2 k rows, where k is the number of causal conditions used in the analysis. Each row of this table shows a specific combination of the causal conditions and, the full table lists all possible combinations. To find the best combination, the fourth step is the truth table minimization, which aims to reduce the number of possible combinations by using an algorithm based on Boolean algebra, to identify a set of simplified combinations. The lines of the truth table are reduced by taking into consideration all the combinations that can be associated with at least two observations (column number), following a minimum consistency-level criterion. Consistency, in this case, refers to the degree to which cases correspond to the set-theoretic relationship expressed in a solution. A consistency of 1.0 means that a specific configuration has no contradictions, while lower values imply an imperfect relationship between the configuration and the outcome. Usually, 0.75 is considered the minimum consistency threshold (Fiss, 2011; Rihoux & Ragin, 2008). Considering the small size of our sample, we set the raw consistency at 0.85 (see Table 3).

TABLE 1 Threshold setting of variables

	Full nonmembership threshold	Crossover point	Full membership threshold
PDI	42.21	63.54	84.87
Individualism (IDV)	19.27	41.84	64.41
Masculinity (MAS)	27.8	47.21	66.62
UAI	48.63	69.3	89.98
LTO	22.24	46.28	70.32
Indulgence (IVR)	23.92	45.91	67.9
SDGs index	66.19	73.2	80.2

TABLE 2 Analysis of necessary conditions

	Consistency	Coverage
PDI	0.454239	0.466190
~PDI	0.700023	0.805017
IDV	0.699123	0.843691
~IDV	0.453339	0.446512
MAS	0.572521	0.611872
~MAS	0.626490	0.689775
UAI	0.611423	0.630712
~UAI	0.520801	0.595526
LTO	0.668990	0.749748
~LTO	0.468181	0.491966
IVR	0.564426	0.628285
~IVR	0.573420	0.606421

4 | FSQCA RESULTS

4.1 | Configurational analysis

As explained by Ragin (2009), after the minimization, the last step of the procedure produces three solutions: a “complex” solution (which is often hardly reduced in complexity and therefore is not considered) and then, a “parsimonious” solution, and an “intermediate” solution (which instead are both used in the data analysis). The analysis of the intermediate and parsimonious solutions allows for building a table that summarizes the results, where each column represents a combination of causal conditions leading to the specified outcome.

Results of the fsQCA are reported in Table 4, by using the conventional graphical representation through symbols, where:

- The black large circle stays for the presence of a certain element as a core condition, meaning an element that is essential to achieve a high level of the selected indicator of performance. These core conditions are those that are part of both the parsimonious and intermediate solutions.
- The black small circle stays for the presence of a peripheral condition, meaning an element that is present in the combination and supports the core conditions. These peripheral conditions are those that are eliminated in the parsimonious solution and thus are only present in the intermediate solution.

TABLE 3 Minimized truth table

PDI	IDV	MAS	UAI	LTO	IVR	N.	SDG	Rawconsist.	PRIconst.	SYMconsist.
0	1	1	1	1	0	4	1	0.956407	0.918317	0.918317
0	1	1	1	1	1	2	1	0.95231	0.891156	0.891157
0	1	0	0	1	1	2	1	0.934647	0.867347	0.867347
0	1	1	0	1	1	2	1	0.921951	0.84106	0.84106
0	1	0	0	1	0	3	1	0.919861	0.833935	0.833935
0	1	0	0	0	1	4	1	0.897606	0.828889	0.838202
0	1	1	0	0	1	6	1	0.806088	0.683241	0.727451
0	0	0	1	0	1	2	0	0.795948	0.42449	0.42449
1	0	0	1	1	1	8	1	0.845059	0.671986	0.737354
1	1	1	0	1	0	2	0	0.776859	0.488151	0.488152
1	0	0	1	0	0	2	0	0.756066	0.336805	0.336805
1	0	1	1	1	0	6	0	0.753424	0.244755	0.24911
1	0	0	0	1	0	2	0	0.684536	0.145251	0.158537
1	0	0	1	0	1	3	0	0.645081	0.246032	0.246032
1	0	1	0	1	0	2	0	0.629268	0.13308	0.152839
1	0	0	0	0	0	3	0	0.627795	0.0968991	0.0968991
1	0	1	1	0	1	4	0	0.588158	0.0572287	0.0584613
1	0	1	0	0	0	2	0	0.531202	0.028391	0.028391
1	0	1	0	0	1	3	0	0.524887	0.0217391	0.0217391
1	0	0	0	0	1	3	0	0.50208	0.0477453	0.0477453

TABLE 4 fsQCA results

	CONFIGURATION			
	1	2	3	4
Power Distance Index (PDI)	⊗	⊗	⊗	●
Individualism (IDV)	●	●	●	⊗
Masculinity (MAS)		⊗	●	⊗
Uncertainty Avoidance (UAI)	⊗	⊗	●	●
Long-term Orientation (LTO)		●	●	●
Indulgence (IVR)	●			⊗
Consistency	0.880	0.943	0.964	0.845
Raw Coverage	0.347	0.177	0.206	0.227
Unique Coverage	0.195	0.045	0.092	0.160
Overall solution consistency	0.89			
Overall solution coverage	0.67			

Notes: Black circles (●) indicate the presence of a condition, and circles with “x”(⊗) indicate its absence. Large circles: Core conditions; Small circles: Peripheral conditions; Blank spaces: “do not care” conditions.

- The white crossed circle represents the absence of an element, meaning that an element must be absent from the combination to reach high levels of the chosen performance indicator.
- The absence of symbols means that the element can either be present or not in the combination, without any impact. It indicates a “do not care” situation since the causal condition does not affect the realization of the outcome.

Table 4 shows the results of our fuzzy-set analysis and identifies four “equifinal” combinations of causal conditions; meaning that one

can substitute the other to obtain the same result, in this case, a high sustainability index. For each of the solutions provided, the procedure further indicates the consistency index (measuring the degree to which solution terms and the solution as a whole are subsets of the outcome), the solution coverage (assessing the proportion of membership in the outcome that is explained by the complete solution), the row coverage (computing the proportion of membership in the outcome explained by each term of the solution) and, finally the unique coverage (which measures the proportion of membership in the outcome explained solely by each solution term) (Ragin, 2009). Finally, the overall solution consistency measures the degree to which the memberships in the solution are a subset of membership in the outcome, while the overall solution coverage measures the proportion of the memberships in the outcomes explained by complete solutions. The overall solution consistency in our case is 89%, which is higher than the minimum threshold of 80%, and the overall solution coverage is 67%, which again is much higher than the standard threshold which is 25% (Schneider & Wagemann, 2012). In the next section, we will further discuss the configurations we obtained from the fsQCA.

5 | DISCUSSION

The solutions generated by the fsQCA have answered our initial questions: we confirmed that there are multiple combinations of the cultural dimensions associated with sustainable development

trajectories, and no single cultural dimension outperforms the others.

Three cultural dimensions seem to have a more crucial role in the definition of a sustainable development orientation, being present or absent in most of the configurations: individualism, PDI, both present in the 75.8% of the countries, and LTO (57.8% of the countries show this as a core condition) (Table 4).

In three out of four configurations (1-2-3), the presence of high individualism is a core condition associated with high sustainability performance. Given the significant correlation between individualism and gross national product (GNP) per capita tested by Hofstede (1980), we might consider that, in general, higher economic prosperity is associated with higher sustainability performance. This result aligns with Cho et al. (2013) and Yoon et al. (2020), who discovered that individualistic societies have a positive attitude toward environmental sustainability.

On the contrary, in the same configurations (1-2-3), high PDI is a core absent condition associated with high sustainability performance. This result aligns with Husted (2005), who empirically investigated the relationship between PDI and social and institutional capacities for sustainability and found that countries with low levels of PDI are associated with the higher social and institutional capacity for sustainability. This view is also consistent with Mueller and Hechter (2021), who suggested that further EU-wide sustainable development requires increased decentralization. Moreover, the distribution of incomes and wages is more unequal in high PDI countries than in low PDI countries (Odobasa, 1997), suggesting that sustainable development is associated with more democratic governance, where citizens are more proactively involved in participating forms of governance (Hofstede et al., 2005). Citizen engagement is particularly crucial in pushing policy interventions oriented to environmental protection (Blasi, Ganzaroli, et al., 2022; Blasi, Gobbo, et al., 2022). Moreover, Hofstede (1984) noted that in countries with high PDI it is very frequent to see revolutions rapidly changing the political settings of the country, impeding a constant engagement in environmental and social issues.

In configurations 2-3-4, LTO appears as a core causal condition, giving support to Hofstede and Minkov (2010), who sustained that this cultural dimension can influence the societies' attitudes and engagement in the protection of the natural environment. Since people and organizations embracing this cultural value rely on their thrift, hard work, and perseverance, and struggle to escape from poverty while coping with social issues, they can play a role in increasing sustainability performance. This evidence is supported by a real-world case: the high score in LTO is significantly linked to the economic miracle of East Asian countries.

The first configuration, which is also the most diffused (raw coverage = 0.35), combines low UAI with high indulgence. Among the countries that show this configuration, we find mainly Anglo-Saxon and rich Commonwealth members (the United Kingdom, United States, Canada, Ireland, South Africa, Australia, and New Zealand), Nordic

countries (Sweden, Denmark, Iceland, Finland, and Norway), and two Western European countries (Netherlands and Switzerland). These countries maintain a relaxed attitude toward unknown situations, are adaptable to social changes, and appear to have a more positive perspective toward life, since low UAI and relative high indulgence somehow connect with a relaxed and positive attitude, hence improving their social well-being. Some of these countries have in common a story of colonialism, which influenced their capacity to interact with different cultures and adapt to different situations, thus increasing their propensity toward uncertainty and indulgence (Acemoglu et al., 2001; Chen et al., 2020).

The second configuration is characterized by low UAI and masculinity. The countries reporting this configuration are the three Baltic countries (Latvia, Lithuania, and Estonia) and two north European countries (the Netherlands and Sweden). They are not only in geographical proximity, but also share a common history. We find, again, the traces and imprints left by colonialism, since Estonia and Latvia were conquered and ruled by Sweden. The cultural impact of Sweden is still there (Manzhynski et al., 2016). They are feminine societies with a high level of adaptation to changes, thus ready to increase the quality of life through interventions toward sustainable development. Recently, The Presidents of Lithuania, Latvia and Estonia signed the "Baltic Way to Climate Neutrality" Declaration, which envisages joint action and cooperation of the Baltic States in several areas for the benefit of the climate. Among them is the development of offshore wind energy in the Baltic Sea.

The third configuration represents a model of culture in which individualism, masculinity, high UAI, and a LTO approach drive the society. A high masculinity score is associated with competitive societies, where competition is present both in schools and in the workplace. A country showing this configuration is Japan, whose economy and management are driven by its culture of competition (Manzhynski et al., 2016). Also, the so-called "East Asian economic miracle" is well explained by the LTO values shown by Japan, which is characterized by thriftiness and perseverance (Hofstede & Minkov, 2010).

Finally, the fourth configuration offers a completely different situation, characterizing countries with high PDI and the absence of individualism. These societies tend to be collectivistic, however, similarly to the ones in configuration three, countries in configuration four show high levels of UAI and LTO as core conditions in the determination of good sustainability performance. Further looking into the fourth configuration, we found out that masculinity is a core absent condition, which is like configuration 2, meaning that these are all feminine societies, with a special emphasis on the quality of life, and a more inclusive orientation (Hofstede et al., 2005). Finally, in configuration 4, countries have low levels of indulgence, which means that these are medium-high restrained societies, where the inhabitants control their desires and might have an attitude toward cynicism and pessimism (Hofstede, 1984). All the countries in configuration four are the former Soviet republics (Russia, Ukraine, Belarus, and Moldova) and Communist Bloc states (Croatia, Serbia, Romania, and Bulgaria).

6 | CONCLUSIONS

This contribution is based on the adoption of a set-theoretic configurational approach to explore which kinds of configurations of cultural dimensions are associated with high sustainability performance in a cross-national context. Previous research on the topic produced inconsistent empirical findings, mainly because of the use of regression models to disentangle how different cultural dimensions impact sustainable development. Nevertheless, given the complexity of country-specific cultural features, a more systematic perspective is required.

Our empirical findings are based on the implementation of an fsQCA, which identified four different combinations of cultural dimensions, equally contributing to improving the sustainability performance of the 82 countries taken into consideration. The analysis revealed that 31 countries outperform in terms of sustainability performance. These countries show different patterns to achieve this goal, which combine Hofstede's six cultural dimensions in various manners. Most of these countries are set in Europe, and, on a broader view, they are all in the Northern Hemisphere, apart from Australia, New Zealand, and South Africa.

The geographical proximity, as well as the common history these countries shared (especially colonialism, the belonging to the Soviet Bloc, and East Asia) certainly left a grand imprint on these countries' cultural values, still visible today. Therefore, it is not surprising that the Baltic countries, for example, share common cultural values and habits.

Also, most of the countries are developed countries, and only a few are developing countries. This, of course, reflects the fact that economic prosperity is often accompanied by special attention toward sustainability performance.

Since individualism, PDI, and LTO are the most important factors affecting sustainability performance, governments and policymakers need to consider them and their influence when working to reach the 17 SDGs. In general, our findings can be used by policymakers in two ways: as a direct means to improve their policies toward sustainable development, and as an indicator of how to best use the cultural characteristics of their societies to make these policies work better.

Our contribution is manifold.

First, the configurations we identified explain how to reach a successful sustainable development, therefore, governments can analyze the actual situation of their societies and enhance the cultural dimensions that can lead them to have a combination of factors corresponding to one of the configurations we obtained. We know, of course, that changing the cultural dimensions of a whole country are very difficult, especially because culture changes very slowly, and it involves many consequential adjustments. Policymakers can, therefore, start from the cultural dimensions they feel more representative. For example, while it is very difficult to intervene in the individualistic attitude of a country without radical changes in all the aspects of the citizen's life, and without, as history shows, an act of force, it will be easier to intervene in the PDI index. This is because the power distribution depends, mainly, on the people and institutions holding the power. Furthermore, it is also possible to increase the awareness of the population toward what is considered a sustainable future, using the media,

planning educational activities at school, and proposing campaigns for promoting small gestures that everybody can do daily to make the place and the community they live an example of sustainable living. Influencers and other digital information channels, such as the social media accounts of municipalities (Blasi, Ganzaroli, et al., 2022; Blasi, Gobbo, et al., 2022), might help in this direction, sustaining the green transition.

Second, our findings can be used by governments to better plan and evaluate policy interventions, taking into account the important role played by cultural dimensions, which are still little considered. Given the existence of four configurations leading to high sustainable performance, it is not possible to identify a one-fits-all solution, and an effort should be made to tailor policies at the country level. This approach is for sure the most suited to foster the collaboration of citizens, who are more prone to accept and sustain initiatives aligning with their values and beliefs.

Overall, our work offers a new perspective on how to design sustainability management in a cross-cultural context but is not without limitations, which also helps point out several possible directions for future research. One way forward could be the analysis of the extent to which the stage of economic development influences the pace of achievement of the SDGs. Our research pointed out that some configurations are prevalent in North European and/or developed countries. It might be investigated if certain cultural configurations better support economic development and SDGs. Moreover, we did not consider the role of specific policy interventions at the country level, which might have affected the sustainability performance, beyond the cultural dimensions.

Sustainable development goals include three main aspects: social wellbeing, environmental protection, and economic prosperity. We focused on a unidimensional index of SDGs achievement. However, future research could be interested to assess if different combinations score differently on a different combination of SDGs. Even more, whether different cultural combinations impact more different SDGs combinations.

Finally, Hofstede's work has been strongly criticized for conveying the idea that human behavior is culturally imprinted. Nevertheless, as also the literature on the varieties of capitalism has pointed out (Porter, 2003), socio-cultural aspects are fundamental in understanding the evolutionary trajectories of countries. Our work contributes to improving our capacity to lever on culture to stimulate society at large toward a common objective. Future research might be oriented toward understanding how cultural dimensions work together with other social dimensions to support policymakers in enhancing their efficiency in pursuing SDGs.

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APPENDIX A

Dataset for fsQCA: Hofstede's six cultural dimensions values (PDI, IDV, MAS, UAI, LTO, and IVR) from [Hofstede-insight.com](https://www.hofstede-insight.com) and SDGs results from United Nations).

Country	PDI	IDV	MAS	UAI	LTO	IVR	SDG
Albania	90	20	80	70	61	15	70.82
Algeria	80	35	35	70	26	32	72.27
Angola	83	18	20	60	15	83	52.59
Argentina	49	46	56	86	20	62	73.17
Armenia	85	22	50	88	61	25	69.86
Australia	38	90	61	51	21	71	74.87
Austria	11	55	79	70	60	63	80.7
Azerbaijan	85	22	50	88	61	22	72.61
Bangladesh	80	20	55	60	47	20	63.51
Belarus	95	25	20	95	81	15	78.76
Belgium	65	75	54	94	82	57	79.96
Bolivia	78	10	42	87	25	46	69.27
Bosnia and Herzegovina	90	22	48	87	70	44	73.48
Brazil	69	38	49	76	44	59	72.67
Bulgaria	70	30	40	85	69	16	74.77
Canada	39	80	52	48	36	68	78.19
Cape Verde	75	20	15	40	12	83	67.18
Chile	63	23	28	86	31	68	77.42
China	80	20	66	30	87	24	73.89
Colombia	67	13	64	80	13	83	70.91
Croatia	73	33	40	80	58	33	78.4
Czech Republic	57	58	57	74	70	29	80.58
Denmark	18	74	16	23	35	70	84.56
Dominican Republic	65	30	65	45	13	54	70.17
Egypt	70	25	45	80	7	4	68.79
El Salvador	66	19	40	94	20	89	69.62
Estonia	40	60	30	60	82	16	80.06
Finland	33	63	26	59	38	57	83.77
France	68	71	43	86	63	48	83.77
Georgia	65	41	55	85	38	32	71.88
Germany	35	67	66	65	83	40	80.77
Ghana	80	15	40	65	4	72	65.37
Greece	60	35	57	100	45	50	74.33
Hungary	46	80	88	82	58	31	77.34
Iceland	30	60	10	50	28	67	77.52
India	77	48	56	40	51	26	61.92
Indonesia	78	14	46	48	62	38	65.3
Ireland	28	70	68	35	24	65	79.38
Italy	50	76	70	75	61	30	77.01
Japan	54	46	95	92	88	42	79.17
Jordan	70	30	45	65	16	43	68.05
Kazakhstan	88	20	50	88	85	22	71.06

(Continues)

Country	PDI	IDV	MAS	UAI	LTO	IVR	SDG
Latvia	44	70	9	63	69	13	77.73
Lebanon	75	40	65	50	14	25	66.68
Lithuania	42	60	19	65	82	16	74.95
Luxembourg	40	60	50	70	64	56	74.31
Malaysia	100	26	50	36	41	57	71.76
Malta	56	59	47	96	47	66	75.97
Mexico	81	30	69	82	24	97	70.44
Moldova	90	27	39	95	71	19	74.44
Montenegro	88	24	48	90	75	20	70.91
Morocco	70	46	53	68	14	25	71.29
Netherlands	38	80	14	53	67	68	80.37
New Zealand	22	79	58	49	33	75	79.2
Nigeria	80	30	60	55	13	84	49.28
Norway	31	69	8	50	35	55	80.76
Paraguay	70	12	40	85	20	56	67.71
Peru	44	16	42	87	25	46	71.75
Philippines	94	32	64	44	27	42	65.5
Poland	68	60	64	93	38	29	78.1
Portugal	63	27	31	99	28	33	77.65
Romania	90	30	42	90	52	20	74.78
Russia	93	39	36	95	81	20	71.92
Saudi Arabia	95	25	60	80	36	52	65.85
Serbia	86	25	43	92	52	28	75.23
Slovakia	100	52	100	51	77	28	77.51
Slovenia	71	27	19	88	49	48	79.8
South Africa	49	65	63	49	34	63	63.41
South Korea	60	18	39	85	100	29	78.34
Spain	57	51	42	86	48	44	78.11
Sweden	31	71	5	29	53	78	84.72
Switzerland	34	68	70	58	74	66	79.35
Tanzania	70	25	40	50	34	38	56.64
Thailand	64	20	34	64	32	45	74.54
Trinidad and Tobago	47	16	58	55	13	80	65.76
Turkey	66	37	45	85	46	49	70.3
Ukraine	92	25	27	95	86	14	74.24
United Kingdom	35	89	66	35	51	69	79.79
United States	40	91	62	46	26	68	76.43
Uruguay	61	36	38	98	26	53	74.28
Vietnam	70	20	40	30	57	35	73.8
Zambia	60	35	40	50	30	42	52.67

