

## Does Individuals' Culture Grease the Wheels for Sustainability?

**Shereen Mostafa Bacheer**

Lecturer, Faculty of Economics and Political Science, Cairo University, Giza, Egypt

[shereen.bacheer@feps.edu.eg](mailto:shereen.bacheer@feps.edu.eg)

هل يمكن لثقافة الشعوب أن تمهد الطريق لتحقيق  
التنمية المستدامة؟

**شيرين مصطفى بشير**

مدرس، كلية الاقتصاد والعلوم السياسية، جامعة القاهرة

[shereen.bacheer@feps.edu.eg](mailto:shereen.bacheer@feps.edu.eg)

- DOI: 10.21608/ijppe.2023.283108 URL: <http://doi.org/10.21608/ijppe.2023.283108>
- Received: 30/10/2022, Accepted: 25/12/2022
- Citation: Bacheer, S. M.(2023). Does individuals' culture grease the wheels for Sustainability? The International Journal of Public Policies in Egypt, 2(1), 183-205

### Abstract

The study investigates the impact of individuals' pro-sustainability culture on the level of attained sustainable development in their countries. Culture is represented by the pro-sustainability values and behaviors of individuals. The study used data from the World Values Survey (WVS), covering 100 world countries. Using data from the 6<sup>th</sup> (2010-2014) and the 7<sup>th</sup> (2017-2021) waves, the study concluded that individuals' pro-sustainability values and behaviors positively impact the country's sustainable development. This result pinpoints society's cultural factors as a key determinant of achieving sustainability. The study provides some practical insights to build a solid pro-sustainability culture in society. This requires the cooperation of all involved societal actors, including the government, business sector, and civil society institutions. Besides, the potentially adopted tools include compulsory government regulations, focus on education, and persuasive instruments to clarify the importance of pro-sustainability behavior, facilitate it, and encourage it.

*Keywords:* Pro-sustainability culture, pro-sustainability behavior, sustainable development, world values survey

### مستخلص

تستهدف هذه الدراسة قياس تأثير ثقافة الأفراد المؤيدة للاستدامة على مستوى التنمية المستدامة للدولة. في هذا السياق، يتم التعبير عن ثقافة الأفراد باستخدام متغيرين؛ القيم والسلوك المؤيدين للاستدامة. استخدمت الدراسة بيانات "مسح القيم العالمي" (World Values Survey) وبالتحديد بيانات الموجتين السادسة (٢٠١٠-٢٠١٤) والسابعة (٢٠١٧-٢٠٢١). وقد خلصت الدراسة إلى وجود تأثير إيجابي لكل من القيم والسلوكيات المؤيدة للاستدامة على مستوى التنمية المستدامة للدول. وتلقي هذه النتائج الضوء على أهمية ثقافة الشعوب والمجتمعات كمحدد مهم من محددات التنمية المستدامة. كما تقدم الدراسة بعض المقترحات العملية لبناء قاعدة قوية من الثقافة المؤيدة للاستدامة في المجتمعات، وهو ما يتطلب تضافر جهود كل الأطراف، بما في ذلك الحكومات، وقطاع الأعمال، ومؤسسات المجتمع المدني. أما فيما يتعلق بالأدوات المتاحة لبناء هذه القاعدة الثقافية، فإنها تتضمن القوانين والقواعد الملزمة التي تفرضها الحكومة، والاهتمام بالتعليم، والأدوات المحفزة، التي توضح أهمية السلوك المؤيد للاستدامة، وتيسره، وتشجع عليه.

*الكلمات الدالة:* الثقافة المؤيدة للاستدامة، القيم المؤيدة للاستدامة، السلوك المؤيد للاستدامة، مسح القيم

العالمي

## Introduction

Culture means the set of shared symbols, norms, and values in a social organization (Walsham, 2002). Throughout the past decade, culture, including tangible and intangible heritage, cultural industries, and infrastructures, has been proven to be a significant driver and enabler of development, in light of its social, economic and environmental impacts (Pierce, 2012; Opoku, 2015; UNESCO, 2012 and Bandarin et al., 2011). Amartya Sen (1998) stressed the critical importance of cultural issues in understanding economic performance, where culture is simultaneously considered an end of the development process and a means of it (Sen, 1998). Cultural conditions exert a strong influence on human behavior, which affects economic choices and business decisions, as well as social and political behavior. Different societies have heterogeneous cultures which produce different and non-homogeneous behavior patterns. Accordingly, economic development is perceived as a multidimensional process that requires not only formal institutions but also certain norms or social values - as parts of the society's culture - that promote exchange, savings, and investment behavior (Fukuyama, 2001; Tabellini, 2005).

In the early 1980s, the concept of sustainable development (SD) was introduced by the United Nations Environment Program (UNEP) and the International Union for the Conservation of Nature (IUCN) (Basiago, 1998; Roberts and Tribe, 2005). Sustainable development was defined as “the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs” (WCED, 1987). It has three distinct dimensions, where it aims at balancing the economic, environmental, and social needs of human existence. The desired result is a state of society where living conditions and resources are used to continue to meet human needs (*present and future*) without undermining the integrity and stability of the natural system. Eventually, sustainable development has become a central mission in numerous international organizations and national institutions.

Cultural dimension has started to emerge in the context of sustainable development, besides the three traditional ones, since the publication of "Our creative Diversity" report by the World Commission on Culture and Development in 1995 (Dallaire and Colbert, 2012). Since then, UNESCO has been actively promoting the cultural perspective of development (De Leo, 2002), particularly as sustainable development occurs within cultural contexts. Sraker and Vecco (2016) argued that cultural heritage can be regarded as the “glue” among the various dimensions of sustainable development. Through its impact on individuals' values, norms and

behaviors, culture can play a crucial role in determining the level of sustainability attained by each country. Having a pro-sustainability culture (values and behavior) can enhance people's commitment to their country's adopted economic, social, and environmental policies.

With an anticipated population of 9 billion by 2050, the world faces unprecedented threats to the earth's ecosystems. As the world faces cascading and interlinked global crises and conflicts, the aspirations set out for Sustainable Development are in jeopardy. The rising threats of humanity's impact on Earth's life support system, including extreme weather, deterioration of food production, and ecosystem loss, made it mandatory for the whole world countries to adopt a set of sustainable development goals (SDGs) to ensure the evolution of the global society (Griggs et al., 2013; Sachs, 2012) and to address these risks via internationally coordinated actions. By September 25<sup>th</sup>, 2015, some 193 countries officially adopted "The 2030 Agenda for Sustainable Development", which includes 17 SDGs and 169 sub-goals for the following 15 years (UN, 2015). These goals were built upon the Millennium Development Goals (MDGs) which represented the first form of common global sustainability goals and were operating between 2000 and 2015 (ElMassah and Mohieldin, 2020). By July 2021, some 176 countries have submitted their voluntary review reports (VNRs) on sustainable development to the High-Level Political Forum (HLPF) of the United Nations to present the developments of their performance towards the 2030 agenda (UN DESA, 2020-2021). This has, in turn, shed the light on the main factors and prerequisites determining the fulfillment of these goals. Better economic policies and institutions, improved environmental protection practices, and quality governance, nationally and internationally, would pave the way to achieve these SDGs (ElMassah and Mohieldin, 2020). But also, in light of the mounting importance of cultural factors as a driving power of economic development, in general, and sustainable development, in particular, these factors have to be taken into consideration as an additional key determinant of sustainability.

This study aims to measure the impact of individuals' culture on the attainable level of sustainable development of their respective countries. In the context of methodology, the study uses the Ordinary Least Squares (OLS) method to estimate the impact of the independent variable (culture) on the country's achieved level of sustainability (the dependent variable) using cross-sectional data of all world countries. Culture is represented by individuals' pro-sustainability values and behaviors, that is, the values and behaviors that consider social and environmental aspects. The main potential value added of this study is being the first to use the quantitative method to investigate this relationship, while prior literature has been mainly based upon the conceptual and qualitative approaches. The study uses data from the World Values

Survey (WVS), which covers 100 world countries in the form of 7 successive waves between 1981 and 2021.

After the introduction, section 2 includes the literature review, section 3 shows the data and methods, and consequently, results are presented in section 4 and discussed in section 5 with the recommendations.

## **Literature Review**

### **Culture and Behavior**

Culture is regarded as one of the most complicated words, as it is broadly used in distinct intellectual disciplines and thought systems (Geertz, 1973). It is also used in various ways and different contexts. Therefore, multiple definitions and categories of culture exist simultaneously (Soini and Dessein, 2016). Hofstede (2001) defines culture as the aggregated set of minds that distinguishes a specific group of people from others. He believes that this definition applies to national societies and to any other groups, such as regions, ethnicities, age brackets, or genders. In the context of sustainable development, Thorsby (1995) perceives culture as both the heritage of the society and the instrument facilitating or constraining economic and social development.

Culture shapes values and norms and thus attitudes and behaviors of nations and societies. On the one hand, culture forms the roots of human values acquired by individuals and thus societies (Schwartz, 1992). *Values* are the abstract standards that form the principles of each person's life (Schwartz and Bilsky, 1987). Values are also defined as the belief in the worth of things, qualities, or behaviors, and accordingly, they provide standards against which individual or social behaviors can be evaluated (Sue and Sue, 1990; Roberts and Tribe, 2005). On the other hand, culture also shapes social norms (Stephan and Uhlaner, 2010), which refer to how people think and behave (Shteynberg et al., 2009). A common distinction between norms and values is the fact that values are inside the person, whereas norms are perceived to be outside him (Ferse et al., 2014).

### **Culture and Economic Development**

Culture has been proven to be interconnected with development (Thompson, 2001; Tabellini, 2005). It is widely believed that socio-cultural values have a prominent role in shaping people's relationship with the natural environment and framing how they manage and impact it. Socio-cultural values, therefore, can be a valuable resource for achieving economic development (Schwartz, 1992; Brown, 2002; Dietz et al., 2005; and Sabatini, 2006). Fukuyama (2001) argues that cultural values can affect economic behavior in at least four ways; through

their impact on organization and production, attitudes towards consumption and work, the ability to create and manage institutions, and the creation of social capital.

In the field of economic development, economic models are criticized for being incomplete without cultural variables (Inglehart, 1997). Missing such variables made these models unable to adequately explain problems like poverty, unbalanced economic growth, income inequalities, low improvement in quality of life, and social injustice. Thus, culture could be the missing puzzle piece, as it influences economic outcomes by affecting personal traits such as honesty, thrift, cooperation, and a tendency to work hard (Carpenter et al., 2004; Chua et al., 2005). Bandarin et al., (2011) conclude that there is a mutual impact between culture and development, where the culture supports development which in turn boosts culture. Values, moreover, serve as a catalyst for development by connecting the collective cultural power of the society (Bhandari and Yasunobu, 2009). Ntibagirirwa (2009) argues that people's cultural beliefs and values are crucial for economic development.

### **Culture and Sustainable Development**

Arguments have been raised to advocate the culture's key role as the fourth pillar of sustainable development, along with the three traditional ones (Folke, 2006; Nurse, 2006; Raymond et al., 2009; and Dallaire and Colbert, 2012). Scholastic work on sustainability has emphasized its strong relationship with culture. Since sustainable development is achieved in cultural contexts, culture affects all its other dimensions and is interrelated to them, and accordingly should be integrated into sustainability strategies (Piece, 2012; UN. ESCAP, 2013). Similarly, ethical values are heavily endorsed by the Earth Charter and the United Nations Millennium Declaration as a crucial dimension of sustainable development (Burford et al., 2015). Achieving SDGs requires a critical understanding of “how people make decisions and act on them, how they think about, influence, and relate to one another, and how they develop beliefs and attitudes” (UNDP, 2016).

Yet, the influence of culture within the sustainable development framework is still relatively ambiguous and has been rarely combined (Soini and Dessein, 2016). In terms of goals and targets, none of the 17 goals focuses exclusively on culture. However, several overt references to cultural elements are mentioned in its resulting Agenda (Figure 1).<sup>1</sup> More specifically,

---

<sup>1</sup> The explicit mention of culture in the SDGs includes: **Target 4.7**, which includes, among other things, education for global citizenship and appreciation of cultural diversity, as well as the contribution of culture to SD; **Targets 8.9** which focuses on sustainable development that creates jobs and preserves local culture and products, as well as the need to develop suitable monitoring tools in this area; **Target 11.4**, which emphasizes the need to strengthen efforts to protect and safeguard the world's cultural and natural heritage; and **Target 16.4**. focusing on

culture is only mentioned in four areas in the final SDGs document, including education, economic growth, patterns of production and consumption, and sustainable cities. Accordingly, despite the growing interest among scholars and policymakers in integrating sustainability and culture, this task is still strenuous. There are only a few attempts to combine “culture” and “sustainability”, where culture is often analyzed as a part of social sustainability. Recently, several global cultural networks campaigned to include a specific goal related to culture or integrate cultural aspects among existing SDGs (Culture 21, 2019).

**Figure 1**

*Culture in SDGs and Sub-targets*



**Source:** constructed by the author based on the 17 sustainable development goals: <https://www.undp.org/sustainable-development-goals>

This study argues that it has become a necessity to include culture in the sustainability discourse as a primary determinant of the level of achieved sustainable development. This is because the achievement of sustainability goals mainly depends on human actions and behavior, which are, in turn, culturally embedded.

There is a growing body of literature that investigates the contribution of culture towards achieving sustainable development. In several studies, culture appears as an important explanatory variable for sustainability variations (Ringov and Zollo, 2007; Haxhi and Ees, 2020; Parboteeah et al., 2012). Stern (2000) highlights the influence of people’s behavior on the utilization of natural resources, which impacts sustainability. Hawkes (2001) claims that a comprehensive sustainability model should include cultural vitality. Leiserowitz et al., (2005) find that global sustainability values, attitudes, and behaviors suggest that there are short and

---

combating all forms of organized crimes, and **16.10** that recognizes the importance of libraries, archives, and other cultural institutions to improve public access to information (Culture in the implementation of the 2030 agenda).

long-term strategies to promote individual and collective sustainable behavior. Leiserowitz et al. (2005) demonstrate that the three traditional pillars of sustainable development; the benchmark goals of the Millennium Declaration, the Sustainability Transition, and the Great Transition; and the many indicator initiatives are all expressions of values. Nurse (2006) argues that people's identities shape how the environment is viewed. Additionally, cultural aspects can indirectly affect countries' sustainability practices which means that a cultural shift is required to achieve a more sustainable society (Cortese, 2003; Taylor, 2009; Fithian and Powell, 2009).

Numerous literary works divide sustainable development into multiple dimensions: environmental, economic, social, and sometimes cultural (Seghezzo, 2009; Hasna, 2007; and Mensah, 2019). Parodi (2011) defines culture as a goal and a condition of sustainable development. Piece (2012) finds that culture drives sustainable development and further emphasizes its' role as a transformative power on existing development approaches, which helps make development much more relevant to the needs of people. Caprar and Neville (2012) perceive culture as a key condition influencing the adoption of sustainability, while Burford et al., (2013) propose culture as the fourth pillar of SDGs, where they identify culture as consisting of human values, ethics, and worldviews.

Through reviewing the various meanings applied in scientific publications to the concept of "Cultural Sustainability", Soini and Birkeland (2014) found three proposed roles of culture in this context. The first role considers culture as an individual additional sustainability pillar. The second one finds that culture acts as a mediator for achieving sustainability. The third perception considers culture as one of the goals of sustainability. In the same context, McKenzie and Schultz (2014) claim that "Behavior change is central to the quest for a sustainable future", while Opoku (2015) believes that cultural values shape the way of life in societies and, therefore, have the potential to make the changes in attitudes needed to ensure the attainment of sustainable development. Eizenberg and Jabareen (2017) highlight the crucial impact of culture on achieving sustainability both in urban and rural environments. Klaniecki et al., (2019) find that mitigation of unsustainable behavior can reduce the acceleration of environmental degradation and promote achieved sustainability. Similarly, Petti et al., (2020) focus on assessing the SDGs implementation with reference to cultural heritage in the European region.

### **Pro-Sustainability Behavior**

Recently, several efforts have been devoted to enhancing the countries' sustainability level by adopting policies that regulate the effect of human activity. These efforts depend not only on the schemes implemented by governments but also on the individuals' daily choices.

Pro-sustainability is a term that refers to all types of behaviors that show individuals' willingness to act in favor of current and future generations. This type of behavior includes pro-social and pro-environmental behaviors. Pro-sustainability attitudes and behaviors are, therefore, a fundamental part of identifying the potential of SD (Lee et al., 2019).

Pro-social behavior covers all deliberate actions that intend to benefit others, such as cooperation, sharing, helping, donating, and volunteering, among others. Such behavior usually entails some costs incurred by the actor (agent) and reflects her/his readiness to endure some sacrifice in favor of society (Manesi et al., 2017; Eisenberg and Miller, 1987), such as spending time, effort, or resources. In the same vein, Weinstein and Ryan (2010) argue that pro-social behavior means cooperating with others and taking appropriate actions to support their well-being. These actions might include activities aiming at the conservation of the environment. A wide array of environmental forces can steer pro-social behavior, including siblings and peers (Hastings et al., 2007), close friends, and parents' attitudes toward their children (Gupta and Thapliyal, 2015).

Similarly, Pro-environmental behavior can be described as an individual's actions that contribute to environmental sustainability, such as limiting energy consumption, avoiding waste, recycling, and environmental activism (Ones et al., 2015). Particularly, pro-environmental behavior attributes to many socio-demographic and psychological determinants (Blankenberg and Akhusen, 2019). According to Stern (2000), four factors drive pro-environmental behavior: attitudinal factors (which include norms, beliefs, and values), contextual forces, personal capacities, and individual habits and routines. Environmental knowledge also is reported to be a very important driver of pro-environmental behaviors (Grilli and Curtis, 2019).

To our knowledge, despite the vast social-science literature that studied the interconnection between culture and SD, no prior study used the quantitative method to investigate this relation. The existing empirical researches are mostly conceptual and qualitative in nature, mainly due to the complexity of unraveling what culture means and how to be measured. This study aims to bridge this gap by quantitatively measuring the impact of individuals' culture on the level of achieved sustainability. In this context, culture will be represented by two factors: the pro-sustainability values of the individuals in the society and their pro-sustainability behaviors.

Values represent the abstract principles of people in a certain society, while behavior represents their actions. The study operates a cross-sectional regression to estimate the impact of both variables on the level of achieved sustainable development using the available data on all countries.

## Data and Method

### Theoretical Framework and Derivation of Hypotheses

The previous literature review shows that the relationship between culture and sustainable development has been investigated only in a qualitative context. This study proposes a first trial to estimate this relationship quantitatively. Considering the prior highlighted theoretical definition of culture as being mainly represented in human values and behavior, the study uses both individuals' pro-sustainability values and behaviors as proxies of society's culture and, in turn, aims at measuring their impact on the country's achieved level of sustainable development, as shown in Figure (2). Accordingly, the following hypotheses are proposed:

$H_0$ : Individuals' pro-sustainability values do not affect their countries' achieved level of sustainable development

$H_1$ : Individuals' pro-sustainability values affect their countries' achieved level of sustainable development

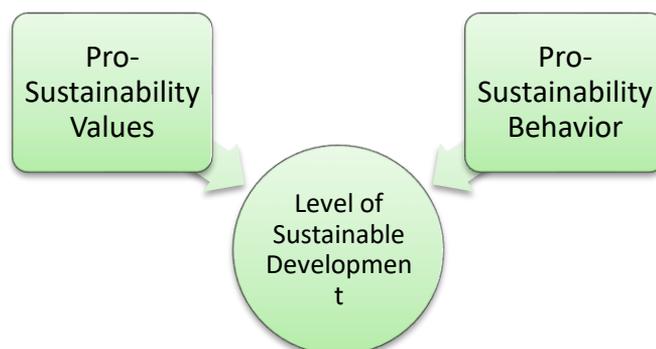
$H_{00}$ : Individuals' pro-sustainability behavior does not affect their countries' achieved level of sustainable development

$H_2$ : Individuals' pro-sustainability behavior affects their countries' achieved level of sustainable development

First, sources of data will be described, followed by a discussion of the method and model used.

#### Figure (2)

##### Study Design



**Source:** constructed by the author

## Data

The study covers data from 100 countries. The World Values Survey (WVS)<sup>2</sup> is the source of data related to personal values and behaviors. This survey studies human values and their impact on social and political life. The study used the data of the most recent wave 7 (2017-2021) and also wave 6 covering years (2010-2014) to run the model twice. This is mainly because Wave 7 survey does not have enough questions reflecting individuals' pro-sustainability values or behaviors relevant to this study. Only one proxy for each variable was available in this survey. Accordingly, wave 6 was used to rerun the model, since it has more questions targeting this type of values and behaviors.

From wave 7 of the WVS data, only one indicator was used to represent each of the study's independent variables. Pro-sustainability values were represented by *one question*; comparing the importance of protecting the environment (coded as 1) vs. economic growth (coded as zero). Individuals' pro-sustainability behavior was also represented by *one question*; whether the person is a member of a conservation, environment, ecology, or animal rights organization ("yes" was coded as 1 while "no" was coded as zero). Due to the missing questions among survey countries, the final study sample includes 75 countries.

From wave 6 of the WVS, two indicators were used to represent pro-sustainability values and another two to represent individuals' behavior. Among the survey's questions, environmental values were represented by *two questions*; how important is looking after the environment for this person (answers were coded ascendingly according to the level of importance) and comparing the importance of protecting the environment (coded as 1) vs. economic growth (coded as zero). Pro-sustainability behavior was proxied by *two other questions*; whether the person has given money to an ecological organization during the last two years, and whether the person has participated in a demonstration for some environmental cause (yes is coded as 1 while no is coded as zero for both questions). Again, due to the missing questions among survey countries, the final study sample includes only 56 countries.

As for the dependent variable, the study used the Environmental Performance Index (EPI) as an indicator of the sustainable development level achieved by the country since sustainable development scores were not available before 2015. EPI summarizes the sustainability level across world countries, using 32 indicators of performance to rank 180 countries on environmental quality and ecosystem vitality. EPI data is available on published reports on

---

<sup>2</sup> [www.worldvaluessurvey.org](http://www.worldvaluessurvey.org)

their site.<sup>3</sup> The study used EPI data of year 2014 for wave 6 and year 2021 for wave 7. That is to represent the latest possible value for the indicator within the duration of each wave.

Two control variables were added to the model. The first is the Democracy index representing the level of democracy in sample countries which can affect countries' decisions to adopt pro-sustainability laws or policies. The index is calculated by the Economist Intelligence Unit (EIU),<sup>4</sup> and it measures the state of democracy in 167 world countries. The second introduced control variable is the countries' human development index (HDI) which reflects the level of economic development of each of the sample countries, which can in turn affect its achieved level of sustainable development. The HDI is calculated by the United Nations Development Program and is published annually in the human development report.<sup>5</sup>

### Model

The study applies the OLS regression model to estimate the proposed (equation 1) that shows the impact of two independent variables (pro-sustainability values and behavior) on the achieved level of sustainable development.

$$EPI_i = \alpha_0 + \alpha_1 Value_i + \alpha_2 Behavior_i + \alpha_3 Democracy_i + \alpha_4 HDI_i + \varepsilon_i \quad (\text{Equ.1})$$

Where  $EPI_i$  is the environmental performance indicator value of each country (i) to reflect the achieved level of sustainable development.  $Value_i$  and  $Behavior_i$  represent the pro-sustainability values and behaviors of individuals in each country (i) respectively,  $Democracy_i$  is the level of democracy in the country,  $HDI_i$  is the human development index of each country representing its economic development level, and  $\varepsilon_i$  is the error term.

The model was estimated twice, once using wave 7 data, where both values and behavior are represented by one indicator each, and a second time using wave 6 data, where they are represented by two indicators each. Robustness checks were done for both models where the normal P-P plot of the regression standardized residual showed the linearity of the model in both cases, no collinearity was detected, and the Breusch Pagan test showed homoscedasticity of the model in both cases.

<sup>3</sup> <https://epi.yale.edu/>

<sup>4</sup> [https://www.eiu.com/n/?s=democracy+index&eiu\\_initial\\_search=1&nsi=a7e2d6dc22](https://www.eiu.com/n/?s=democracy+index&eiu_initial_search=1&nsi=a7e2d6dc22)

<sup>5</sup> [https://hdr.undp.org/data-center/human-development-index?utm\\_source=EN&utm\\_medium=GSR&utm\\_content=US\\_UNDP\\_PaidSearch\\_Brand\\_English&utm\\_campaign=CENTRAL&c\\_src=CENTRAL&c\\_src2=GSR&gclid=EAIaIQobChMI--re6rT7-wIVluhRCh2-SQHPEAAYASAAEgLS9PD\\_BwE#/indicies/HDI](https://hdr.undp.org/data-center/human-development-index?utm_source=EN&utm_medium=GSR&utm_content=US_UNDP_PaidSearch_Brand_English&utm_campaign=CENTRAL&c_src=CENTRAL&c_src2=GSR&gclid=EAIaIQobChMI--re6rT7-wIVluhRCh2-SQHPEAAYASAAEgLS9PD_BwE#/indicies/HDI)

## Results

The model equation (1) was first estimated using wave 7 data of the WVS and the results showed that despite the significance of the model, the estimated coefficients indicate the insignificant impact of both values (people's perception of the importance of environment protection compared to economic growth) and behavior (being a member of an environmental organization) on the country's achieved level of sustainable development. Accordingly, we do not reject both null hypotheses,  $H_0$  and  $H_{00}$ , that is, both individuals' pro-sustainability values and behavior do not impact the country's achieved level of sustainability. This insignificance means that the available data does not provide evidence or proof of the presence of an impact of the independent variables on the dependent one, not that this impact necessarily does not exist. Since the limited number of available proxies for pro-sustainability values and behaviors in this wave might be a reason for not having a significant impact, the model was re-estimated using data from the previous wave, which includes more proxies representing the study's independent variables.

In this trial, equation (1) was re-estimated using OLS based on data provided by WVS wave 6 (2010-2014), where pro-sustainability values and behaviors are represented by two indicators each, as previously explained. An average value was calculated for each of the two indicators of each independent variable. The dependent variable (level of sustainable development of the country) was proxied by the EPI for each country in 2014. The 2014 values of the three control variables were used. After excluding countries with missing data, the model was estimated using data from 56 countries. Table (1) shows the descriptive statistics of variables, while Table (2) shows the estimated model coefficients.

**Table 1**  
*Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
Value 1	57	1.424849699399	6.131469979296	3.015183279316	.5297697051952
Value2	57	.0375751503006	1.374741200828	.4916698517317	.1812662376144
Behavior 1	57	.0010020040080	.4190000000000	.1222958816323	.0881971073130
Behavior 2	57	.0032746623005	.2148760330579	.0670298084424	.0488115815776
EPI	56	19.01	82.40	55.7470	14.95070
Democracy	57	2.45	9.73	5.8332	2.06032
Economic Development	57	.483	.935	.75361	.122524
Valid N (listwise)	56				

**Source:** Software output

In a sample of 56 countries, the real GDP per capita shows the highest standard deviation around its mean. The means of both pro-sustainability value variables and of Behavior 1 and control variables are almost in the middle between their minimum and maximum values, while

the mean of Behavior 2 is closer to its minimum value. All pro-sustainability variables have limited standard deviations around their means.

**Table 2**  
*Estimated Coefficients*

Variables	Coefficients (standard deviations)
Constant	-26.103*** (8.352)
Importance of looking at the environment (value 1)	0.201** (2.823)
Environment protection vs economic growth (value 2)	0.186* (8.452)
Paying money for an ecological organization (behavior 1)	0.152* (15.976)
Participating in a demonstration for an environmental cause (behavior 2)	-0.109 (21.399)
Democracy	0.067 (0.658)
Economic Development (HDI)	0.742*** (10.835)
R-Squared	0.794
Adjusted R-Squared	0.768
Number of Observations	56

**Source:** Software output

*Note:* Standard errors are reported in parenthesis.

\*, \*\*, \*\*\* indicate significance at 90%, 95% and 99% levels, respectively.

The estimated model is significant and shows that 76.8% of the change in the sustainability level is explained by the independent variables; pro-sustainability values, and behaviors. As for the estimated coefficients (presented in Table 2), the results show a significant positive impact of individuals' perception of the importance of looking at the environment (Value1), their choice of environmental protection as a higher priority compared to economic growth (Value 2), and individuals' paying money for an ecological organization (Behavior1) on the achieved level of sustainability in the sample countries. Accordingly, we reject both null hypotheses,  $H_0$  and  $H_{00}$ , for these three variables and conclude that they all affect the country's

achieved level of sustainable development. However, the impacts of people's participation in a demonstration for an environmental cause (Behavior2) was found to be insignificant, which means we do not reject both null hypothesis  $H_{00}$ , for this variable; that is, it does not affect the country's sustainable development. Insignificance here means that the available data does not prove the presence of this impact, yet it does not necessarily imply that the effect does not really exist. Moreover, the values of the estimated coefficients show that the effect of both values and behavior on the country's level of sustainability is almost equal, yet both of them are small in magnitude. Accordingly, the influence of pro-sustainability values and behaviors on sustainability is limited as perceived in the sample countries.

As for the control variables, the model results show that only the country's level of economic development (proxied by the human development indicator) has a positive significant effect on the achieved sustainability, while the level of democracy was insignificant. Similarly, these results show that the available sample data support the significant influence of the level of economic development of the country on its achieved level of sustainability, while it fails to provide enough proof of the significant impact of the level of democracy.

### **Discussion**

The quantitative analysis results indicate that the level of pro-sustainability values and behavior of a certain society affect the achieved level of sustainability of the respective country. This result comes in line with previous literature that highlighted the culture's potential determining power of sustainable development, including Leiserowitz et al., 2005; Cortese, 2003; Taylor, 2009; Carpenter et al., 2004; Fithian and Powell, 2009; Chua et al., 2005; Piece, 2012. However, the coefficients of the estimated model show that the impacts of both pro-sustainability values and behavior are weak. This means that despite the significant influence of individuals' culture on the level of sustainability, this influence is still limited. Accordingly, working on building a stronger pro-sustainability cultural base might enhance the magnitude of this impact and pave the way for higher achieved sustainability levels.

Hence, achieving sustainable development and fulfilling its goals requires appropriate policies that support and enhance individuals' pro-sustainability culture. This pinpoints the significance of working towards building such culture in communities that lack them. Ensuring that people are aware of the various economic and environmental risks that SDGs are trying to handle, together with the awareness of the importance of individuals' roles in mitigating these risks should be a priority for world countries, especially the less developed ones. Behaviors, such as conservative consumption, reduction of waste, and recycling will eventually be reflected in the form of a higher sustainability level for the whole country.

In this context, it is practically useful to identify *who* can affect societies' culture to enhance the required pro-sustainability behavior and *how* this can be achieved, or via which tools. As for supporting individuals' pro-sustainability behavior, this can be achieved by three parties. *First*, the government, especially departments directly related to this area, such as environment, education, and youth ministries or departments. *Second*, the business sector can also be influential in building this behavior as part of its corporate social responsibility commitment. *Third*, civil society has an important potential role in this context. (Fischer et al., 2012) have stressed the importance of civil society institutions, including local units, community groups, non-governmental organizations, foundations, and cultural groups, which can support formal government institutions, especially in case they were highly tied to other tasks and responsibilities that reduce their ability to focus on supporting this type of behavior. Accordingly, we can claim that setting strong foundations of pro-sustainability behavior among individuals needs the full cooperation of all involved societal actors over an extended period of time, as building such bases and capacities are considered a continuous and long-term goal.

Concerning the potential *tools* that can be adopted to enhance pro-sustainability behavior in a community, these will vary according to who is taking action or the make the decision. In the case of formal government institutions, pro-sustainability behavior can be encouraged via compulsory instruments such as regulations, taxes or fines, and innovative policies. Educational programs also come on top of the impactful government tools, where building the foundations of pro-social and pro-environmental types of behavior of future generations starts with education to assure the awareness of the importance of sustainability and of individuals' role in achieving it. The business sector can affect this behavior through persuasive marketing strategies, for example, promoting products based on their green impact or being manufactured using recycled materials. This will eventually affect consumers' consumption choices and enhance their environmental responsibility. Also, the business sector can support facilitating pro-sustainability behaviors by adopting some supporting initiatives, such as providing more accessible recycling bins, water-conserving shower heads, and energy-conserving devices, among others.

As for civil society organizations, their role in promoting this behavior can be achieved using different informal persuasive strategies. These strategies can focus on supporting pro-sustainability behaviors through awareness of the impact of individuals' behavior on the SD outcome of their own countries, whether using encouraging messages or threatening and challenging ones. Osbaldiston and Schott (2012) aimed to provide helpful information to

practitioners regarding methods of promoting pro-environmental behavior by performing a meta-analysis on 87 published reports in this context. They highlighted some impactful behavior approaches, including *justification* or clarifying the reason for doing a certain behavior, such as showing the impact of using blinds on cooling rooms and thus reducing energy consumption. *Reminders*, through adding informational reminder notes for simple behavior, such as switching off lights when leaving the room. *Feedback*, which means showing how useful the behavior was for individuals and society, in the form of reducing electricity bills, for example. *Rewards or incentives*, where the behavior is encouraged via rewards, such as coupons or free bus tickets, to encourage using public transportation. *Social modeling*, through highlighting the pro-sustainability behavior of some role models known for their wide impact on people in society.

In the end, it is worth noting that the major limitation of this study has been the availability of data. Finding a comprehensive international database, including the required data measuring values and behaviors, was the main challenge. As previously highlighted, the number of questions addressing the relevant study variables in the WVS was very limited. Taking this into consideration while preparing the next waves of this global survey is very important and can be of great value if more questions targeting pro-sustainability values and behaviors are added to the questionnaire.

Finally, future research can target investigating the influence of pro-sustainability cultural variables on certain specific SGDs. It can also use one specific indicator of pro-sustainability behavior, such as recycling, and measure its impact on the level of achieved SD of the country.

## References

- Basiago, A.D. (1998). Economic, social, and environmental sustainability in development theory and urban planning practice. *The Environmentalist*, *19*, 145–161. <https://doi.org/10.1023/A:1006697118620>
- Bandarin, F, Hosagrahar, J., & Albernaz, F. (2011). Why development needs culture. *Journal of Cultural Heritage Management and Sustainable Development*, *1*, 15–25. 10.1108/20441261111129906.
- Bhandari, H., & Yasunobu, Ki. (2009). What is social capital? A comprehensive review of the concept. *Asian Journal of Social Science*, *37*, 480–510. doi: 10.1163/156853109X436847.
- Blankenberg, A., & Alhusen, H. (2019). On the determinants of pro-environmental behavior: A literature review and guide for the empirical economist. *SSRN Electronic Journal*. 10.2139/ssrn.3473702.
- Brown, D. (2002). The role of work and cultural values in occupational choice, satisfaction, and success: A theoretical statement. *Journal of Counseling & Development*, *80*. 10.1002/j.1556-6678.2002.tb00165.x.
- Burford, G., Hoover, E., Velasco, I., Janoušková, S., Jimenez, A., Piggot, G., & Harder, M. (2013). Bringing the “Missing Pillar” into sustainable development goals: Towards intersubjective values-based indicators. *Sustainability*, *5*(7), 3035-3059. doi:10.3390/su5073035
- Burford, G., Hoover, E., Dahl, A., & Harder, M. (2015). Making the invisible visible: Designing values-based indicators and tools for identifying and closing ‘value-action gaps’. In: *Responsible living: Concepts, education and future perspectives*. Springer. 113–134. doi:10.1007/978-3-319-15305-6\_9.
- Carpenter M.A., Geletkanycz M.A., & Sanders W.G. (2004). Upper Echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, *30*(6), 749–778. doi:10.1016/j.jm.2004.06.001
- Caprar, D.V., & Neville, B.A. (2012). “Norming” and “Conforming”: Integrating cultural and institutional explanations for sustainability adoption in business. *Journal of Business Ethics*. *110*, 231–245. <https://doi.org/10.1007/s10551-012-1424-1>
- Chua, H., Boland, J., & Nisbett, R. (2005). Cultural variation in eye movement during scene perception. *Proceedings of the National Academy of Sciences of the United States of America*. *102*. 12629–33. 10.1073/pnas.0506162102.
- Cortese, A. (2003). The critical role of higher education in creating a sustainable future. *Planning for Higher Education*, *31*, 15–22.
- Culture in the implementation of the 2030 agenda: A report by the culture 2030 goal campaign. [https://Agenda21culture.Net/Sites/Default/Files/Culture2030goal\\_High.Pdf](https://Agenda21culture.Net/Sites/Default/Files/Culture2030goal_High.Pdf) )
- Dallaire, G., & Colbert, F. (2012). Sustainable development and cultural policy: Do they make a happy marriage? *Encate Journal of Cultural Management and Policy*, *2*(1), 6–11.
- Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental values. *Annual Review of Environment and Resources*, *30*, 335–372.
- De Leo, D. (2002). Struggling against suicide: The need for an integrative approach. *The Journal of Crisis Intervention and Suicide Prevention*, *23*(1), 23–31. <https://doi.org/10.1027/0227-5910.23.1.23>
- Economic and Social Commission for Asia and the Pacific: Annual Report, 24<sup>th</sup> May 2012- 1<sup>st</sup> May 2013. UN. ESCAP. [https://www.unescap.org/sites/default/files/Economic-and-Social-Survey-of-Asia-and-the-Pacific-2013\\_1.pdf](https://www.unescap.org/sites/default/files/Economic-and-Social-Survey-of-Asia-and-the-Pacific-2013_1.pdf) )

- Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin*, *101*(1), 91–119. <https://doi.org/10.1037/0033-2909.101.1.91>
- Eizenberg, E., & Jabareen, Y. (2017). Social sustainability: A new conceptual framework. *Sustainability*, *9*, 10.3390/su9010068.
- Ferse, S. C. A., M. Glaser, M. Neil, & K. Schwerdtner Máñez. (2014). To cope or to sustain? Eroding long-term sustainability in an Indonesian coral reef fishery. *Regional Environmental Change* *14*(6), 2053–2065.
- Fischer, J., Dyball, R., Fazey, I., Gross, C., Dovers, S., Ehrlich, P. R., Brulle, R. J., Christensen, C., & Borden, R. J. (2012). Human behavior and sustainability. *Frontiers in Ecology and the Environment*, *10*(3), 153–160.
- Fithian, C., & Powell, A. (2009). *Cultural aspects of sustainable development*. The University of Texas School of Architecture Seminar.
- Folke, C. (2006). Resilience: The emergence of a perspective for social–ecological systems analyses. *Global Environmental Change*, *16*, 253–267.
- Fukuyama, F. (2001). Social capital, civil society and development. *Third World Quarterly*, *22* (1), 7–20. [http://lst-iiiep.iiiep-unesco.org/cgi-bin/wwwi32.exe/\[in=epidoc1.in\]/?t2000=015442/\(100\)](http://lst-iiiep.iiiep-unesco.org/cgi-bin/wwwi32.exe/[in=epidoc1.in]/?t2000=015442/(100)). 22. 10.1080/01436590020022547.
- Geertz, C. (1973). *The interpretation of cultures: Selected essays*. New York: Basic Books.
- Griggs, D., Stafford Smith, M., Gaffney, O., Rockström, j., Öhman, M., Shyamsundar, P., Steffen, W., Glaser, G., Kanie, N., & Noble, I. (2013). Sustainable development goals for people and planet. *Nature*, *495*, 305–307. doi:10.1038/495305a
- Grilli, G., & Curtis, J. (2019). *Encouraging pro-environmental behaviors: A review of methods and approaches*, Papers WP645, Economic and Social Research Institute (ESRI).
- Gupta, D., & Thapliyal, G. (2015). A study of prosocial behavior and self-concept of adolescents. *I-Manager's Journal on Educational Psychology*, *9*(1). doi: 10.26634/Jpsy.9.1.3524
- Hasna, A. (2007). Dimensions of Sustainability. *Journal of Engineering for Sustainable Community Development*, *1*(2). DOI: 10.3992/2166-2517-1.2.47
- Hastings, P., Utendale, W.T., & Sullivan, C. (2007). The socialization of prosocial development. In: *Handbook of Socialization: Theory and Research*. 638-664.
- Hawkes, J. (2001). *The fourth pillar of sustainability: Culture's essential role in public planning*. Victoria: The Cultural Development Network.
- Haxhi, L., & Ees, H. (2010). Explaining diversity in the worldwide diffusion of codes of good governance. *Journal of International Business Studies*, *41*, 710 –726. doi: 10.1057/jibs.2009.39.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks, CA.: Sage Publications. 2nd ed.
- Inglehart, R. (1997). *Modernization and post modernization: Cultural, economic, and political change in 43 societies*. Princeton, NJ: Princeton University Press.
- Klaniecki, K., Duse, I., Lutz, L., Leventon, J., & Abson, D. (2019). Applying the energy cultures framework to understand energy systems in the context of rural sustainability transformation. *Energy Policy*, *137*: Doi:111092. 10.1016/j.enpol.2019.111092
- Lee, S., Lee, W. J., & Yoo, K. (2019). Millennial ride-share passengers' pro-sustainable behaviors: Norm activation perspective. *Asia Pacific Journal of Tourism Research*. *25*(1), 15–26. doi:10.1080/10941665.2019.1578811

- Leiserowitz, A., Kates, R., & Parris, T. (2005). Do Global Attitudes and Behaviors Support Sustainable Development? *Environment Science and Policy for Sustainable Development*, 47(9). DOI:10.3200/ENVT.47.9.22-38
- ElMassah, S., & Mohieldin, M. (2020). Digital transformation and localizing the Sustainable Development Goals (SDGs). *Ecological Economics*, 169(C).
- Manesi, Z., Van Doesum, N., & Lange, P. (2017). Prosocial behavior. In: *Encyclopedia of Personality and Individual Differences*. 1-4. Springer International Publishing. 10.1007/978-3-319-28099-8\_1894-1.
- McKenzie-Mohr, D., & Schultz, P. (2014). Choosing effective behavior change Tools. *Social Marketing Quarterly*, 20, 35–46. 10.1177/1524500413519257.
- Mensah, J. (2019). Sustainable Development: Meaning, History, Principles, Pillars, and Implications for Human Action: Literature Review. *Cogent Social Sciences*, 5, Article ID: 1653531. <https://doi.org/10.1080/23311886.2019.1653531>
- Ntibagwirwa, S. (2009). Cultural values, economic growth and development. *Journal of Business Ethics*, 84, 297–311. 10.1007/s10551-009-0203-0.
- Nurse, K. (2006). Culture as the fourth pillar of sustainable development. Semantic scholar. <https://www.semanticscholar.org/paper/Culture-as-the-Fourth-Pillar-of-Sustainable-Nurse/92dae4886a02f1fb27dd4131db5912aac6b7074f>
- Ones, D. S., Wiernik, B. M., Dilchert, S., & Klein, R. (2015). Pro-Environmental Behavior. In: *International Encyclopedia of the Social & Behavioral Sciences*. Second Edition. 82-88. Elsevier <https://doi.org/10.1016/B978-0-08-097086-8.22008-4>
- Opoku, A. (2015). The role of culture in a sustainable built environment. In: Chiarini, A. (eds) *Sustainable Operations Management. Measuring Operations Performance*. Springer, Cham. 10.1007/978-3-319-14002-5\_3.
- Osbaldiston, R., & Schott, J. P. (2012), Environmental sustainability and behavioral science: Meta-analysis of pro-environmental behavior experiments. *Environment and Behavior*, 44(2), 257–299.
- Parboteeah, K., Addae, H., & Cullen, J. (2012). Propensity to support sustainability initiatives: A cross-national model. *Journal of Business Ethics*, 105, 403–413. DOI:10.1007/s10551-011-0979-6.
- Parodi, O., Ayestaran, I., & Banse, G. (Hg). (2011). *Sustainable development. Relationships to culture, knowledge and ethics*. Karlsruhe: KIT Scientific Publishing (Karlsruher Studien Technik und Kultur 3). <https://doi.org/10.25969/mediarep/3018>.
- Petti, L., Trillo, C., & Makore, B. N. (2020). Cultural heritage and sustainable development targets: A possible harmonization? Insights from the European perspective. *Sustainability*, 12(3), 926. doi:10.3390/su12030926
- Piece, T. (2012). Culture: A Driver and enabler of sustainable development. Thematic Think Piece. UNESCO. [chrome-extension://efaidnbnmnibpcjpcglclefindmkaj/https://www.un.org/millenniumgoals/pdf/Think%20Pieces/2\\_culture.pdf](chrome-extension://efaidnbnmnibpcjpcglclefindmkaj/https://www.un.org/millenniumgoals/pdf/Think%20Pieces/2_culture.pdf)
- Raymond, D., Sessions, S., Sobel, A., & Fuchs, Z. (2009). The mechanics of gross moist stability. *Journal of Advances in Modeling Earth Systems*. 1. 10.3894/JAMES.2009.1.9.
- Ringov, D., & Zollo, M. (2007). The impact of national culture on corporate social performance. *Corporate Governance*, 7, 476–485. 10.1108/14720700710820551

- Robert, K., Parris, T., & Leiserowitz, A. (2005). What is sustainable development? Goals, indicators, values, and practice. *Environment, Science and Policy for Sustainable Development*, 47(3), 8–21. <https://doi.org/10.1080/00139157.2005.10524444>.
- Roberts, S., & Tribe, J. (2005). Exploring the economic sustainability of the small tourism enterprise: A case study of Tobago. *Tourism Recreation Research*, 30 (1). 55–72.  
DOI: 10.1080/02508281.2005.11081233
- Sabatini, F. (2006). *Social Capital and Economic Development*. SPES Development Studies Discussion Paper. <https://ssrn.com/abstract=901362> or <http://dx.doi.org/10.2139/ssrn.901362>
- Sachs, J. (2012). From millennium development goals to sustainable development goals. *Lancet*. 379. 220611. 10.1016/S0140-6736(12)60685-0.
- Schwartz, S. H., & Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of Personality and Social Psychology*, 53(3). 550-562. doi:10.1037/0022-3514.53.3.550
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, 25, 1–65. doi:10.1016/s0065-2601(08)60281-6
- Sen, A. (1998). *Culture and Identity*. Little India. Harvard University. August.
- Seghezzeo, L. (2009). The five dimensions of sustainability, *Environmental Politics*, 18, 539–556. 10.1080/09644010903063669.
- Shteynberg, G., Gelfand, M. J., & Kim, K. (2009). Peering into the “Magnum Mysterium” of culture. *Journal of Cross-Cultural Psychology*, 40(1), 46-69. doi:10.1177/0022022108326196
- Soini, K., and Birkeland, I. (2014). Exploring the scientific discourse on cultural sustainability. *Geoforum*, 51, 213–223. doi:10.1016/j.geoforum.2013.12.001.
- Soini, K., & Dessein, J. (2016). Culture-sustainability relation: Towards a Conceptual Framework. *Sustainability*, 8(2), 167. doi:10.3390/su8020167
- Skaker, A., & Vecco, M. (2016). Culture as a fourth dimension of sustainable Development? A statistical analysis and indicators. <http://webcat.georgian.edu/title/culture-as-a-fourth-dimension-of-sustainable-development-a-statistical-analysis-and-indicators-proposal/oclc/951362902>
- Stephan, U., & Uhlaner, L. M. (2010). Performance-based vs. socially supportive culture: A cross-national study of descriptive norms and entrepreneurship. *Journal of International Business Studies*, 41(8), 1347–1364. doi:10.1057/jibs.2010.14
- Stern, P. C. (2000). Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*. 56(3), 407–424. <https://doi.org/10.1111/0022-4537.00175>
- Sue, D. W., & Sue, D. (1990). *Counseling the culturally different: Theory and practice*. (2nd ed.). John Wiley & Sons.
- Tabellini, G. (2005). *Culture and institutions: Economic development in the regions of Europe*, CESifo Working Paper Series 1492, CESifo.
- Taylor, T. L. (2009). The Assemblage of Play. *Games and Culture*, 4(4), 31–339. doi:10.1177/1555412009343576
- Thompson, H. (2001) Culture and economic development: modernization to globalization. *Theory & Science*, 2(2).

- Throsby, C. D. (1995). *The economics of cultural policy*. Cambridge: Cambridge University Press.
- UN. (2015). *Sustainable Development Goals*. <https://sdgs.un.org/goals>
- UN DESA Annual Highlights Report (2020-2021). [https://cdn.un.org/desa/Highlight\\_Report\\_2020-2021.pdf](https://cdn.un.org/desa/Highlight_Report_2020-2021.pdf)
- Walsham, G. (2002). Cross-cultural software production and use: A structurational analysis. *MIS Quarterly*, 26(4), 359. doi:10.2307/4132313
- UNDP (2016). *Behavioral insights at the United Nations: Achieving agenda 2030*. United Nations Development Programme, New York.
- UNESCO (2012). *Culture: A pillar of development and good life*. [https://unesdoc.unesco.org/ark:/48223/pf0000224438\\_eng](https://unesdoc.unesco.org/ark:/48223/pf0000224438_eng)
- WCED. World Commission on Environment and Development. (1987). *Our common future*. New York: Oxford University Press.
- Weinstein, N., & Ryan, R. (2010). When helping helps: Autonomous motivation for prosocial behavior and its influence on well-being for the helper and recipient. *Journal of personality and social psychology*, 98, 222–44. 10.1037/a0016984

## Appendix

### Models' Sample Countries

Wave 6 Countries			
Algeria	Germany	Morocco	South Africa
Argentina	Ghana	Netherlands	Spain
Armenia	Haiti	New Zealand	Taiwan
Australia	Hong Kong	Nigeria	Sweden
Azerbaijan	India	Pakistan	Tunisia
Belarus	Iraq	Philippines	Turkey
Brazil	Japan	Peru	Ukraine
Cyprus	Jordan	Poland	United States of America
Colombia	Kazakhstan	Qatar	Uzbekistan
Chile	Kuwait	Romania	Uruguay
China	Kyrgyzstan	Russia	Yemen
Ecuador	Lebanon	Rwanda	Zimbabwe
EGYPT	Libya	Singapore	
Estonia	Malaysia	Slovenia	
Georgia	Mexico	South Korea	

Wave 7 Countries					
Albania	China	Hong Kong SAR	Malaysia	Serbia	United Kingdom
Andorra	Colombia	Hungary	Mexico	Singapore	United States
Azerbaijan	Croatia	Iceland	Montenegro	Slovakia	Taiwan ROC
Argentina	Cyprus	Indonesia	Netherlands	Vietnam	
Australia	Czechia	Iran	New Zealand	Slovenia	
Austria	Denmark	Iraq	Nicaragua	Zimbabwe	
Bangladesh	Ecuador	Italy	Nigeria	Spain	
Armenia	Ethiopia	Japan	Norway	Sweden	
Bolivia	Estonia	Kazakhstan	Pakistan	Switzerland	
Brazil	Finland	Jordan	Peru	Tajikistan	
Bulgaria	France	South Korea	Philippines	Thailand	
Myanmar	Georgia	Kyrgyzstan	Poland	Tunisia	
Belarus	Germany	Lebanon	Portugal	Turkey	
Canada	Greece	Lithuania	Romania	Ukraine	
Chile	Guatemala	Macau SAR	Russia	North Macedonia	