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Testing Schwartz's Model of Cultural Value Orientations in Europe with the European Social Survey

An Empirical Comparison of Additive Indexes with Factor Scores

Hermann Dülmer[1] · Shalom H. Schwartz[2] · Jan Cieciuch[3,4] · Eldad Davidov[1,4] · Peter Schmidt[5]

[1]Institute of Sociology and Social Psychology, University of Cologne
[2]The Hebrew University of Jerusalem
[3]Institute of Psychology, Cardinal Stefan Wyszynski University
[4]Department of Sociology and University Research Priority Program "Social Networks", University of Zurich
[5]Institute for Political Science and Centre for International Development and Environment (ZEU), Justus-Liebig-University of Giessen

The aim of this study is to compare results of measuring the Schwartz (2004) cultural value orientations using multilevel confirmatory factor analysis (ML CFA) vs. the unweighted aggregated means (simple means) used in previous research. We conduct this comparison with data from the 21-item short version of the Portrait Values Questionnaire in 6 rounds of the European Social Survey (ESS). An advantage of estimating factor scores via ML CFA vs. simple means is that ML CFA weights the impact of the factors on their indicators empirically. It also permits simultaneously assessing Schwartz' 10 individual level and 7 cultural level values by decomposing the total variances of the 21 items into a within part (individual values) and a between part (cultural values), while controlling for random measurement errors. High intercorrelations between related values in ML CFA required unifying two pairs of cultural values. Comparing correlations with theoretically relevant macro indicators of the factor scores and of the simple means of the cultural values indicated somewhat higher external validity for the factor scores. Taken together, the findings suggest that the derived factor scores provide suitable macro indicators of Schwartz' cultural value orientations for future studies using the ESS data.

Keywords: European Social Survey (ESS); Schwartz' cultural values; Schwartz' personal values; multilevel confirmatory factor analysis; multidimensional scaling

1 Introduction

Values represent what people consider good, worthy, and important (Rokeach, 1973; Schwartz, 1992; Williams, 1970). Values that are used to describe individuals are usually referred to as individual values. Values used to characterize and compare societies are referred to as cultural value orientations or cultural values. Cultural value theories and measurements are essential for the systematic study of societies, their similarities and differences, and their change over time. Whether distinguishing individual from cultural values is appropriate is, however, subject to debate (e.g., Fischer, & Poortinga, 2012). Several large-scale empirical studies that explored and identified cultural value orientations illustrate research with cultural values (e.g., Bruna, 2021; Dülmer, Inglehart, & Welzel, 2015; Hofstede, 2001; House, Hanges, Javidan, Dorfman, & Gupta, 2004; Inglehart, & Welzel, 2005; Witte, Stanciu, & Boehnke, 2020).

These large-scale studies derived their catalogues of cultural values by inference from empirical findings across numerous societies. In contrast, Schwartz (2004, 2006, 2014a) proposed the catalogue of cultural value orientations we

Corresponding author: Hermann Dülmer, Institute of Sociology and Social Psychology, University of Cologne, Albertus-Magnus-Platz, 50923 Cologne, Germany (Email: hduelmer@uni-koeln.de)

adopted based on *a priori* theorizing. He derived the cultural values in his theory by considering the problems that all societies must cope with in order to survive. These cultural values are the normative expectations intended to govern the actions of individuals and institutions in ways that facilitate societal functioning.

The European Social Survey (ESS) has included, since its inception, 21 value items that can be used to measure both individual and cultural/country level values from Schwartz' theories. A large body of literature employing these ESS questions measures individual values (e.g., Bilsky, Janik, & Schwartz, 2011; Bruna, 2021; Cieciuch, Davidov, Algesheimer, & Schmidt, 2018; Davidov, Schmidt, & Schwartz, 2008; Fischer, & Schwartz, 2011; Marcos-Marne, 2021; Steinmetz, Isidor, & Baeuerle, 2012). Applications using ESS data to measure cultural values are much rarer (e.g., Schwartz, 2006; Witte, Stanciu, & Boehnke, 2020). Studies of cultural values in the literature (e.g., Inglehart, & Baker, 2000, p. 24; Inglehart, & Welzel, 2005, pp. 49–50; Schwartz, 2006, p. 146, 2014a, p. 554), have typically computed unweighted additive indexes to measure cultural values. However, additive indexes do not take account of the hierarchical structure of the data and cannot eliminate random measurement errors completely (Datler, Jagodzinski, & Schmidt, 2013, p. 915). Moreover, they usually weight all items equally, although their weight may differ empirically. To solve these limitations, the current study uses multilevel confirmatory factor analysis (ML CFA, Muthén, & Muthén, 1998–2017; Heck, & Thomas, 2009; Kyriazos, 2019) to measure Schwartz' cultural values. In other words, our goal is to measure Schwartz' cultural values while adequately taking account of both the individual and cultural levels and the hierarchical structure of the data and the measurement errors, while computing the weight of the indicators empirically. Thereafter, we compare the external validity of the factor scores for the cultural values from ML CFA to the external validity of the cultural values measured via unweighted aggregated means.

The following sections present the Schwartz theories of individual and cultural values, the ESS data we used to measure them, and a short overview of multilevel confirmatory factor analysis (ML CFA). Next, we present the results of ML CFA analysis. We then compare the external validity of the cultural factor scores derived from ML CFA and of the unweighted additive index scores of cultural values by correlating them with several theoretically relevant macro-level variables. Finally, we summarize the findings and discuss limitations and implications.

2 Schwartz' Theory of Value Orientations

Schwartz has proposed two theories of values, one at the individual level and one at the culture level (e.g., Schwartz, 1992, 2006, 2011). The same data has been used to measure values at both levels. This study measures Schwartz's (2004) cultural value orientations for the first time with ML CFA. ML CFA permits measuring both the individual and cultural values simultaneously. It does this by decomposing the total variances of the value items into a within part (individual values) and a between part (cultural values), thereby taking account of the hierarchical structure of the data. Because the same data are used for both levels, we must also consider the individual value level in this analysis. Therefore, we briefly introduce the individual, basic human values before shifting our focus to cultural value orientations, the central topic of this study.

2.1 Ten Basic Individual Values and Their Circular Structure

Values at both levels (individual and cultural) are defined as trans-situational goals, varying in importance, that serve as guiding principles for a person or a society (Schwartz, 1992, 2006, 2007). Individual values are goals that motivate individuals' actions and serve as guiding principles in their lives. Schwartz (1992, 2007) distinguishes 10, motivationally distinct, basic individual values inclusive of the values in earlier theories (e.g., Rokeach, 1973; Inglehart, 1990). These basic individual values are: *universalism, benevolence, conformity, tradition, security, power, achievement, hedonism, stimulation*, and *self-direction*. These individual values can be grouped into four higher order values, *self-transcendence, conservation, self-enhancement*, and *openness to change*. In addition to identifying the individual values, the theory postulates that the interdependencies among them create a circular structure of value relations. Actions in pursuit of any value have consequences that are compatible with some values and conflict with other values. Compatible values are located close to each other in the circle, whereas competing values oppose each other across the circle. The motivational differences between adjacent values in the circle are continuous rather than discrete. Researchers may therefore combine adjacent values into broader, higher order values (e.g., universalism and benevolence into self-transcendence). Fig. 1 displays the circular motivational structure of the 10 basic individual values.

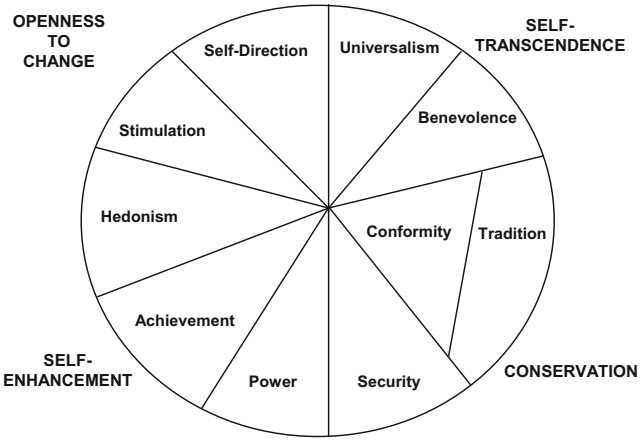

Fig. 1

Individual Basic Human Values (Adopted from Schwartz, 2007, p. 175)

2.2 Seven Cultural Value Orientations and Their Circular Structure

Cultural value orientations represent latent goals that societies implicitly and explicitly encourage their members to pursue, goals that justify the actions of institutions and of their leaders (Rokeach, 1973; Schwartz, 2014a, b). This approach views culture as a press to which the individuals in a particular society are exposed via prevailing external expectations and practices. The press of culture takes many forms, including the expectations, constraints, affordances, language patterns, religious traditions, and taken-for-granted practices and customs in the society (e.g., Huntington, 2003 [1996], p. 43 and p. 59; Schwartz, 2006, p. 157). All of these express the underlying normative value emphases that are the heart of a culture. These cultural value emphases influence the beliefs, actions, goals, and styles of thinking and values of individual societal members. They are also influenced, in turn, by the values that individual societal members express as a function of their unique experiences and heredity. Thus, this approach treats culture as a latent construct, located outside the individual (Schwartz, 2014a, b). Rephrasing Hofstede's (2001) metaphor of culture as the "programming" of the mind, Schwartz (2014b) views culture as the "programmer" of the mind. This underlines the importance of considering cultural value orientations when studying both societies and individuals within societies.

Schwartz (2006, 2014a, p. 550) proposes that, in all societies, the culture that evolves is a response to the following three critical and fundamental problems with which every society must cope to survive:

1. Defining the boundaries between the individual and the group and the optimal relations between them,
2. Ensuring coordination among people to produce goods and services in ways that preserve the social fabric, and
3. Regulating the way human and natural resources are utilized.

Cultural values underlie and reflect the responses that a given culture prefers to deal with these problems. These values prescribe how institutions should function and how people should behave in coping with the fundamental problems. Cultures differ in the preferred responses they evolve to cope with these three problems. The cultural value orientations described next form the poles of three conceptual dimensions. The cultures of actual societies are located at points along these dimensions.

The normative orientations that prevail in different cultures to cope with the problem of boundaries between the individual and the group are arrayed on a cultural value dimension labeled *autonomy* versus *embeddedness*. Autonomy cultures view individuals as autonomous entities whereas embeddedness cultures view individuals as entities embedded in the collectivity. Autonomy cultures encourage individuals to cultivate and express their own preferences, ideas, and feelings. Schwartz (2006) differentiates two types of autonomy, *intellectual autonomy,* and *affective autonomy*. Intellectual autonomy encourages making own decisions, curiosity, and creativity in the pursuit of independent ideas. Affective autonomy encourages independence in the pursuit of pleasure, excitement, and variety in life. In contrast, embeddedness cultures expect individuals to identify with the group, participate in its shared way of life, strive toward its shared goals, and find meaning in life through in-group relationships. Embeddedness cultures emphasize social order, respect for tradition, security, obedience, and wisdom.

The normative orientations that prevail in different cultures to cope with the problem of coordination among people are arrayed on a cultural value dimension labeled *egalitarianism* versus *hierarchy*. Egalitarian cultures encourage people to view everyone as equal so that everyone should have the same basic rights. People are expected to feel concern for the welfare of others and to cooperate with them voluntarily. High priority values in egalitarian cultures include equality, social justice, responsibility, help, and honesty. In contrast, hierarchy cultures view the hierarchical systems of ascribed roles as the desirable and legitimate structure to ensure productive behavior. People are expected to accept the hierarchical order and their place in it, complying with the obligations and rules associated with their roles. Important values in hierarchy cultures include social power, authority, humility, and wealth (Schwartz, 2006, 2014a).

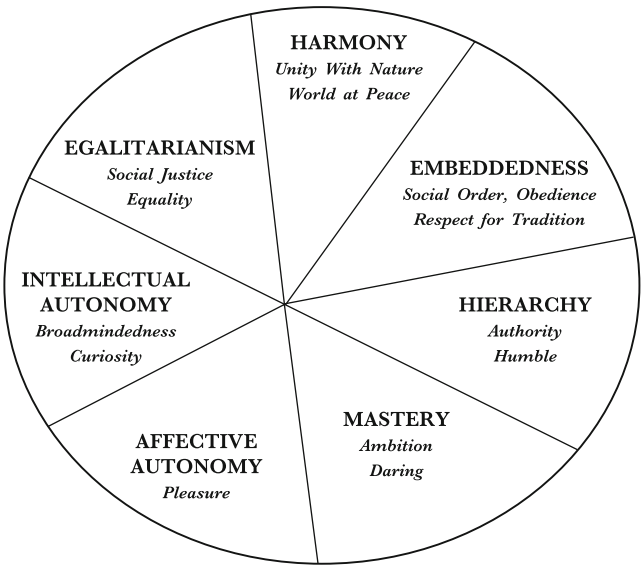

Fig. 2

Cultural Value Dimensions (Adopted from Schwartz, 2006, p. 142)

The normative orientations that prevail in different cultures to cope with the problem of regulating the way human and natural resources are utilized are arrayed on a cultural value dimension labeled *harmony* versus *mastery*. Harmony cultures encourage individuals and groups to adapt themselves to the social and natural world as it is, rather than trying to change it. People are expected to avoid striving and conflict, and to accept, preserve, and appreciate the way things are. Important values in harmony cultures include peace, unity with nature, protecting the environment, and accepting one's own portion. In contrast, mastery cultures encourage individuals and groups to strive actively to direct, change, and master the natural and social environment through problem-solving behavior. Important values in mastery cultures include ambition, success, self-sufficiency, and competence.

One of the main contributions of Schwartz's (1992, 2006) approach to values at both levels (individual and cultural) is describing the rules that organize relations among the values. Just as in the case of individual values, relations among the cultural values take the shape of a circle. Values adjacent in the circle are compatible whereas those opposite in the circle tend to conflict. Thus, a culture that emphasizes one pole of a cultural value orientation (e.g., egalitarianism) is likely simultaneously to deemphasize the opposing orientation (e.g., hierarchy). This approach assumes that the values postulated on the individual and cultural levels are not the same.

Fig. 2 presents the circle of the three bipolar dimensions of cultural values and illustrates their oppositions. The values adjacent in the circle are compatible because they share significant underlying assumptions. Embeddedness and hierarchy share the assumption that a person's position in the collectivity is more important than his or her unique ideas and aspirations. Embeddedness and harmony share the assumption that it is desirable and important to avoid conflict and change. Intellectual autonomy and egalitarianism share the assumption that people should take responsibility for making decisions using their own understandings. Affective autonomy and mastery share the assumption that it is legitimate to assert one's own desires. Mastery and hierarchy share the assumption that the normal state of relationships is inequality.

As noted earlier, the culture to which people are exposed, together with their unique temperaments, needs, motivation, life experiences, etc., affects their individual values. Thus, individual values also reflect and express the culture (Schwartz, 2014a, b; cf. Hofstede, 2001; Inglehart, 1997). Consequently, if we have a representative sample of societal members, one way to capture the values of their culture is to measure the average values across the individual members. The average of the individual values reflects the press of their shared culture while eliminating individual value differences that are due to unique individual experiences and heredity. Hence, the same questionnaire items used to operationalize individual values can also be used, by averaging individual responses in representative samples, to measure latent cultural values. Witte, Stanciu, & Boehnke (2020) propose an alternative approach to measuring cultural values that considers the *distribution* of the individual values of societal members. Of course, many other aspects of culture (e.g., literature, film, music, language, religion, institutional rules) also express cultural values. However, these aspects of culture are generated by specific individuals or groups and directed toward specific audiences. They are therefore less likely to capture the latent, general societal culture than the values of representative samples.

We now return to our research goal of measuring cultural values while taking account of the hierarchical structure of the data and eliminating measurement errors by empirically weighting the impact of the individual and cultural value factors on their indicators.

3 Data, Measurements, and Methods

3.1 Data

For measuring Schwartz' cultural value orientations with representative national samples, we used data from the ESS. Although waves 5 and 6 of the World Values Sur-

vey (WVS 2020) also measured the Schwartz values and covered a larger number of countries, its data are inadequate for our purposes because it measures each value with only one indicator and leaves some important concepts out (Datler, Jagodzinski, & Schmidt, 2013). Since 2002, the ESS has collected population data biennially among respondents aged 15 and older. The number of countries included ranged from 21 countries in 2014 (round 7) to 31 in 2008 (round 4).

The ESS includes a 21-item short version of the Portrait Values Questionnaire (PVQ-21, Schwartz, 2007, p. 201, cf. also Appendix A) based on the 40-item PVQ (Schwartz, 2005).[1] A multiple group confirmatory factor analysis (MG CFA: Bollen, 1989) conducted by Davidov, Schmidt, & Schwartz (2008), as well as two further studies using later ESS rounds (Davidov 2008, 2010), found that the 21 questions are insufficient to discriminate all 10 individual values due to high intercorrelations.

However, they are suitable to discriminate seven values obtained by unifying 3 sets of adjacent values, power with achievement, conformity with tradition, and universalism with benevolence. Modelling 10 values separately was not possible. The model produced non-positive definite matrices of the constructs because there were not enough items to measure all the 10 individual values. Furthermore, after unifying the three pairs of values, several cross-loadings, all of which were weaker than the main loadings, were required. The cross-loadings were compatible with the theory. The need for additional cross-loadings suggests that convergent and discriminant validity of the ESS value measures are suboptimal and biased (Brown 2015, pp. 147–57; Ximénez, Revuelta, & Castañeda, 2022), if cross-loadings are not employed. Not including necessary cross-loadings suggested by modification indices may result in deterioration of the global fit of the model, biased correlations and covariances between the factors, and biased estimates of the loadings. Leaving out items that require cross-loadings is not an alternative, as the scale should be used in the form presently used in international research.

Thus, ESS data permitted valid measurement of hedonism (HE), stimulation (ST), self-direction (SD), universalism/benevolence (UNBE), conformity/tradition (COTR), security (SE), and power/achievement (POAC). Preliminary analyses of the data in the current study identified the same seven values and cross-loadings as in previous studies. Building on the previous results and our preliminary analyses, the following empirical analyses examine whether the ESS data permit valid measurement of the seven cultural values while taking account of the hierarchical structure of the data.

Because language may be critical in distinguishing cultures (Schwartz, 2007, pp. 186–87), we subdivided the national samples whenever possible along geographical-language borders. We divided Belgium into Dutch and French speaking regions (excluding Brussels, which is a mixed area of Flemish and French speaking people) and Switzerland into German and French speaking regions (excluding Ticino due to too small sample sizes and Espace which covers German and French speaking regions that cannot be separated). We divided Germany based only on historical rather than language differences. We distinguished the former East and West to reflect possible cultural differences arising from different experiences of communist rule (cf. Schwartz, & Bardi, 1997; Schwartz, 2006, p. 160). Below, we refer to the subdivided units as "countries". The number of country units that participated in any single round of the ESS was fewer than the number of free parameters that the ML CFA had to estimate (Brown, 2015). To address this problem, we analysed data from six ESS rounds (European Social Survey Round 2 Data (2004), Round 3 Data (2006), Round 4 (2008), Round 5 (2010), Round 6 (2012), and Round 7 (2014)).

The number of participating countries differed across the ESS rounds, creating an *unbalanced* country-time point design. Because non-participation in an ESS round cannot be assumed to be random, an unbalanced design would systematically underrepresent some countries, resulting in a systematic bias. To prevent such country-specific bias, we created a *balanced* country-time point design. We did this by replacing the time gaps with data from the survey that was closest to the missing time point (i.e., by the European Social Survey Round 1 Data (2002) and Round 8 Data (2016), cf. Appendix B). In sum, our data set consisted of 234 country-time units. We could not include time as a third level of analysis between respondents and countries (i.e., as a repeated measure within countries) because this would again result in fewer units than free parameters at the country level. We used listwise deletion of individuals with incomplete data. This reduced the sample size from 401,511 to 361,269 respondents. Because we were interested in cultural values, we weighted all country-time sample units equally, giving each country the same weight in the analysis while maintaining the overall sample size (cf. Bruna, 2021).

3.2 Measurements

We measured values with the *Portrait Value Questionnaire (PVQ-21) of the ESS*. Appendix A lists the 21 items of the scale and indicates the individual-level and cultural-

[1] For detailed documentation and data collection procedures, see https://www.europeansocialsurvey.org/. More specific information on the value measures is available under https://ess-search.nsd.no/en/all/query/?q=basic+human+values (see also https://www.europeansocialsurvey.org/docs/findings/ESS_Findings_HVS.pdf).

level values each item operationalizes. Each item describes a person in terms of a valued goal that is important to him or her. Respondents indicate how similar the person described is to himself/herself on a scale ranging from 1 (very much like me) to 6 (not like me at all). We reversed the scale for the analyses.

To validate both the unweighted additive index scores of cultural values and the cultural factor scores obtained from ML CFA, we used data from the ESS round 4 (2008), the round in which the largest number of countries participated. As external criteria we used the seven country-level variables listed below. Four of these had related meaningfully to at least one cultural value orientation in previous studies (Schwartz, Bardi, & Bianchi 2000; Schwartz 2006; Schwartz 2014a). To these we added the Gender Inequality Index and the Rainbow Europe Country Index.

1. The Human Development Index 2007 (UNDP 2019) served as a proxy for level of modernization. Its observed range was from 0.708 (least developed country) to 0.938 (most developed country).
2., 3. Political Rights 2007 and Civil Liberties 2007 (Freedom House 2008). We reversed both indexes to score 1 = "not free" and 7 = "free".
4. The Corruption Perception Index 2007 (Transparency International 2019). We reversed the index to score from 0 = "very clean" to 10 = "highly corrupt".
5. Post-Communist Country, whereby 1 of the 0-1 coded dummy variable stands for countries that were under communist rule in the past.
6. The Gender Inequality Index 2005 (UNDP 2019), reversed by subtracting the score from 1 so that higher scores indicated greater gender equality.
7. The Rainbow Europe Country Index 2010 (ILGA Europe 2019), which measures protection of LGBT people. It ranged from –4 (gross violations of human rights and discrimination of LGBT people) to 10 (respect of human rights and full legal equality of LGBT people).

3.3 Methods

We ran a ML CFA model in order to estimate cultural values using a confirmatory factor analysis (CFA: Bollen, 1989). This ensured a statistically correct decomposition of the variances across different levels of hierarchically structured data (Hox, Moerbeek, & van de Schoot, 2018). A two-level analysis decomposes the total variance of the indicator variables into within variance (level-1 variance σ^2_W) and between variance (level-2 variance σ^2_B). For the so-called empty model (ANOVA model), which is the baseline model that includes no explanatory variables (i.e., no latent factors as in the fully specified ML CFA), the equation for the variance decomposition of both levels can be written as follows (cf. also Muthén, 1991, p. 344):

$$\begin{array}{ll} \text{Level 1 (within)} & \text{Level 2 (between)} \\ y_{kij} = \alpha_{kj} + \varepsilon_{Wkij} & \alpha_{kj} = \upsilon_k + \varepsilon_{Bkj} \end{array} \quad (1)$$

where y_{kij} refers to the observed value of the micro-level unit i (in our case respondent i) of macro-unit level j (in our case country-time point unit j) on value indicator k. α_{kj} refers to the mean of the value indicator k of the macro-level unit j, υ_k refers to the grand mean of the value indicator k, ε_{Wkij} refers to the within-level error term ε_W for the micro-level unit i of the macro-level unit j on the value indicator k, and ε_{Bkj} refers to the between-level error term ε_B (usually called random component in multilevel analysis) for the macro-level unit j on the value indicator k. Inserting the level-2 equation into the level-1 equation leads to the following single equation for the variance decomposition of the empty ANOVA model:

$$y_{kij} = \upsilon_k + \varepsilon_{Bkj} + \varepsilon_{Wkij}. \quad (2)$$

In this equation, ε_{Bkj} measures the country-time specific deviation from the grand mean of υ_k, whereas ε_{Wkij} measures a respondent-specific deviation from his or her country-time mean. Based on the decomposed variance-covariance matrix (one for the within-level and one for the between-level), the two-level CFA can be estimated by including latent factors into the empty ANOVA model (cf. also Muthén, 1991, p. 344):

$$\begin{array}{ll} \text{Level 1 (within)} & \text{Level 2 (between)} \\ y_{kij} = \alpha_{kj} + \lambda_{Wk} \cdot \eta_{Wij} & \alpha_{kj} = \upsilon_k + \lambda_{Bk} \cdot \eta_{Bj} \\ \quad + \varepsilon_{Wkij} & \quad + \varepsilon_{Bkj}. \end{array} \quad (3)$$

These equations can be rewritten as

$$y_{kij} = \upsilon_k + \lambda_{Wk} \cdot \eta_{Wij} + \lambda_{Bk} \cdot \eta_{Bj} + \varepsilon_{Wkij} + \varepsilon_{Bkj}, \quad (4)$$

where α_{kj} refers to the intercept of a value indicator k of a respective country-time unit, υ_k refers to the grand mean of a the intercept of a value indicator k, λ_{Wk} and λ_{Bk} refer to the factor loadings at the within-level and the between-level respectively, η_{Wij} and η_{Bj} refer to the latent factors at the within-level and the between-level respectively, and ε_{Wkij} and ε_{Bkj} refer to the within-level residual and the between-level residual, respectively.

Thus, ML CFA allows us to use the same indicator items for both levels of analysis to estimate both Schwartz' individual and cultural values simultaneously. The cultural values are retrieved at level 2 from differences between countries, i.e., as deviations of the country-time specific means from grand means across all countries. How suc-

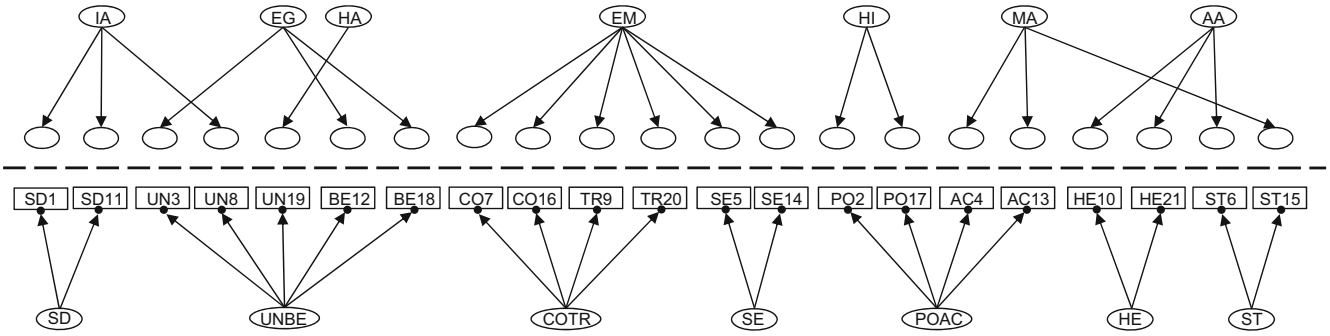

Fig. 3

The Examined Multilevel Model (Cross Loadings Not Included) Notes: Cultural Values (the upper part of the figure, cf. Schwartz, 2006, p. 148): IA Intellectual Autonomy, EG Egalitarianism, HA Harmony, EM Embeddedness, HI Hierarchy, MA Mastery, AA Affective Autonomy. Individual Values (the lower part of the figure, cf. Davidov, Schmidt, & Schwartz, 2008, p. 437): SD Self-Direction, UNBE Universalism/Benevolence, COTR Conformity/Traditionalism, SE Security, POAC Power/Achievement, HE Hedonism, ST Stimulation.

cessfully cultural values are internalized by the individuals is captured in ML CFA by the respondent specific deviations from his or her country-time point means.

Fig. 3 displays the ML CFA with a horizontal dashed line distinguishing between the individual (lower part) and the country (upper part) levels of analysis. The lower part depicts the structure for the individual level (within level or level 1), the upper part depicts the structure for the country level (between level or level 2). The value indicators are drawn as rectangles, the intercepts and means at level 2 as well as the factors of the latent values as ellipses. The filled circles at the end of the arrows from the within factors represent random intercepts that refer to the latent ellipses in the between part of the model directly above the within indicators (cf. also Muthén, & Muthén, 1998–2017). For the sake of simplicity, Fig. 3 does not include residual terms.

To avoid underestimation of standard errors caused by using country-time points, we used full maximum likelihood with *robust standard errors*, instead of the lower number of countries at level 2. This also corrects for heteroscedastic error terms (sandwich or Huber-White estimators, cf. Wooldridge, 2019, pp. 263–267; Hox, Moerbeek, & van de Schoot, 2018, p. 12 and pp. 247–250). This, however, does not address the problem of serially correlated error terms (some data sets were used more than once, cf. Appendix B), which might also cause biased estimates of standard errors. This problem is frequently solved by using *cluster-robust standard errors* (Wooldridge, 2019, pp. 398–400), but they are not available for ML CFA. We therefore abstain from interpreting p-values of the unstandardized factor loadings. Instead, we rely on standardized b-coefficients (factor loadings), which are the product of the unstandardized b-coefficient and the ratio of the standard deviations (i.e., the square root of the variances) of the predictor and the dependent variables (Brown, 2015, p. 119).

The above procedures of the ML CFA model produced *factor scores* for each cultural value orientation. For the final analysis, we also computed unweighted additive mean scores (simple means) for each cultural value orientation. To assess the relative external validity of the simple mean scores of the cultural values versus the cultural value factor scores derived from the ML CFA, we compared their correlations with the external variables. We used the computer program Mplus 8.3 (Muthén, & Muthén, 1998–2019) to perform the analyses.

4 Empirical Analyses and Results

4.1 ML CFA

Appendix C displays the grand mean, the country-time point variance, the respondent-level variance, and the intra-class-correlation coefficient (ICC, cf., for instance, Snijders, & Bosker, 2012, pp. 17–23) for each of the 21 ESS items. Before modern multilevel software was available, an ICC of 0.05 and lower was frequently used as a rule of thumb for justifying *why multilevel modeling was not needed* (cf. also Heck, & Thomas, 2009, p. 21; Brown, 2015, p. 421; Kyriazos, 2019, p. 784). Because ML CFA tries to explain the between-level variance of the indicators, modern multilevel modelling more strongly emphasizes the amount of the between-level variances. The ICCs of the items were higher than 0.05 except for SD1, SD11, UN3, ST6, and ST15.

In the next step, we estimated the individual and cultural values with ML CFA, because cultural values may systematically cause even small variances at level 2. At the individual level (level-1), we assigned the 21 ESS items to values following Davidov, Schmidt, and Schwartz (2008, p. 437; see also Davidov 2008, 2010) and included the five cross-loadings those authors introduced. Based on our analysis, we dropped the cross-loading of PO2 on COTR, the weakest cross-loading in Davidov, Schmidt, and Schwartz (2008), because it was negligible in our case. At the country level (level 2), we assigned the 21 ESS items to the seven cultural value orientations (Schwartz, 2006; see Appendix A).

The level-1 results indicated that, as in Davidov, Schmidt, and Schwartz (2008), the ESS data permit distinguishing and measuring seven individual values. Fig. 4 reveals that the order of these individual values follows the theorized circular structure. As on the country-level, almost all standardized primary factor loadings on the individual level were greater than 0.5.

The analysis further indicated that two pairs of *cultural* value orientations had to be unified because they were too highly correlated. This was evidenced by an error message indicating a nonpositive definite matrix, implying multicollinearity of the constructs. This occurs either when there are not enough items to measure the theoretical constructs or when the data lack convergent and discriminant validity. It results in correlations close to 1.0 or greater than 1. Unifying such factors is a typical solution (for a discussion, see Wothke, 1993). We unified the adjacent hierarchy and mastery values into HIMA, and the adjacent affective autonomy and intellectual autonomy values into AAIA.

The global fit measures of this modified full ML CFA model were: 0.020 (RMSEA), 0.907 (CFI), 0.031 (SRMR within), and 0.175 (SRMR between). As a rule of thumb, a model has a reasonably good fit if the RMSEA value is close to or less than 0.06, the SRMR value is 0.08 or less, and the CFI values are close to 0.95 or greater (Hu, & Bentler, 1999, p. 27; cf. also Brown, 2015, p. 74). The RMSEA and the SRMR within fit reasonably well, the CFI and the SRMR did not.

According to theory, the cultural values form a circular structure. It is therefore justified to add negative cross-loadings between cultural values opposed in the circle and positive cross-loadings between cultural values adjacent in the circle. Otherwise, model parameters would be biased (see, e.g., Brown, 2015, pp. 147–57; Ximénez, Revuelta, & Castañeda, 2022). Davidov, Schmidt, and Schwartz (2008, cf. also Davidov, 2008, 2010) added cross loadings to account for the interrelations between items and factors that they were not originally intended to measure. These cross-loadings were lower than the main loadings. They did not jeopardize the interpretation of the value constructs because the items' main loadings were clearly assigned to their target value factors. Following their approach, we added seven theoretically justified cross-loadings to the model based on the modification indices (see Fig. 4, where primary factor loadings are in bold). The global fit measures of this model were 0.020 (RMSEA), 0.909 (CFI), 0.031 (SRMR within), and 0.071 (SRMR between). Although the CFI does not fully meet the criterion recommended by Hu and Bentler (1999, p. 27), three of the four global fit measures have a reasonably good fit. Thus, overall, the model is acceptable, albeit not optimal.

In Fig. 4, the standardized factor loadings appear below the unstandardized factor loadings. All standardized primary factor loadings of the country-level part of the model were large, exceeding 0.5 (cf. Cohen, 1992, pp. 156-157), except for one. The standardized factor loading of item ST15 on the AAIA cultural value was no stronger than 0.359. All cultural value orientations followed the circular order expected by theory except harmony (HA). Two pairs of cultural value orientations were highly correlated, affective and intellectual autonomy (AAIA) with egalitarianism (EG) and embeddedness (EM) with hierarchy-mastery (HIMA) (0.854 and 0.910, respectively). Nonetheless, the model implied that they could be represented as distinct cultural values. Hence, the theoretical structure of the data of cultural value orientations was largely confirmed in the ESS data.

4.2 External Validation

To assess the relative external validity (i.e., predictive validity, cf. Brown, 2015) of the simple mean scores of the cultural values versus the cultural value factor scores de-

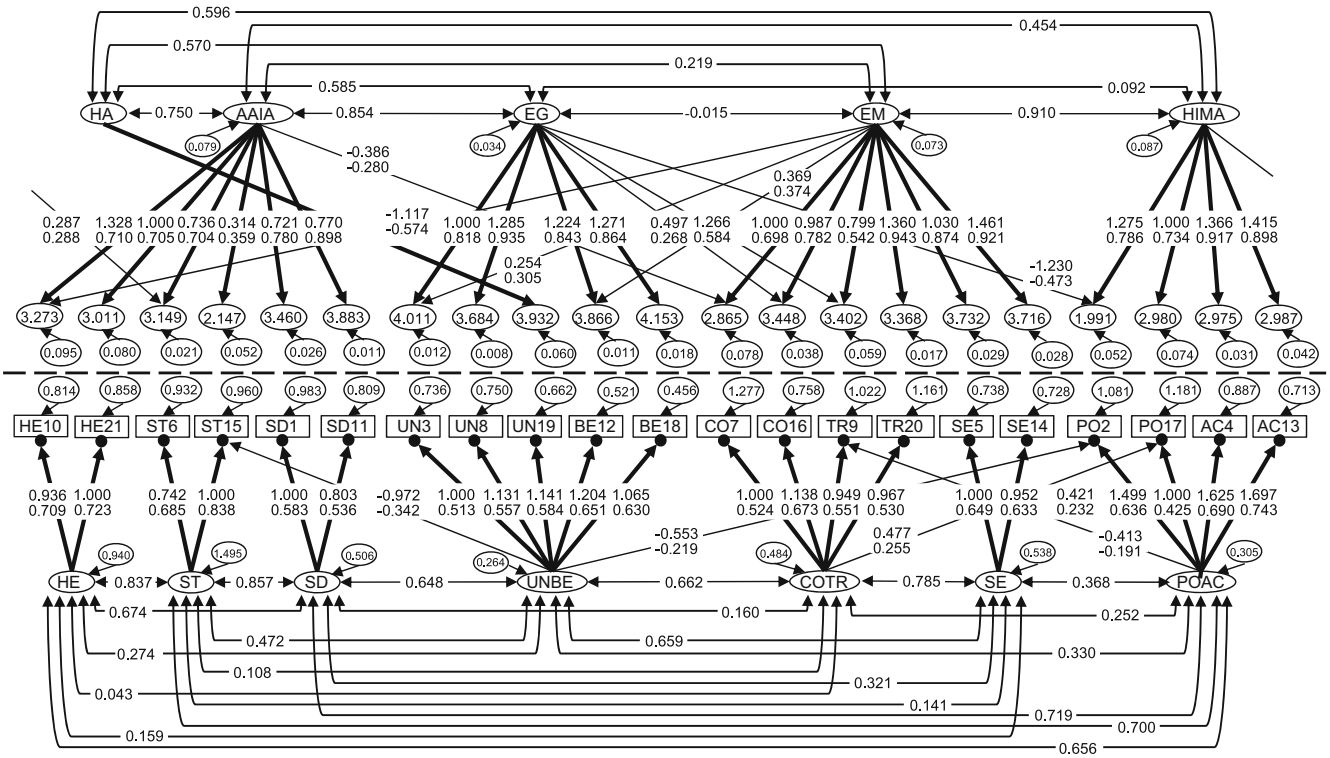

Fig. 4

Multilevel Confirmatory Factor Analysis (ML CFA) of Individual Basic Human Values and Cultural Value Orientations Notes: Primary factor loadings in bold; standardized factor loadings printed below unstandardized factor loadings; for latent variables only correlations reported; Data: ESS (cf. Appendix B); 361,269 respondents from 39 countries (i.e., 234 country-time units, number of free estimated parameters: 147), all country-time points equally weighted without increasing the net sample size at the respondent level, listwise exclusion of missing values.

rived from the ML CFA, we compared their correlations with the external variables. We used the data from the 2008 ESS round because it included the largest number of countries.

We first examined associations with the Human Development Index (HDI), an indicator of social and economic development. Development increases individual resources, thereby reducing people's dependency on the extended family or group. It provides people with greater opportunities to make independent choices, pursue autonomy, and take personal responsibility. For societies, cultivating individual uniqueness and responsibility are important because it requires diverse skills, knowledge, interests, and innovation to cope successfully with the tasks, challenges, and rapid change that development brings. Hence, development should foster cultural autonomy (especially intellectual autonomy) and egalitarianism and curb embeddedness and hierarchy, as found by Schwartz (2014a). We therefore expected HDI to correlate positively with autonomy and egalitarianism values and negatively with embeddedness and hierarchy values.

We also examined associations with various aspects of democratization, including political rights, civil liberties, gender equality, and equal rights for LGBT. Cultural egalitarianism emphasizes the equal moral worth of all individuals and cultural autonomy emphasizes the right of individuals to pursue their uniqueness. In contrast, cultural hierarchy legitimizes the subordination of some to others and cultural embeddedness emphasizes following group traditions rather than individual desires. Both Inglehart and Welzel (2005) and Schwartz (2006, 2014a) provide arguments and findings compatible with this reasoning. We therefore expected indexes of political rights, civil liberties, gender equality, and support for LGBT rights to correlate negatively with

Table 1

Bivariate Correlations Between Cultural Values and Macro-Indicators – Comparing Factor Scores with Unweighted Additive Index Scores (Simple Means)

	EM (Score)	EM (Mean)	HIMA (Score)	HIMA (Mean)	HI (Mean)	MA (Mean)	HA (Score)
Human Development Index 2007[a]	**–0.691****	–0.632**	–0.574**	**–0.608****	–0.591**	–0.547**	**–0.161**
Political Rights 2007[a]	**–0.437****	–0.383*	–0.396*	**–0.477****	–0.539**	–0.356*	**–0.167**
Civil Liberties 2007[a]	**–0.503****	–0.461**	–0.476**	**–0.546****	–0.544**	–0.479**	**–0.186**
Gender Equality Index 2005[b]	**–0.613****	–0.566**	–0.562**	**–0.612****	–0.611**	–0.522**	**–0.112**
Rainbow Europe Country I. 2010[c]	**–0.637****	–0.570**	–0.596**	**–0.642****	–0.627**	–0.568**	–0.258
Corruption Perception Index 2007[a]	**0.790****	0.726**	0.657**	**0.688****	0.672**	0.617**	**0.205**
Post-Communist Country	**0.404***	0.335*	0.278	**0.307**	0.305	0.270	–0.005

	HA (Mean)	AAIA (Score)	AAIA (Mean)	AA (Mean)	IA (Mean)	EG (Score)	EG (Mean)
Human Development Index 2007[a]	–0.159	0.155	**0.197**	0.152	0.273	**0.361***	0.214
Political Rights 2007[a]	–0.166	0.019	**0.071**	0.065	0.075	**0.177**	0.077
Civil Liberties 2007[a]	–0.184	**–0.045**	–0.012	–0.039	0.053	**0.115**	0.001
Gender Equality Index 2005[b]	–0.109	**0.104**	0.102	0.050	0.212	**0.314**	0.220
Rainbow Europe Country I. 2010[c]	–0.258	0.021	**0.101**	0.122	0.035	**0.278**	0.185
Corruption Perception Index 2007[a]	0.202	–0.140	**–0.218**	–0.203	–0.217	**–0.366***	–0.215
Post-Communist Country	–0.005	–0.361*	**–0.417****	–0.397*	–0.398*	**–0.538****	–0.453**

N = 39 countries, data from ESS round 4, 2008;
[a] Data for Kosovo from Serbia 2007 (Kosovo became independent from Serbia in 2008), [b] No data for Kosovo, [c] No data for Israel; For each macro-indicator, the strongest correlation with the index of a given unified or single cultural value (e.g., the HIMA score, HIMA mean, HI or MA mean) is printed in bold. Cultural Values: *EM* Embeddedness, *HIMA* unified Hierarchy and Mastery, *HA* Harmony, *AAIA* unified Affective and Intellectual Autonomy, *EG* Egalitarianism, *HI* Hierarchy, *MA* Mastery, *AA* Affective Autonomy, *IA* Intellectual Autonomy; Components of Unweighted Aggregated Value Means (see Appendix A for item names):
EM = (TR9+TR20+CO7+CO16+SE5+SE14)/6, HIMA = (PO2+PO17+AC4+AC13)/4,
AAIA = (HE10+HE21+ST6+ST15+SD1+SD11)/6, EG = (UN3+UN8+BE12+BE18)/4,
HA = UN19, HI = (PO2+PO17)/2, MA = (AC4+AC13+)/2,
AA = (HE10+HE21+ST6+ST15)/4, IA = (SD1+SD11)/2
Bivariate correlations between the factor scores and the respective simple means:
0.976 for EM, 0.965 for HIMA, 1.000 for HA, 0.934 for AAIA, and 0.977 for EG.
* $p \le 0.05$, ** $p \le 0.01$ (two-tailed)

embeddedness and hierarchy values and positively with autonomy (especially intellectual autonomy) and egalitarianism values.

We further examined associations with the level of corruption in countries, using the Transparency International (TI) index of perceived corruption. Cultural embeddedness and hierarchy values are likely to promote corruption because they encourage people to put allegiances to their "family, in-group, or superiors ahead of rational, bureaucratic considerations" (Schwartz, 2014a, p. 570). This can justify corrupt behavior to benefit personal, family, and group interests. Egalitarian cultural values, in contrast, discourage taking advantage of others. We therefore expected that the TI index of corruption correlates positively with embeddedness and hierarchy values and negatively with egalitarianism values.

Finally, we examined associations of the cultural value orientations with the experience of living under communism. Schwartz, Bardi, and Bianchi (2000) reported that embeddedness (labeled 'conservatism' by those authors) and hierarchy values were higher and egalitarianism and autonomy values lower in post-Communist than in West European countries. They elaborated how these differences might result from people's need to adapt to the day-to-day reward contingencies and opportunities under oppressive communist regimes. We expected to replicate these findings. Table 1 presents the bivariate correlations of the macro-level indicators with the cultural value factor scores from the ML CFA and simple means of the cultural values.

In Table 1, the correlations for both the factor score and the simple mean (unweighted additive index) of embeddedness values fully supported our expectations. This was also the case for hierarchy/mastery values except for their correlations with post-communism, which were in the expected direction but not significant. The correlations for egalitarianism values were also all in the expected direc-

tion, but those with the four indicators of democratization and equality were weak. Finally, affective/intellectual autonomy values related significantly as expected only to post-communism. In sum, the correlations with macro-indicators provided strong external validation of the ESS measures of embeddedness and hierarchy/mastery values and moderate external validation of the ESS measure of egalitarianism values. However, the weak correlations for affective/intellectual autonomy cast doubt on the adequacy of the ESS measure of that value. Past research suggested no correlations of harmony values with the macro-indicators we studied, and indeed none were found.

As noted earlier, simple mean indexes, although popular, do not completely eliminate random measurement errors. Simple means therefore tend to underestimate the strength of bivariate relationships with other variables (Fleiss, 1999 [1986], pp. 3–4; Bollen, 1989, pp. 154–167; see also Datler, Jagodzinski, & Schmidt, 2013, p. 915). The patterns of correlation with the macro-indicators were similar for the factor scores and the simple means. However, as expected, the factor scores for embeddedness and egalitarianism exhibited somewhat stronger correlations than the simple means (stronger correlations for the same values are printed in bold).

The factor score for hierarchy/mastery exhibited no advantage over the simple mean. Perhaps this occurred because the ML CFA required unifying these pairs of adjacent cultural values, rather than estimating each separately. The ML CFA showed that the indicators of mastery (AC4 and AC13) loaded more strongly on the hierarchy/mastery factor score than the indicators of hierarchy (PO2 and PO17). Hence, mastery had more weight in the factor score than hierarchy did. The correlations with macro-indicators that we expected were all based on reasoning and past findings for hierarchy, not for mastery. The correlations of the simple means were stronger for hierarchy than for mastery in every case. Thus, the greater weight of mastery in the hierarchy/mastery factor score probably weakened its correlations. This was not the case for the simple mean because all its component items received the same weight.

In our combined AAIA cultural value orientation AA is measured by 4 indicators with high averaged factor loadings whereas IA is measured by 2 indicators with weaker factor loadings on average. Hence, the combined AAIA cultural value orientation represents AA more strongly than IA. Our theoretical expectations concerning the relations between the macro indicators and AAIA were, however, mainly based on IA. This may explain why the factor score of AAIA correlated somewhat more weakly with our macro-indicators than the simple mean of AAIA.

5 Summary and Discussion

In 2004, Schwartz presented a theory of seven cultural value orientations that form three more abstract cultural value dimensions. The seven values are harmony, embeddedness, hierarchy, mastery, affective autonomy, intellectual autonomy, and egalitarianism. He operationalized these values with the 57-item Schwartz Value Scale and demonstrated they were useful for differentiating among cultures (Schwartz, 2004, 2006). The current study aimed to measure these cultural values with data from the 21-item *ESS Human Values scale* of the PVQ while taking account of the hierarchical structure of the data, controlling for measurement errors, and empirically weighting the impact of the individual and cultural value factors on their indicators. Derived cultural value factor scores from ESS data would allow researchers to utilize the extensive values data from the ESS to measure and compare cultural values across European countries and to examine their causes and consequences.

We assessed the cultural values with ESS values data for 234 country-time units from ESS rounds 2–6. We used ML CFA to measure the cultural values for the first time. This made it possible to take account of both the hierarchical structure of the data and measurement errors, and to weight the impact of the latent values on the indicator items empirically.

The ML CFA analysis indicated that two pairs of cultural values had to be unified because they were too highly correlated. We unified the adjacent hierarchy and mastery values into HIMA and the adjacent affective autonomy and intellectual autonomy values into AAIA, yielding five distinctive cultural value orientations. The cultural values followed the theorized circular order with the exception of the single item harmony factor. This supported the conceptualization of cultural values as ordered in a circle.

The external validation provided further support for the cultural values measurement with ESS data. With some minor exceptions, the different cultural values related to macro-level indicators in meaningful, expected ways. Hence, cultural value factor scores derived from ML CFA can be confidently used for analysing substantive theoretical questions. The same applies to simple means, although they will probably underestimate the strength of the theoretically assumed bivariate relationships somewhat (cf. Fleiss, 1999 [1986], pp. 3–4; Bollen, 1989, pp. 154–167; Datler, Jagodzinski, & Schmidt, 2013, p. 915). In cases where ML CFA was unable to discriminate between adjacent cultural values (e.g., HIMA and AAIA) and the theoretical expectations are formulated for one of the cultural values, a simple mean (additive index) for the single cultural value is preferable over factor scores for the combined cultural values. Simple means can also be used when data restric-

tions (too few countries or country-time points) do not allow conducting ML CFA. With these considerations in mind, researchers may confidently use the cultural value factor scores derived from the ML CFA or the simple means to systematically address numerous new questions. For example: How do cultural values and their change over time help us to understand country differences in policies regarding immigration, refugees, welfare systems, health care, and epidemics like the Corona virus?

This study is not without limitations. The ML CFA of the ESS data enabled us to discriminate only five of the seven cultural value orientations in the theory. This might be because the ESS scale measures values with only 21 items. Distinguishing all seven values might yield better explanatory and predictive power than in the current study. Using longer value scales (e.g., the 40-item PVQ (Schwartz, 2005)), researchers might succeed in deriving factor scores for all seven cultural values.

The validation results differed little whether based on the multilevel CFA or the simple means. Yet, computing the CFA was much more complicated. One might therefore ask: 'Was the lemonade worth the squeezing?' Unlike the current case, however, there could be instances in which multilevel CFA yields scores quite different from simple indexes. Because multilevel CFA controls for measurement errors and weights the impact of the factors on their indicators empirically, it has merits over simple index computation. Therefore, we find it worthwhile to illustrate the method.

Value research has mainly focused on individual value priorities, their antecedents and consequences. However, as Coleman (1994) put it in his seminal book on foundations of social theory and Pettigrew (2018, 2021) affirmed more recently, the cultural level, represented by contextual variables, plays a major role in explaining individual behavior and social phenomena. Indeed, the effects of cultural and individual values could be combined to explain social phenomena, and these effects may not only be additive. Culture may moderate the influence of individual values. Across time, cultural values are in turn also a function or consequence of individual values (cf. also Dülmer, 2021). Thus, cultural value orientations are a significant aspect of contexts. Cultural values have proven beneficial and fruitful for studying both similarities and differences across societies and for explaining individual attitudes and behavior within societies (e.g., Kuntz, Davidov, Schwartz, & Schmidt, 2015; Davidov, Seddig, Gorodzeisky, Raijman, Schmidt, & Semyonov, 2020). The availability of reliable and valid cultural value measures is crucial for implementing such research. Our study provides valid and reliable factor scores for cultural value orientations based on ML CFA in data from six ESS rounds covering up to 39 countries (cf. Appendix B).

In sum, this study suggests that factor scores from the ESS data may be used to measure five cultural value orientations and seven individual values distinguished by Schwartz. The ESS has included the 21 value items since its inception in 2002 and continues to include them in each round. Consequently, the ESS is a promising vehicle for studying stability and change in European cultural values. Such research can reveal fundamental societal change in response to such external shocks as economic crises, the influx of refugees, and, recently, the corona virus crisis.

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Appendix

Appendix A

Table A1

The 21-Items of the ESS Portrait Values Questionnaire (PVQ-21, Female Version), and Their Corresponding Individual-level and Cultural-level Values

Individual Value	Item # Item Formulation	Cultural Value
SD: Self-Direction	1:Thinking up new ideas and being creative is important to her. She likes to do things in her own original way.	**IA**: Intellectual Autonomy
	11:It is important to her to make her own decisions about what she does. She likes to be free and not dependent on others.	**IA**: Intellectual Autonomy
UN: Universalism	3:She thinks it is important that every person in the world be treated equally. She believes everyone should have equal opportunities in life.	**EG**: Egalitarianism
	8:It is important to her to listen to people who are different from her. Even when she disagrees with them, she still wants to understand them.	**IA**: Intellectual Autonomy
	19:She strongly believes that people should care for nature. Looking after the environment is important to her.	**HA**: Harmony
BE: Benevolence	12:It's very important to her to help the people around her. She wants to care for their well-being.	**EG**: Egalitarianism
	18:It is important to her to be loyal to her friends. She wants to devote herself to people close to her.	**EG**: Egalitarianism
CO: Conformity	7:She believes that people should do what they're told. She thinks people should follow rules at all times, even when no-one is watching.	**EM**: Embeddedness
	16:It is important to her always to behave properly. She wants to avoid doing anything people would say is wrong.	**EM**: Embeddedness
TR: Tradition	9:It is important to her to be humble and modest. She tries not to draw attention to herself.	**EM**: Embeddedness
	20:Tradition is important to her. She tries to follow the customs handed down by her religion or her family.	**EM**: Embeddedness
SE: Security	5:It is important to her to live in secure surroundings. She avoids anything that might endanger her safety.	**EM**: Embeddedness
	14:It is important to her that the government insures her safety against all threats. She wants the state to be strong so it can defend its citizens.	**EM**: Embeddedness
PO: Power	2:It is important to her to be rich. She wants to have a lot of money and expensive things.	**HI**: Hierarchy
	17:It is important to her to get respect from others. She wants people to do what she wants.	**HI**: Hierarchy
AC: Achievement	4:It's important to her to show her abilities. She wants people to admire what she does.	**MA:** Mastery
	13:Being very successful is important to her. She hopes people will recognise her achievements.	**MA**: Mastery
HE: Hedonism	10:Having a good time is important to her. She likes to "spoil" herself.	**AA**: Affective Autonomy
	21:She seeks every chance she can to have fun. It is important to her to do things that give her pleasure.	**AA**: Affective Autonomy
ST: Stimulation	6:She likes surprises and is always looking for new things to do. She thinks it is important to do a lot of different things in life.	**AA**: Affective Autonomy
	15:She looks for adventures and likes to take risks. She wants to have an exciting life.	**MA**: Mastery

Appendix B

Table B1

Datasets from the European Social Survey (ESS) Used to Close Existing Data Gaps in Time

Country	Round 2 (2004)	Round 3 (2006)	Round 4 (2008)	Round 5 (2010)	Round 6 (2012)	Round 7 (2014)
Albania	R6 (2012)	R6 (2012)	R6 (2012)	R6 (2012)		R6 (2012)
Austria					R5 (2010)	
Belgium						
Bulgaria	R3 (2006)					R6 (2012)
Croatia	R4 (2008)	R4 (2008)			R5 (2010)	R5 (2010)
Cyprus	R3 (2006)					R6 (2012)
Czech Republic		R2 (2004)				
Denmark						
Estonia						
Finland						
France						
Germany						
Greece		R2 (2004)			R5 (2010)	R5 (2010)
Hungary						
Iceland		R2 (2004)	R6 (2012)	R6 (2012)		R8 (2016)
Ireland						
Israel	R1 (2002)	R4 (2008)				
Italy		R2 (2004)	R6 (2012)	R6 (2012)		R8 (2016)
Kosovo	R6 (2012)	R6 (2012)	R6 (2012)	R6 (2012)		R6 (2012)
Latvia	R3 (2006)			R4 (2008)	R4 (2008)	R4 (2008)
Lithuania	R4 (2008)	R4 (2008)				
Luxembourg		R2 (2004)	R2 (2004)	R2 (2004)	R2 (2004)	R2 (2004)
Netherlands						
Norway						
Poland						
Portugal						
Romania	R3 (2006)			R4 (2008)	R4 (2008)	R4 (2008)
Russian Federation	R3 (2006)					R8 (2016)
Slovakia						R6 (2012)
Slovenia						
Spain						
Sweden						
Switzerland						
Turkey		R2 (2004)		R4 (2008)	R4 (2008)	R4 (2008)
Ukraine						R6 (2012)
United Kingdom						

By using possible geographical cultural borders, the data for Belgium were split into a Dutch and a French speaking region (excluding Brussels which is a mixed area of Flemish and French speaking people), the data from Switzerland into a German and a French speaking region (excluding Ticino due to too small sample sizes and Espace which covers German and French speaking regions that cannot be separated), and the data from Germany into the former East and the former West.

Appendix C

Table C1

Grand Means, Variance Decomposition, and ICC of the 21 PVQ Items

Item k	Grand Mean (v_k)	Variance Decomposition:		Proportion of Country Level Variance in the Total Variance
		Country Level ($\widehat{\sigma^2}_{Bk}$)	Respondent Level ($\widehat{\sigma^2}_{Wk}$)	ICC = $\frac{\widehat{\sigma^2}_{Bk}}{\widehat{\sigma^2}_{Bk}+\widehat{\sigma^2}_{Wk}}$
Self-Direction SD1	3.458	0.067	1.489	0.043
Self-Direction SD11	3.882	0.057	1.135	0.048
Universalism UN3	4.010	0.050	1.000	0.048
Universalism UN8	3.684	0.064	1.088	0.055
Universalism UN19	3.932	0.060	1.006	0.057
Benevolence BE12	3.865	0.071	0.904	0.072
Benevolence BE18	4.152	0.073	0.755	0.088
Conformity CO7	2.864	0.149	1.761	0.078
Conformity CO16	3.448	0.116	1.385	0.077
Tradition TR9	3.402	0.158	1.434	0.100
Tradition TR20	3.367	0.151	1.613	0.086
Security SE5	3.733	0.122	1.277	0.087
Security SE14	3.716	0.182	1.216	0.130
Power PO2	1.990	0.229	1.690	0.119
Power PO17	2.980	0.161	1.688	0.087
Achievement AC4	2.976	0.192	1.691	0.102
Achievement AC13	2.986	0.216	1.590	0.120
Hedonism HE10	3.273	0.275	1.637	0.144
Hedonism HE21	3.011	0.159	1.798	0.081
Stimulation ST6	3.148	0.086	1.755	0.047
Stimulation ST15	2.146	0.061	2.128	0.028

Data: ESS (cf. Appendix B). 361,269 respondents from 39 countries (234 country-time units). Full Maximum-Likelihood with Robust Standard Errors. All variance components ($\widehat{\sigma^2}_{Bk}$) for the country level are highly significant ($p \leq 0.01$). Before modern multilevel software was available, an ICC of 0.05 or lower was frequently used as a rule of thumb for justifying why multilevel modelling was not necessary (cf. also Heck, & Thomas, 2009; Brown, 2015, p. 421; Kyriazos, 2019, p. 784). A disadvantage of the ICC is that as a proportion it masks the total variance on the within level $\widehat{\sigma^2}_{Wk}$ and on the between level $\widehat{\sigma^2}_{Bk}$, which for the empty ANOVA model can both be interpreted as unexplained variance (Hox, Moerbeek, & van de Schoot, 2018, p. 13). Although the variance at the within and between level differ strongly (same answer scale assumed), the ICC is in the following fictitious example completely unaffected by this important difference:
ICC = $\frac{0.1}{0.1+0.3} = \frac{0.4}{0.4+1.2} = 0.25$.
Since ML CFA tries to explain the between-level variance of the indicators, the main focus of modern multilevel modelling has shifted from the ICC to the amount of the between-level variance. Therefore, an ML CFA is also in this case meaningful.