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Cultural clusters: methodology and findings

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Abstract

There has been almost a half century of effort to identify clusters of societies using the analysis of international-level data. Using the data collected on cultural values and beliefs from 61 nations, GLOBE proposed 10 *a priori* clusters and used discriminant analysis to confirm the clusters in a split half sample. Cross-validation was performed on the hold out sample. The results provide strong support to the existence of 10 cultural clusters: South Asia, Anglo, Arab, Germanic Europe, Latin Europe, Eastern Europe, Confucian Asia, Latin America, Sub-Sahara Africa, and Nordic Europe. © 2002 Published by Elsevier Science Inc.

1. Introduction

There has been almost a half century of effort to identify clusters of societies using the analysis of international-level data (Cattell, 1950). Clusters provide important information regarding societal variation and are a useful way to summarize intercultural similarities as well as intercultural differences. Cluster-based information can assist in theory development. Judicious sampling within and across societal clusters can test potential boundary conditions for management theories and interventions. Clusters may also be used to guide the sampling strategy for cross-cultural research to ensure that an adequate sampling of cultural variability is included in the samples. Researchers can also test the generalizability of empirical findings obtained in one culture to other cultures.

Clustering of societies is also beneficial from a managerial and practical point of view. While many researchers have explored differences among societies, it is useful to examine cultural similarities because multinational corporations may find it less risky and more profitable to expand into more similar cultures rather than those which are drastically different. For example, a recent study by the consulting firm KPMG found that the returns of cross-border mergers between U.S. and U.K. firms were 45% more successful than the average rate of return of all cross-border deals, while the mergers between U.S. and other European firms were 11% less successful than the average (Levy, 2001).

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2. Clustering of societies

Scholars have used three major forces to group countries into similar clusters: (a) geographic proximity (Furnham, Kirkcaldy, & Lynn, 1994); (b) mass migrations and ethnic social capital (Portes & Zhou, 1994); and (c) religious and linguistic commonality (Cattell, 1950). Social and psychological variables such as attitudes, values, and work goals have also been used to cluster countries (Haire, Ghiselli, & Porter, 1966; Ronen & Shenkar, 1985). Additional empirically-based studies also support other factors as cultural differentiators including the degree of modernity, economic development (e.g., percentage of services sector, income per capita) and socio-political development (e.g., public health care, social security) (Brodbeck et al., 2000; Chemers, 1997).

The earliest impetus to clustering research can be traced to the pioneering works of Toynbee (1947) and Cattell (1950). Toynbee identified 21 distinct living or extinct cultural patterns across civilizations, of which five types of clusters were still surviving: Western, Orthodox Christian, Islamic, Hindu, and Far Eastern. Cattell (1950) analyzed about 80 variables to construct 12 factor dimensions that measured various psychological, sociological, demographic, and economic characteristics of the societies within his sample. He identified several clusters using average Euclidean distances between the factor scores for each pair of countries. The societal clusters included (1) Catholic Homeland, (2) Catholic Colonial (including Latin American countries), (3) Eastern European, (4) Nordic, (5) Islamic, (6) East Baltic, (7) Hamitic (including Arab societies), and (8) Oriental (India

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and China). In his study, the larger developed nations, such as France, Germany, the U.K., the U.S., the Soviet Union, and Japan, could not be clustered with any of these, and emerged as independent units in the analysis. In a review paper, Woliver and Cattell (1981) noted that 12–20 factors are necessary for full cluster descriptions.

Using 3641 respondents in 14 countries, Haire, Ghiselli, and Porter (1966) surveyed Maslow need satisfaction, attitude towards democratic managerial practice, and cognitive descriptions of the managerial role. The resulting societal clusters showed strong economic patterns and religion-language sub-patterns within each economic grouping. Later, Sirota and Greenwood (1971) surveyed 13,000 sales, technical and service personnel in 25 nations, and collected data on 14 work goals. The economic and religion-language patterns were still perceptible in the resulting clusters; however, some anomalies surfaced as Latin American nations were mapped together with Sweden and Israel. Brazil, Japan and India did not group in a meaningful interpretable way with other societies.

In another study, Ronen and Kraut (1977) studied the importance of 15 work goals using a sample of 4000 technicians in 15 nations. Though the number of nations in the sample was small, the clusters had strong religion-language basis. Hofstede's (1976) study of 315 middle-level managers representing 26 nationalities on a set of 12 scales measuring personal and interpersonal values, indicated that the national groupings on the basis of values could be interpreted in terms of religion, language and geography. Hofstede (1980) replicated these results using the survey of IBM managers representing a much larger sample of nationalities, and found that Japan was isolated from the Far Eastern cluster of nations—indicating some moderating role of economic factors. More recently, Furnham, Kirkcaldy, and Lynn (1994) surveyed 12,000 students from 41 countries from 5 continents (South America, North America, Europe, Africa, and Asia-Pacific). Results of this study highlighted distinct Western and Eastern cultures.

Other studies have examined the similarities and differences among European countries with respect to culture and leadership attributes. Smith, Dugan, and Trompenaars (1996) analyzed data on personal values and behavioral intentions of 10,000 managers and employees from 43 nations. They concluded that a fundamental divide exists between Eastern and Western Europe.

Brodbeck et al. (2000) recently analyzed the GLOBE database for leadership prototypes of 22 European nations and found six basic clusters and two meta-clusters: Anglo, Nordic, and Germanic countries in the first meta-cluster of Northern/Western Europe, and Latin European, Arab (Near East) and Central and Eastern European countries in the second meta-cluster of Southern/Eastern Europe. The former group favored interpersonal directness and proximity far more than the latter.

Perhaps the most referenced and enduring research findings regarding the empirical clustering of societies in the organizational literature was that proposed by Ronen and Shenkar (1985). Their pioneering work used previously published data that was subsequently subjected to a statistical procedure known as "smallest space analysis" (Guttman, 1968). The results of the cluster analysis procedure were presented in the form of a figure that grouped countries together in terms of their similarity on work-related variables. For instance, Latin American and Latin European countries were closely related to each other as were the Germanic and Nordic countries. They also proposed an Arabic, Near Eastern, Anglo, and Far Eastern cluster. Brazil, Japan, India, and Israel were considered independents and remained separate from other identifiable clusters. Their results provide a useful example and structure for understanding the relationship between these worker attitudes and values and country groupings. To sum up, the prior studies suggest that religion/language, geography, ethnicity, and work related values and attitudes are relevant factors in the clustering of societies.

3. Developing clusters of GLOBE societies

Due to space limitations, we will only provide a brief explanation of the methodology and the results of the clustering of GLOBE societies. The complete treatment of the subject is provided in the upcoming GLOBE book (House, Hanges, Javidan, Dorfman, Gupta, and GLOBE, 2002).

Our overall goal was to adequately cluster 61 nations participating in the GLOBE study. As indicated by the previous review of the "clustering literature", there is no perfect or widely accepted clustering of countries. This is probably not undesirable given the different purposes for undertaking this effort. Different societal clusters may be equally valid given the uses for which the process was developed. We used the results of previous empirical studies, other factors such as common language, geography, and religion, and perhaps most importantly, historical accounts when constructing the final GLOBE clusters.

As a result of our analysis, we proposed that the 61 GLOBE nations can be grouped into 10 distinct clusters. Due to space limitation, we will only provide a listing of the countries in these clusters in Table 1. A detailed examination of each cluster is provided in the upcoming GLOBE book.

4. Empirical test of societal clusters

Discriminant analysis was used to statistically test the empirical validity of the proposed clustering presented in Table 1. Discriminant analysis is a statistical technique whereby a linear function is developed that uses a set of variables (i.e., societal culture dimensions in the present study) to predict to predict group membership (i.e., societal clusters in the present study) of the data (i.e., nations in the

Table 1
Societal cluster classification

Anglo Cultures	Latin America
England	Costa Rica
Australia	Venezuela
South Africa (White Sample)	Ecuador
Canada	Mexico
New Zealand	El Salvador
Ireland	Colombia
USA	Guatemala
Latin Europe	Bolivia
Israel	Brazil
Italy	Argentina
Portugal	Sub-Sahara Africa
Spain	Namibia
France	Zambia
Switzerland (French Speaking)	Zimbabwe
Nordic Europe	South Africa (Black Sample)
Finland	Nigeria
Sweden	Arab Cultures
Denmark	Qatar
Germanic Europe	Morocco
Austria	Turkey
Switzerland	Egypt
The Netherlands	Kuwait
Germany (Former EAST)	Southern Asia
Germany (Former WEST)	India
Eastern Europe	Indonesia
Hungary	Philippines
Russia	Malaysia
Kazakhstan	Thailand
Albania	Iran
Poland	Confucian Asia
Greece	Taiwan
Slovenia	Singapore
Georgia	Hong Kong
	South Korea
	China
	Japan

present study). We will use this technique to statistically test the extent to which our classification is supported by the data.

We randomly split each societal sample into two halves, and computed societal practice (As Is) and societal values (Should Be) scores on nine GLOBE cultural scales. We constructed a discriminant linear function for predicting the classification of societies into the GLOBE hypothesized clusters based on the nine societal (practice) As Is and nine societal (values) Should Be scales but using only one-half of each societal cluster sample for the analysis. For the development sample (i.e., the sample used to develop the linear discriminant function), five discriminant functions captured 92.8% of the variation among the GLOBE societal clusters. For the base sample, 59 of the 61 societies were classified accurately into the hypothesized clusters (see Table 1), yielding 96.7% classification reliability of the discriminant functions. Two countries not accurately classified were Costa Rica and Guatemala, both of which had greater probability of classification into the Latin European cluster than into the hypothesized Latin American cluster.

While the results of the discriminant functions on the development sample yielded impressive results, it is important to employ a cross-validation procedure to assess whether the initial results are simply due to random chance or sampling error. In this procedure, the discriminant functions were applied to the holdout sample. We achieved the following results using this technique. In the holdout sample, 36 of the 61 societies were classified accurately, amounting to 59.0% prediction validity of the discriminant functions. Table 2 provides summary data on the average probability of classification of societies into their hypothesized cluster, and the average probability of classification into the best alternative cluster. For societies in 8 of the 10 clusters, the average probability of classification into their hypothesized cluster exceeded 0.75. The two exceptions were the Germanic European (0.50) and Sub-Sahara Africa

Table 2
Average discriminant probability of classification of societies into clusters

Hypothesized cluster	Average probability of classification into hypothesized cluster	Average probability of classification into the next alternative cluster
Anglo Cultures	0.99 (Anglo Cultures)	0.01 (Latin Europe)
Latin Europe	0.78 (Latin Europe)	0.13 (Anglo Cultures)
Nordic Europe	1.00 (Nordic Europe)	0.00
Germanic Europe	0.50 (Germanic Europe)	0.40 (Nordic Europe)
Eastern Europe	0.87 (Eastern Europe)	0.13 (Confucian Asia)
Latin America	0.75 (Latin America)	0.16 (Latin Europe)
Sub-Sahara Africa	0.53 (Sub-Sahara Africa)	0.16 (Arab Cultures)
Arab Cultures	0.90 (Arab Cultures)	0.10 (Confucian Asia)
Southern Asia	0.83 (Southern Asia)	0.08 (Arab Cultures) 0.08 (Confucian Asia)
Confucian Asia	0.83 (Confucian Asia)	0.17 (Sub-Sahara Africa)

(0.53) clusters. Germanic European societies had a significant 0.40 probability of being classified into the Nordic European cluster. Sub-Sahara African societies had 0.16 probability of classification into the Arab cluster. Thus, geographical proximity and associated cultural interactions may be a key factor influencing the misclassifications. On the whole, therefore, the cluster classification of GLOBE societies finds very good support.

To further compare each cluster's characteristics (on the culture dimension scales), we aggregated societal values and societal practices of each society to the cluster level of aggregation. Since detailed analyses of cluster averages will be provided in the other articles in this Special Issue, we will not provide much detail here. We did find statistically significant differences in mean societal scores of clusters in high and low categories. The medium category had moderate levels of mean societal scores. The meta-Western region (Nordic, Germanic, Latin European, Anglo, and Latin American clusters), and the meta-Eastern region (Eastern Europe, Confucian, Southern, Arab, and Sub-Sahara Africa clusters) are noticeably different from each other. Within the Western region, the Germanic cluster shows high practices of performance orientation, uncertainty avoidance, future orientation, and assertiveness. This cluster is also characterized by relatively low values of institutional collectivism, in-group collectivism, gender egalitarianism, and humane orientation. Put differently, societies in the Germanic cluster rely on more masculine, assertive, and individualistic approaches, which are futuristic, well-defined, result-oriented, and often harsh. The Nordic cluster, which is culturally most similar to Germanic cluster, shows moderately strong practices of uncertainty avoidance, future orientation and institutional collectivism, as well as gender egalitarianism. It also has weaker practices of in-group collectivism, and performance orientation, assertiveness, and power distance. Smiley (1999), for instance, notes that Nordics tend to be modest, punctual, honest, and high-minded, and rich people generally dress, eat and travel in the same style as the prosperous middle class, all of which reflect underplaying of assertive, familial, and masculine authority and emphasis on certainty, social unity and cooperation.

The Latin European cluster is distinguished by weak practices of performance orientation, institutional collectivism, and humane orientation, indicating the affective autonomy orientation of Latin European societies. Latin America is characterized by the practices of high power distance, and low performance orientation, uncertainty avoidance, future orientation, and institutional collectivism. In other words, Latin American societies tend to enact life as it comes, taking its unpredictability as a fact of life, and not overly worrying about results. There is less concern with institutional collective goals than with preservation of one's status in the society and in-group collectivism. These practices reflect the paternalistic orientation of Latin American societies. Finally, Anglo practices tend to be more performance-oriented, but weaker in in-group collectivism. Anglo societies, on average, tend to more strongly value in-group collectivism and gender egalitarianism, but are less supportive of uncertainty avoidance and institutional collectivism. These traits indicate the value-based behavior of Anglo societies, where rewards tend to be based on merit, rules are not meant to be too intrusive, and societal support is always conditional lest it should be taken for granted.

We also examined the extent to which individuals' values (Should Be) and practices (As Is) in their societal culture are influenced by societal clusters as distinguished from the independent society (i.e., nation). Table 3 presents ''Eta squares'' of the society and cluster effects on individual values and practices in their societal culture. Eta square measures the proportion of variance accounted by the fixed societal or cluster effects.

The results indicate that societal cluster effects account for more than two-thirds of the inter-society differences in values as well as practices of uncertainty avoidance, future orientation, and institutional collectivism. In other words, the clusters captured shared societal attributes of the kind of goals pursued (individual or collective), the frame of the goals (short-term or futuristic), and the structure of the goals (rule-based or uncertainty-oriented). These societal attributes also discriminate among several clusters. For example, Southern Asian, Latin American, and Arab societies tend to highly value collective goals, futuristic orientation, and rule-based structures. In contrast, Nordic European societies

Table 3
Percentage of variance in individual value preferences (Should Be) and perceptions (As Is) about societal cultures, accounted by society and cluster effects

	Society effect	Cluster effect	Cluster/ society (%)
Societal Should Be			
Performance orientation	0.15	0.05	32
Uncertainty avoidance	0.39	0.33	86
Future orientation	0.21	0.15	71
Humane orientation	0.11	0.03	25
Institutional collectivism	0.31	0.21	68
In-group collectivism	0.14	0.07	53
Gender egalitarianism	0.30	0.18	62
Assertiveness	0.31	0.15	49
Power distance	0.14	0.04	27
Overall	0.21	0.11	54
Societal As Is			
Performance orientation	0.14	0.08	58
Uncertainty avoidance	0.36	0.29	80
Future orientation	0.21	0.14	66
Humane orientation	0.19	0.10	55
Institutional collectivism	0.24	0.16	65
In-group collectivism	0.56	0.48	86
Gender egalitarianism	0.17	0.09	53
Assertiveness	0.18	0.10	57
Power distance	0.18	0.06	32
Overall	0.22	0.15	65

tend to highly value individual goals, shorter-term orientation, and uncertainty-oriented structure. This suggests that the societal cluster is an appropriate and relevant unit of analysis, and that the GLOBE cluster classifications are reliable indicators of world-wide cultural attributes. The remaining articles in this Special Issue will provide a rich analysis of the major clusters identified here.

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