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Changing Cultural Clusters: A Research Note

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> "It is hardly possible to overrate the value, for the improvement of human beings, of things which bring them into contact with persons dissimilar to themselves, and with modes of thought and action unlike those with which they are familiar … there is no nation which does not need to borrow from others."
> *John Stuart Mill (1848)*

Abstract

Purpose

The purpose of this research note is to investigate the changing cultural clusters that emerged between the studies of Hofstede (1970s) and GLOBE (1990s) using similar measures and overlapping countries.

Design/Methodology/Approach

Our study analyzes the world's cultural clusters using two seminal and comparable cultural classifications: Hofstede and GLOBE. Four common cultural dimensions are empirically examined: individualism, power distance, uncertainty avoidance, and masculinity. We use two leading methods from cluster analysis and display data in both dandrograms and pie chart forms showing the grouping of countries.

Findings

Our results suggest diverging cultural typologies that transcend geography, language, and religion. Countries are engaged in selective cultural borrowing that leads to new and changing global cultural structures.

Research Limitations/Implications

Cultural clusters also allow researchers to test theories in different contexts and to extend their applicability and explanatory boundaries. Since measures used in the two studies, Hofstede and GLOBE, are not identical, caution is needed in the interpretation. The acknowledged similarity in the cultural dimensions, however, does give substantiation for empirical examination.

Practical Implications

Cultural clustering has been long used as a way to classify and categorize countries for analysis. Clustering allows companies to design regional strategies and to identify commonalities and differences among countries.

Originality/Value

Classifications representing the 1970s and 1990s cultural periods respectively show that cultural values have changed and that new grouping of countries emerged.

Introduction

Initial attempts to examine cultural clusters emerged from social psychology and religious and linguistic commonalities (Toynbee, 1947; Cattell, 1950. By the mid-1980s numerous papers had been published that allowed for a more comprehensive review. Ronen and Shenkar (1985) summarized eight key studies of cultural classifications of work goals from the 1960s, starting with Haire, Ghiselli and Porter (1966) and culminating with the work by Hofstede (1980). Their research attempted to utilize these studies to build a classification pie of the world's cultures, resulting in the following typologies: Near Eastern, Nordic, Germanic, Anglo, Latin European, Latin American, Far Eastern, Arab, and Independent.

An independent or unclassified group of countries is sometimes associated with attempts to cluster cultures. This group of countries stands alone and does not fit together with the others. In early studies, large powerful nations were signaled as unique: for example, in Cattell (1950) the then large economies of France, Germany, the UK, the U.S., the Soviet Union, and Japan did not cluster with other countries. Later, new and some emerging markets did not cluster with others: Ronen and Shenkar (1985) found Brazil, Japan, India, and Israel to be independent. Clusters have often included independent groups that do not fit a norm. The change in the countries that are independent suggests that global cultural clusters are dynamic and changing over time and space (Gupta *et al.*, 2002).

Hofstede, one of the most influential and most cited cultural researchers in the social sciences, forms the foundation for our comparison clusters. Although his

measures have come under increasing scrutiny (e.g., Fang, 2006; Siegel *et al.*, 2007), his multidimensional conceptualization of culture has been widely accepted and used in the literature on international business and strategy. A key problem with these data is that they are now dated, as they represent data collection efforts in the 1970s. Cultures, indeed, do change. But for the purpose of our analysis, this is a positive point. Hofstede's original measures allow us to form a baseline for culture dating back to the 1970s. An understanding of the changing cultural typologies will contribute to the debate on cultural divergence/convergence, and will allow companies to reconfigure global corporate structures in response to changing cultural clusters.

Cultural values have a wide variety of impacts across business and economic activity. Cultural similarity, for example, affects foreign market expansion, M&A activity, and investment (Siegel *et al*, 2007). On the micro level, management by cultural values is said to be affecting organizations across the globe and the development of their competitiveness (Dolan and Richley, 2006).

This article contributes to the literature in two main areas: first, by generating clusters based solely on data from common cultural variables. Previous research, from the early work by Cattell (1950) to the contemporary study by Gupta *et al.* (2002), has used data for cultural clusters that include variables other than culture, including economic and demographic variables. By isolating the cultural variables we are able to examine cultural similarities and differences in our clusters, irrespective of economic development and demographic characteristics. These latter factors can be used to explain and predict why cultures change over time. The second contribution is by examining cultural clusters over time, i.e., between the 1970s when Hofstede performed

his research and the 1990s when the GLOBE research was performed. By focusing on the same variables that are consistent in the two studies, we are able to track the changes in cultural similarities and differences and to map changes for future empirical investigations.

As noted, clusters are required for a variety of reasons. Haritgan (1975) enumerated several of the benefits of cluster analysis, including the ability to (1) name, (2) display, (3) summarize, and (4) predict and explain.

(1) **Name:** Our clusters are compared to traditional names (Latin European), and new names are provided.

(2) **Display:** Our clusters are displayed both in table format and in chart format, similar to Ronen and Shenkar (1985).

(3) **Summarize:** Each cluster is described using both cultural and socio-economic variables.

(4) **Predict and explain:** The groupings suggest similar cultural values, which may predict various socio-economic variables (in our study we focus on income distribution). Inferences may be made from culturally-similar environments. Why clusters come together brings rise to theoretical speculations, such as geography, religion, ethnicity, travel, trade, cross-border investment, heritage, colonialization, economic and political freedoms, and so forth. Examining changes in clusters allows for longitudinal analysis over time (in our case, about two decades).

Sample

Our sample includes 43 countries that have scores in both the Hofstede study (1980) that was conducted between 1967 and 1973 and the GLOBE study (House *et al.*, 2004) that was conducted in the 1990s. We used these two studies because they are the major cultural studies with common dimensions and because there is approximately a twenty-year difference in the data collection periods. Hofstede (2006, p. 883) suggested that the GLOBE study is an adaptation of his five dimensional framework. Similarly, Earley (2006 p. 922) wrote "we see two variations of one dominant style in the work of Hofstede and the GLOBE research consortium … they are minor variants on one another's styles."

Variables

National culture at the beginning of the 1990s was estimated by using variables from the House, *et al.* (2004) GLOBE study of 62 societies, which has been called "the most sophisticated project undertaken in international business research" (Leung, 2006, p. 881). The GLOBE study has nine cultural dimensions, from which only six common variables are taken for comparison purposes. We used the six dimensions that are most similar to Hofstede's four dimensions in the 1970s (House *et al.*, 2004; Hofstede, 2006). We also used the "as is" version of the dimensions (as opposed to the "should be" version of the same dimensions) because these seemed to be more conceptually equivalent.

For "culture" from the 1970s we used Hofstede's cultural dimensions. These measures are still a foundation for culture evaluations and empirical tests (Crotts and Erdmann, 2000; Downey *et al.*, 2005; Dwyer *et al.*, 2005). Hofstede's measures continue to enjoy strong support among researchers (Sivakumar and Nakata, 2001).

The four cultural dimensions in Hofstede (six in the GLOBE study) are:

(1) ***Power Distance***, a dimension identified by both the GLOBE study and Hofstede, is the degree to which power and authority are expected to be distributed and expressed equitably or inequitably (Carl, Gupta, and Javidan, 2004; Hofstede, 1980, 1997). As an expression of the legitimacy accorded to status differences among social groups, power distance is expected to be of special relevance to the income inequality that a society will tolerate.

(2) ***Uncertainty Avoidance***, also common to the GLOBE study and Hofstede, assesses the degree to which a society's members are able to cope with the unpredictability of the future and the resulting ambiguities (de Luque and Javidan, 2004; Hofstede, 1980).

(3) ***Individualism/Collectivism*** refers to the extent to which the self or, alternatively, the group, is the prime social identifier (Hofstede, 1997). The GLOBE research distinguishes between "institutionalism collectivism" and "in-group collectivism," the former focusing on the societal and organizational

levels and the latter looking at the individual level (House and Javidan, 2004). We use the two dimensions of collectivism in the GLOBE study to model the 1990s data because these two variables capture the same information contained in the single variable developed by Hofstede.

(4) ***Masculinity/Femininity*** refers to the distribution of roles between genders. The Masculinity side of the dimension is assertive and competitive, unlike women's perceived values that are modest and caring. Hofstede called the assertive pole "masculine" and the modest, caring pole "feminine". Women in feminine countries have the same modest, caring values as men; in masculine countries they are somewhat assertive and competitive, but not as much as men. The GLOBE study also divided this dimension into Assertiveness ("the degree to which individuals .... are assertive, tough, dominant, and aggressive" [Den Hartog, 2004, p. 395]) and Gender Egalitarianism ("the degree to which an organization or a society minimizes gender role differences while promoting gender equality" [House and Javidan, 2004, p. 12]). For consistency with the individualism/collectivism variable, we use both variables to model the 1990s data.

Therefore, the underlying data include the four dimensions of Hofstede 1970s data. The 1990s data are modeled by the six variables most closely reflecting Hosfstede's four original dimensions.

Methods

In our clusters there are 43 common countries that possess scores on the chosen variables in both the Hofstede and the GLOBE studies. We used two different cluster methods in our database so our final cluster should be the best available from the dataset. The two methods are:

(1) Method 1: complete-linkage method with measure - correlation, and

(2) Method 2: average-linkage method with measure - correlation.

The problem of choosing the correct number of clusters is as old as cluster analysis itself. We used two cluster-analytic stopping rules to determine the optimal number of clusters. The first stopping rule we used is Duda and Hart (1973)'s Je(2)/Je(1) index with pseudo-T-squared values. From these tests results, we identified 8 as the optimal number of clusters for the Hofstede sample and 9 for the GLOBE sample. Table 1 shows the results of the two methods' categorization of Hofstede's cultural data.

Insert Table 1 About Here

As can be seen in Table 1, the two methods give almost identical results. The only difference is that in Method 1 Spain is in the same cluster as France and in Method 2 Spain is in a different cluster (cluster 3), leaving France alone in cluster 4. Thus, we use Method 1 as our selected method.

We used the same two cluster methods on the GLOBE data. As can be seen from Table 2, the two methods give different clusters in more than one case. A casual inference can be made by observing the resulting cluster from Method 1. Method 1 is

more appropriate because, unlike Method 2, it does not cluster too many countries into one group.

Insert Table 2 About Here

To supplement our analysis of the GLOBE study with additional insight, we used kmeans to derive two models, resulting in two additional clustering methods (shown in Table 3):

(3) Method 3: kmeans method with correlation similarity measure, starting position is complete-linkage (correlation) (similar to Method 1), and

(4) Method 4: kmeans method with correlation similarity measure, starting position is average-linkage (correlation) (similar to Method 2).

Insert Table 3 About Here

Kmeans (Method 3) and complete linkage (Method 1) analysis leaves the results largely unchanged, suggesting that the clusters are stable. If we look at the differences between Method 2 and Method 4 we see that there are more than a few differences. This further suggests that Method 1 is superior, which is the same method used on the Hofstede dataset. Therefore, our results are from the same countries, same cluster-analytic method, and four similar cultural dimensions, giving ground for valid comparative analysis of the two time periods.

Results

From the selected clusters above and from dendrogram graphs for the Hofstede and GLOBE samples we generated two Pie Charts. Following the example of Ronen and Shenknar (1985) ,we employed this display method. See the appendix for a visualization of the dendrogram graphs and for an explanation of the dendrogram method. The first Pie Chart displays the outcomes from the Hofstede sample.

Insert Pie Chart 1 About Here

In Pie Chart 1 the eight clusters are separated by a double sequential line. The two biggest clusters are divided into "sub" clusters by using the dendrogram graphs. Those sub groups are separated by a broken line.

Wherever there was a significant overlap between our clusters and those of Ronen and Shenkar (1985), Hofstede (1980), or Gupta, Hanges, and Dorfman (2002) we named the clusters similarly. In previous articles, the clusters were named on the basis of religion, language, and geography. Because we used only four key dimensions of culture, and no variables other than culture, we obtained different resulting clusters. The two main "anomalies" are Cluster 8 and the sub cluster of the Latin American countries that includes Kuwait, Zambia, and Indonesia. Interestingly, these same countries are also in the same sub group based on the GLOBE study scores. In the clusters that are unique to our study we attempted to name the cluster.

As can be seen in Pie Chart 1, some clusters are the same as those obtained in Ronen and Shenkar (1985) (e.g., the Nordic and the Anglo clusters), whereas others

show variations, for example, the Germanic cluster which includes Israel but excludes Austria, located in a nearby cluster. Switzerland, with large German and Italian populations, and Israel, with a heritage of German immigrants from World War II, both show similar Germanic cultural traits.

Pie Chart 2 shows the clusters based on the GLOBE study scores. There are apparent differences in the resulting clusters in Pie Chart 1, reflecting the changed cultural groupings in the 1990s. Some clusters are divided into smaller, more specific clusters, such as the Nordic cluster that is now divided into two clusters: South Nordic and North Nordic.

In the updated chart, the Anglo and the Far Eastern clusters in the Hofstede sample are different from the GLOBE data. There are also many other changes as well.. Canada, for example, joins the UK and France in a separate cultural grouping, whereas Australia remains with the United States. What is apparent is that the data based on Hofstede's 1970s data seem to follow religion, language, and geography more closely. The GLOBE-based clusters suggest that cultural divergence has occurred and that countries are grouped on bases other than a common geography, religion, and language.

Insert Pie Chart 2 About Here

Conclusions

Our study contributes to the literature by showing that, in fact, cultures do change over time and that their clusters also change. The dynamic nature of culture has not been sufficiently analyzed. More measures are needed that track culture over time.

Our analysis raises more questions than it answers. Why do countries in the 1990s diverge in terms of cultural clustering? What led to such cultural unions/divisions? How do cultures change? The results of this study can provide the basis for future empirical analyses on causal factors for cultural changes. These causes may be examined by looking at a single country or at group of countries, or by isolating common determinants of cultural change and applying them to an entire group. Possible explanatory variables include:

1. History and political evolution
2. Patterns of immigration/emigration
3. FDI flows, trade patterns and multinational activity
4. Economic development
5. Adaptation of technology
6. Globalization of tastes, and so forth.

The differences in cultural clusters suggest that MNEs should consider reorganizing cultural maps and expatriate training and examining cultural similarities across regional boundaries. Implications for international marketing, product launches, and similar marketing mix considerations can also be investigated.

Future research should deal with some of the questions raised in this study. Why did the Anglo cluster split? Is language a diminishing categorizing agent for cultural clusters? How does cultural borrowing occur? Why do some cultural groups remain? (For example, Indonesia, Zambia and Kuwait form a sub cluster in both Hofstede's sample and in the GLOBE sample.)

The main limitation of the analysis here is that Hofstede's research and the GLOBE study are not exactly the same. A short summary of the differences between the two can be found in Hofstede (2006). Despite the differences, however, there is much more in common between the two research streams than what separates them. Substantial citation in House *et al.* (2004) from the work of Hofstede is just anecdotal. We hope that this study will stimulate others to further examine the causes and consequences of cultural change.

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Table 1: Hofstede Data Clusters

Country	Method 1	Method2
Zambia	1	1
Egypt	1	1
Taiwan	1	1
Venezuela	1	1
Mexico	1	1
Ecuador	1	1
Kuwait	1	1
Indonesia	1	1
Colombia	1	1
Hong Kong	2	2
India	2	2
Singapore	2	2
Malaysia	2	2
Philippines	2	2
Guatemala	3	3
Thailand	3	3
Iran	3	3
Costa Rica	3	3
Turkey	3	3
Portugal	3	3
South Korea	3	3
Greece	3	3
Argentina	3	3
El Salvador	3	3
France	4	4
Spain	4	3
Austria	5	5
Japan	5	5
Brazil	5	5
Israel	6	6
Switzerland	6	6
Germany	6	6
Italy	6	6
England	7	7
Canada	7	7
Australia	7	7
United States	7	7
New Zealand	7	7
Ireland	7	7
Finland	8	8
Sweden	8	8
Netherlands	8	8
Denmark	8	8

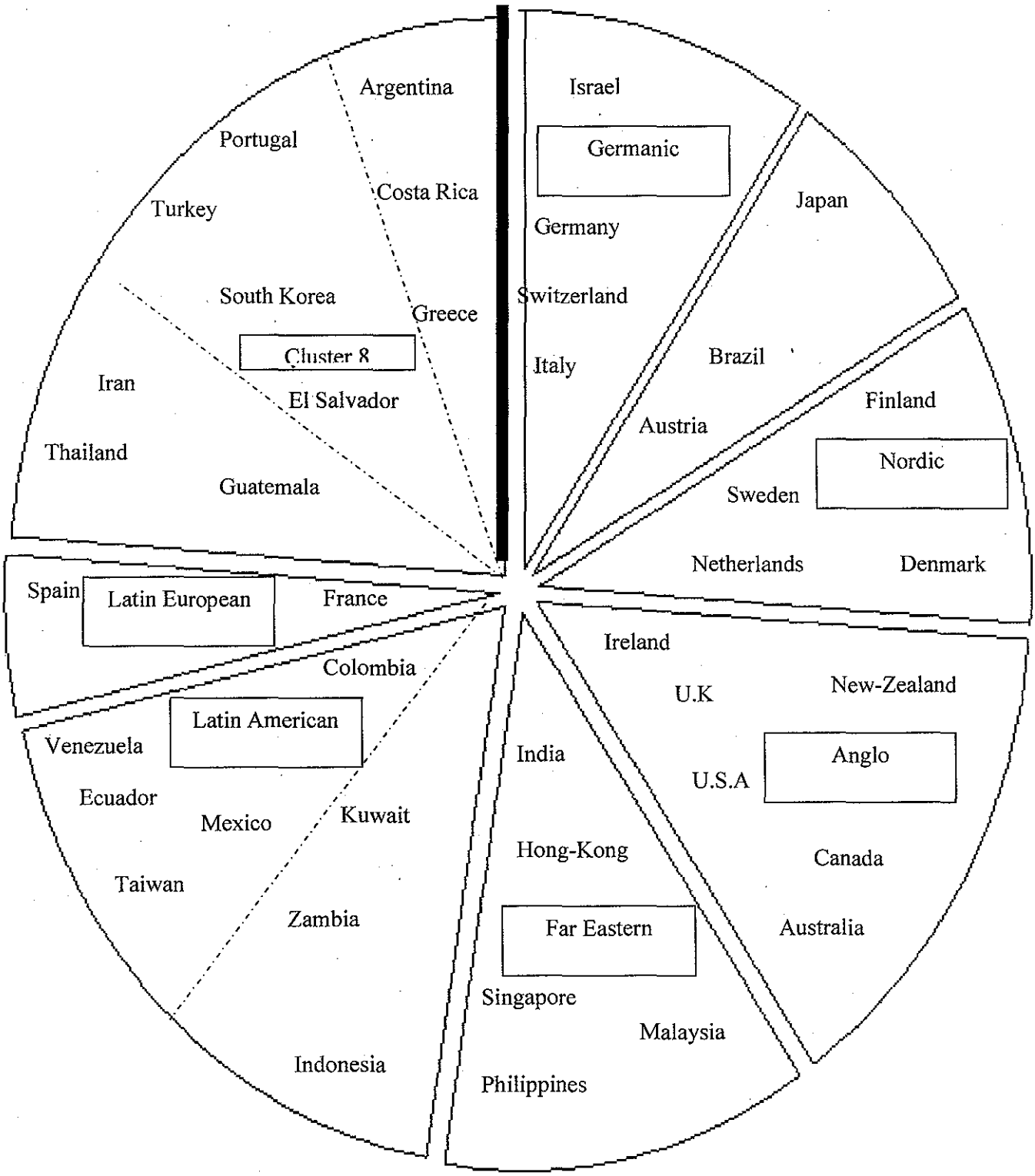
Table 2 GLOBE Data Clusters

Country	Method 1	Method 2
Venezuela	1	1
Guatemala	1	1
Mexico	1	1
Ecuador	1	1
Iran	1	1
Colombia	1	1
Hong Kong	1	1
Spain	1	1
Turkey	1	1
Greece	1	1
Argentina	1	1
El Salvador	1	1
Brazil	1	1
Italy	1	1
Thailand	2	1
Philippines	2	1
Costa Rica	2	1
Portugal	2	1
Australia	3	4
United States	3	4
France	4	5
England	4	5
Canada	4	5
Switzerland	5	6
Austria	5	6
Germany	5	6
Zambia	6	1
Egypt	6	1
Taiwan	6	1
Kuwait	6	1
Indonesia	6	1
India	6	1
South Korea	6	2
Israel	6	2
Japan	6	2
Ireland	6	1
Singapore	7	3
Malaysia	7	1
Netherlands	8	8
Denmark	8	7
New Zealand	9	9
Finland	9	9
Sweden	9	9

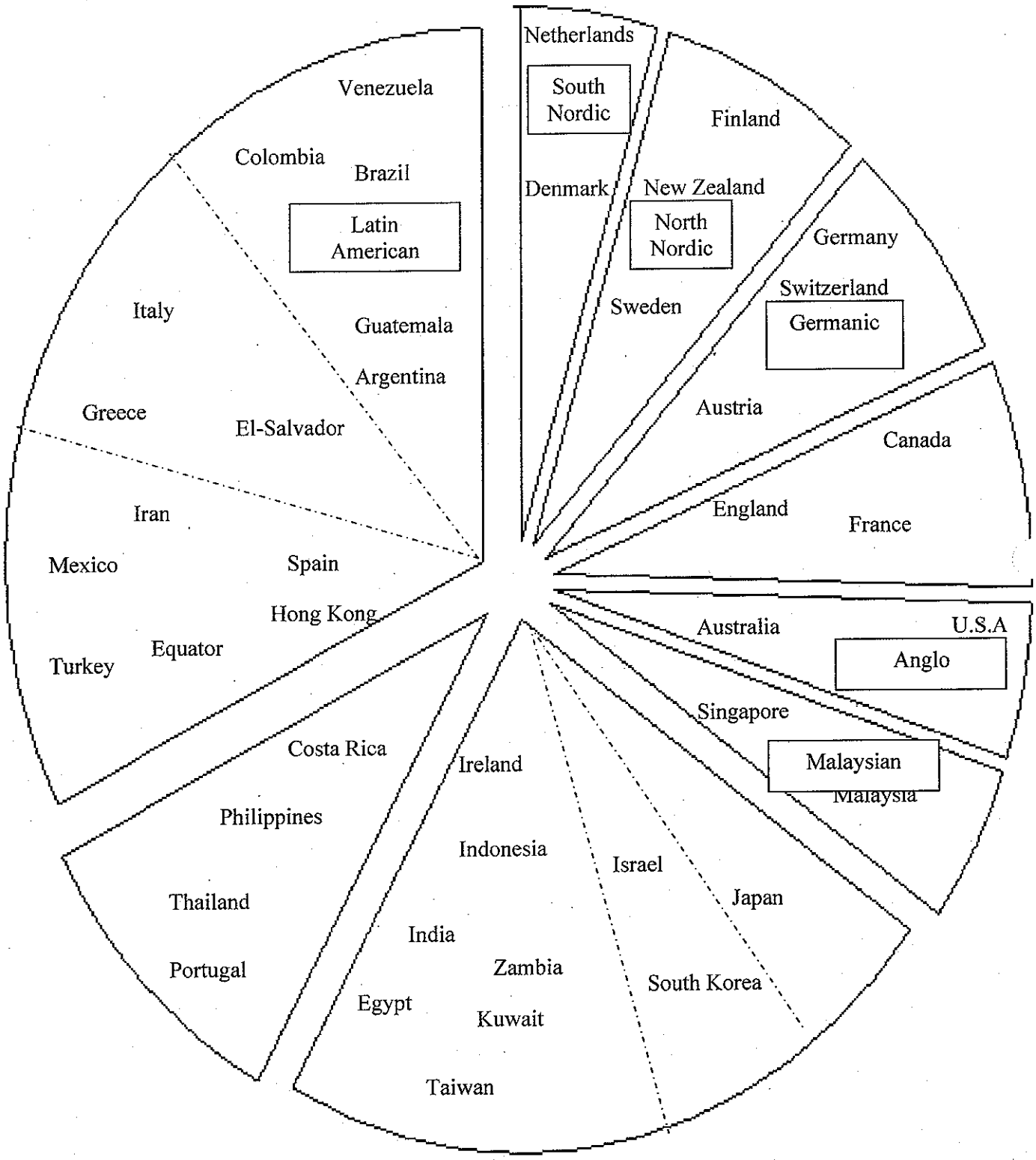
Table 3: GLOBE Clusters with Kmeans

Country	Method 3	Method 4
Venezuela	1	1
Guatemala	1	1
Mexico	1	1
Ecuador	1	1
Iran	1	1
Colombia	1	1
Hong Kong	1	1
Spain	1	1
Turkey	1	1
Greece	1	1
Argentina	1	1
El Salvador	1	1
Brazil	1	1
Italy	1	1
Thailand	2	1
Philippines	2	1
Costa Rica	2	1
Portugal	2	1
Australia	3	3
United States	3	3
France	4	4
England	4	4
Canada	4	4
Switzerland	5	5
Austria	5	5
Germany	5	5
Zambia	6	6
Egypt	6	6
Taiwan	6	6
Kuwait	6	6
Indonesia	6	6
India	6	6
South Korea	6	6
Israel	6	2
Japan	6	2
Ireland	6	6
Singapore	7	6
Malaysia	7	6
Netherlands	8	7
Denmark	8	8
New Zealand	9	9
Finland	9	9
Sweden	9	9

Pie Chart 1: Hofstede sample



Pie Chart 2: GLOBE sample



Appendix I

Another way to display the clusters is through a dendrogram graph (see Figure 1 for a display of Hofstede's data). Dendrograms graphically present information regarding which observations are grouped together at various levels of similarity. At the left side of the dendrogram, each observation is considered its own cluster. Horizontal lines extend up for each observation, and at various similarity values these lines are connected to the lines from other observations with a vertical line. The observations continue to merge until all observations are grouped together at the top of the dendrogram,. The length of the horizontal lines and the range of the similarity axis provide visual clues about the strength of the clustering. Long horizontal lines indicate more a distinct separation between the groups, and indicate that the groups represented by those lines are well separated from one another. Shorter lines indicate that the groups that are not as distinct from one another. Figure 2 shows the dendrogram for the GLOBE study clusters.

Figure 1: Dendrogram Graph Using Hofstede Cultural Data

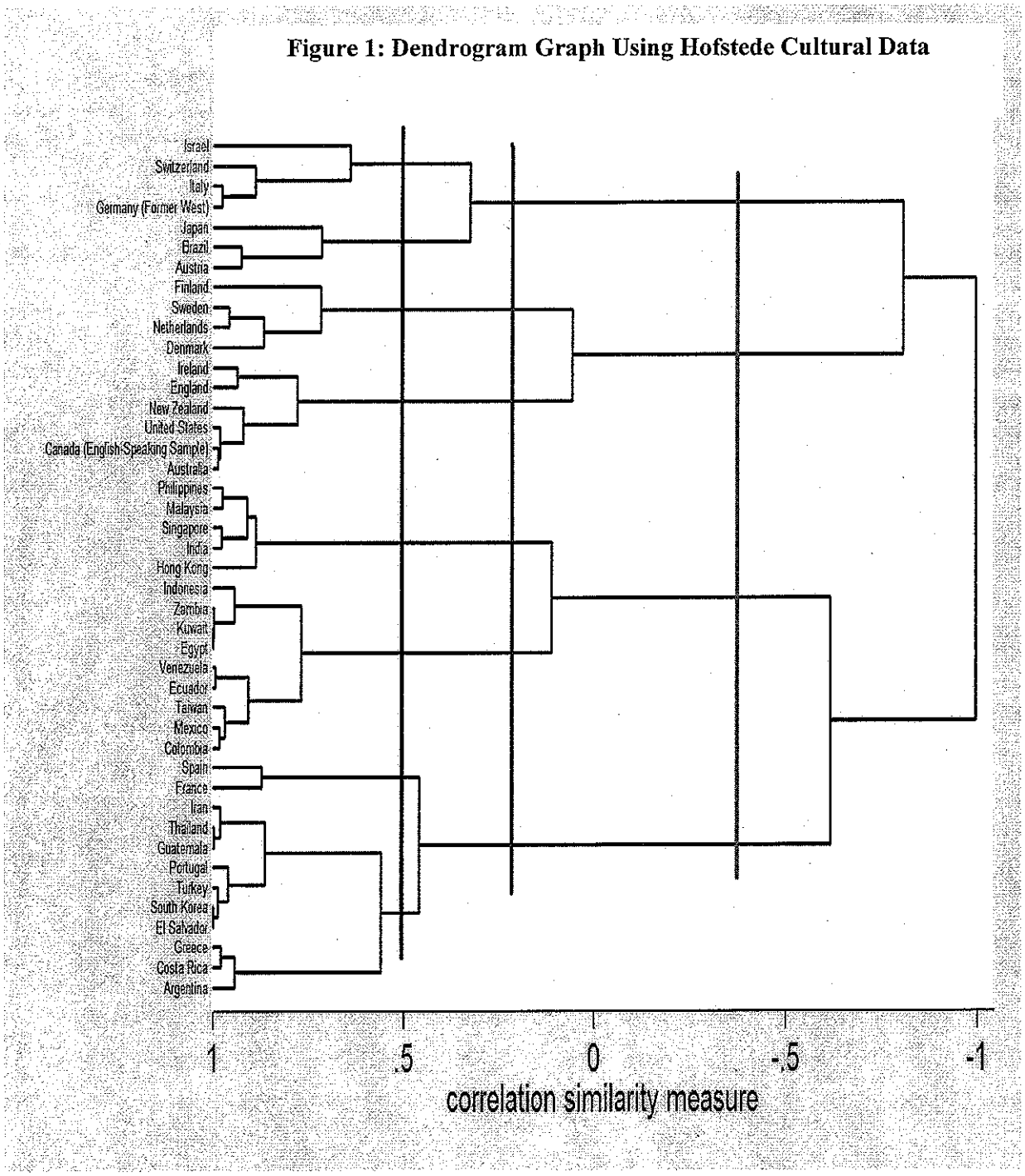
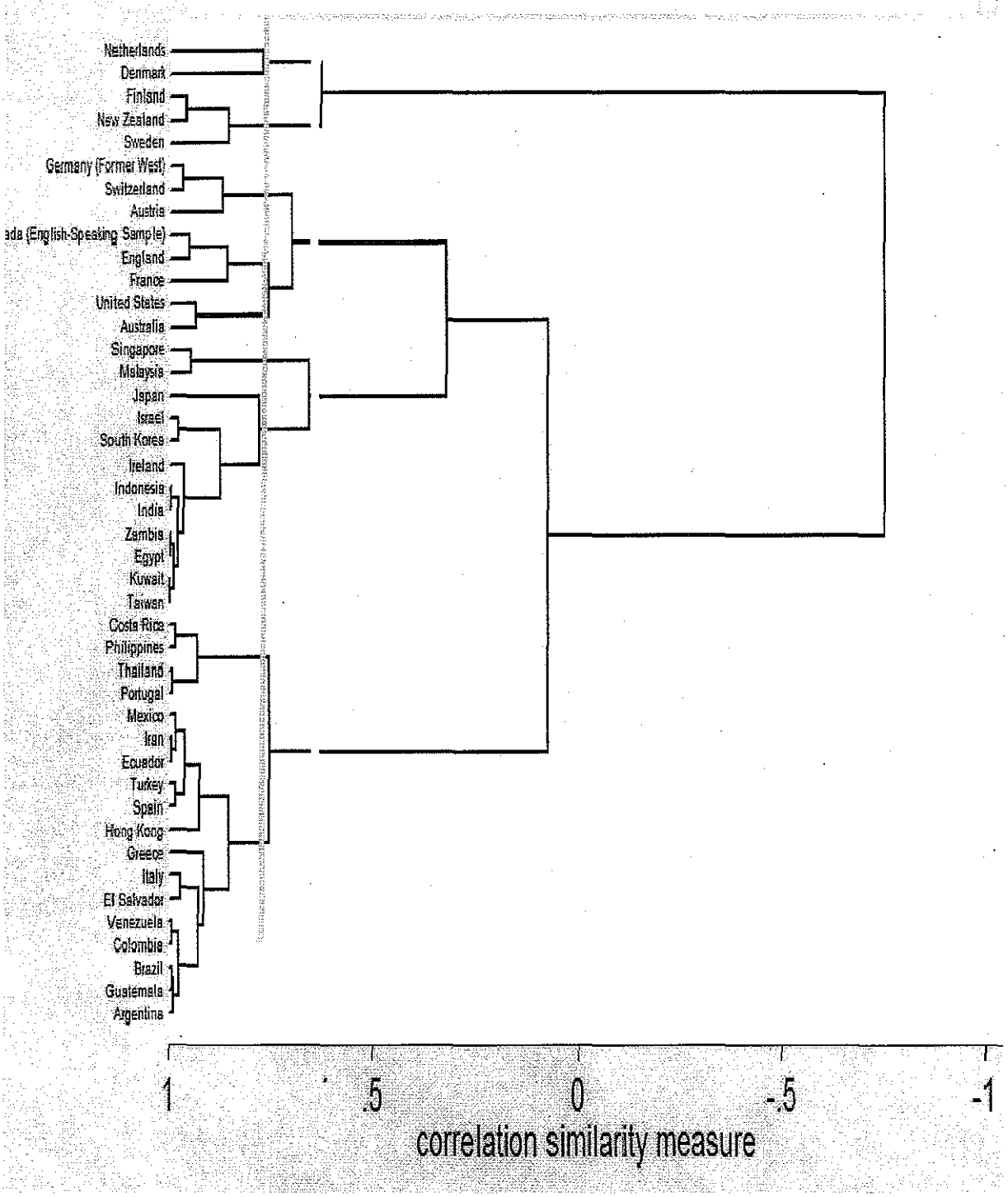



Figure 2: Dendrogram Using GLOBE Cluster Data