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Clustering National Cultures: A Fallacy, or Not, or Not Always?

Romie Frederick Littrell
Auckland University of Technology
Auckland, New Zealand
Email: Romie.Littrell@aut.ac.nz

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- Purpose: This study addresses the question, "How do the explanatory powers of nations, within-nation regions, and multiple nation groups differ for predicting personal work-related values and attitudes?" I investigate the validity of clustering nations on the basis of scores on cultural value and leadership dimensions. I ask two questions; does each set of measures of dimensions by every theoretical model tested produce identical clusters of cultures, when using the same cluster analysis techniques, and, do all generally accepted statistical analysis techniques using cultural value dimensions and a particular basis, e.g., correlation, to identify clusters will produce identical clusters of cultures.
- Methods: Obtaining national cultural value means for dimensions from major theories, standard statistical techniques such as Multi-dimensional Scaling Smallest Space Analysis and Hierarchical Cluster Analysis are employed to attempt to identify any consistent clusters of nations. Smallest Space Analysis plots and Hierarchical Cluster tables are examined (neither process has accepted significance testing procedures) and clusters are identified and discussed, if any are found.
- Results: In general, nations do not form similar clusters across operationalised measures of proposed dimensions. In China I find significant differences amongst regional sub-cultures.
- Conclusions: Clustering of cultures is a fallacious concept, and can be misleading if used to plan business activities. Activities requiring comparison of national cultures need to be on a country pair basis, and in large, multicultural nations, even that can be misleading.

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Introduction

"I invoke the first law of geography: everything is related to everything else, but near things are more related than distant things." --Waldo Tobler (1970)

In the study of nations and culture, for culture to have any value in relationship to nations we must demonstrate that it has a significant, consistent influence on values, and hence behaviour, and that national culture is not an artefact. If it is not an artefact, we need to demonstrate that national culture is homogeneous, or not, or homogeneous in some nations and not in others. This demonstration is a difficult task, as cultural value dimensions in theories are contingent upon the choices of the developers of the theories. Hofstede's (1993) statement reflects this idea, "My argument is that management scientists, theorists, and writers are human too: they grew up in a particular society in a particular period, and their ideas cannot help but reflect the constraints of their environment."

DEFINITIONS OF CULTURE

There are many definitions of culture. Culture, as defined by UNESCO (2002), is a set of distinctive spiritual, material, intellectual and emotional features of society or a social group. It encompasses art and literature, lifestyles, ways of living, value systems, traditions and beliefs. UNESCO proposes that cultural identity has been predicated to be a central element of and an important condition for self-esteem, functional effectiveness, mental health, quality of life, perception of illness, and health-care outcomes. We need to study cultural identity due to increasing multicultural interactions from immigration and increased international travel and business. Every cultural value dimension theory has a definition of culture, each somewhat different from the other. Those interested can peruse the definitions in theories I will investigate in this study in Hofstede (2001), Schwartz (1992, 1994), House, Hanges, Javidan, Dorfman & Gupta (2004), and Minkov (2007, 2011).

Purposes and Implications of Clustering National Cultures

Gupta, Hanges, & Dorfman (2002) and Gupta & Hanges (2004) review attempts to use national level data to identify national culture and cultural clusters since the 1950s, though relevant publications extend much further back in history. Prior to Cattell's (1950) kick-off of this research genre in the 20th century, giving it the apparently necessary imprimatur of a U.S. academic, Herodotus (450AD) is one of the earlier writers in the area. Later, Pearson (1894) wrote of national character and the beginning of the ascendance of the "Black and Yellow" races. I refer the reader to Gupta et al. (2002) for an adequate list of publications relating to the empirical study of cultural clusters.

Gupta et al. describe the work of the Global Leadership and Organisational Behaviour Effectiveness (GLOBE) project in defining *a priori* clusters and then demonstrating statistical analyses to prove fit to their definitions. Considering that *a priori* refers to a deductive process derived by reasoning from self-evident propositions, I do not see from my reading and research that *a priori* is the proper path to take. The alternative deductive approach, *a posteriori*, of derivation of clusters by reasoning from observed facts has greater appeal for me. Reading of the articles referred to by Gupta et al. I find that there is no absolute consistency in cultural cluster membership across studies.

Ronen & Shenkar (1985) present analysis and discussion of reasons for investigating clusters of national clusters. Referring to Hartigan (1975), they identify the principal functions of clustering are to (a) name, (b) display, (c) summarise, (d) predict, and (e) require explanation. For cross-cultural researchers and international business practitioners, the functions of clustering

are of interest in relationship to work values of people engaged in business in both the practical and theoretical domains. Listing countries and naming a cluster allows us to attempt to associate characteristic work values to the group. Ronen & Shenkar address display of clusters through use of Multidimensional Scaling Smallest Space Analysis (MDS SSA) to simplify identifying areas in which categorisation difficulties may arise. My studies convince me that what we construe to be understanding may be our being misled by gross summaries obscuring important differences. Summarising data about clusters is not useful, and we should focus on studying the properties of individual counties in activities requiring cultural comparisons. Ronen & Shenkar propose the practical implications of country clustering can be the employment of expatriate managers into countries with work values similar to their home country. If clusters truly exist, the managers can be drawn from a more easily identifiable group of countries. If not, clustering is fallacious and country-pair specific training and education is required. Multi-dimensional scaling smallest space analysis makes it easier to understand and manipulate the data relating to cultures; I employ this method in this report.

Research Question: Determining Existence of Clusters

The most critical issue is that clear-cut clusters require an explanation of their existence, which can promote the development of theories. Of special importance are those clusters that differ from historical, geographic, linguistic, and religious classifications. Also, we find few studies using economic development as anything other than a *post hoc* variable of analysis. Theories need to incorporate ethnic, linguistic, religious, societal, social, economic, and political phenomena as explanatory variables for the existence of clusters. From reading of the literature over the past several decades, only since the mid-1990s have projects been undertaken involving near-global comparisons. In review of these I find that the clusters and interrelationships amongst clusters to be different across projects, see e.g., Griffeth, Hom, Denisi & Kirchner (1985), replicated in Griffeth & Hom, (1987).

Hartigan (1975) notes that prediction might be used in either of two ways; first, if a new country is classified into a group by some means, the same values will be predicted for variables of interest, leading to the second prediction, a new measurement of a similar type would produce a similar grouping. Ronen & Shenkar suggest, for example, if Denmark is low on rules emphasis, we may predict that Norway will also be low on this value. This may enable better forecasting of problems associated with the introduction of organizational policies and practices. It also may indicate whether the problems of certain groups of countries require different types of management (Kraut, 1975; Ronen & Kraut, 1977). This leads to a hypothesis to test addressing the existence of consistent clusters of national cultures:

- ***Hypothesis: Dimensional Consistency****: Each set of measures of cultural value dimensions by each theoretical model tested will produce identical clusters of cultures, when using the same cluster analysis techniques.*

This gives rise to a second hypothesis:

- ***Hypothesis: Consistency in Results from Statistical Analyses****: All generally accepted statistical analysis techniques using cultural value dimensions and a particular basis, e.g.,*

correlation, to identify clusters will produce identical clusters of cultures.

Critiques of the Cluster Approach

Ronen & Shenkar identify issues relating to occupational sub-cultures having effects that override national cultures. Low & Shi (2002), Daller & Yildiz (2006), and Akiner & Tijhuis (2007) found considerable intra-country variation amongst scores on Hofstede's (2001) dimensions influenced by the industry from which the sample was drawn, comparing the industry sample scores to the national means. The findings of these researchers support the importance of individual and occupational differences, but does industry culture overwhelm the contribution of variance that can be explained by national cultural differences? Haire, Ghiselli & Porter (1966) note that it seems clear from the data reported in their study that there is a high degree of similarity among managers' attitudes in all the countries studied. Haire et al. go on to state that approximately one third of the variance in work goals and managerial attitudes could be explained by country of residence. This result is supported by England (1978): one-third; and by Griffeth, Hom, Denisi & Kirchner (1985, and replicated in Griffeth & Hom, 1987): one-half; of the variance can be explained by country differences. It should be noted, however, that the degree of similarity between countries is not determined on an absolute scale, but is relative to the level of dissimilarity with other countries, and therefore influenced by the number of countries included in the clustering. Next, let us look at another approach to defining culture.

NATIONAL CULTURE AND CULTURE AREA

In specific analyses of intra-national culture, national are rarely found to be homogeneous. The use of the nation as a cultural construct is considered by some to be a fallacy, see for example, Egri and Ralston (2004), Littrell, Alon, and Chan (2006), and Ralston, Yu, Wang, Terpstra and He (1996). In an analysis of the idea of *nationalism*, Anderson (1991) proposes that *imagination* plays a role in any conception of *nation* involving national leadership, identity, geographic boundary, or ideology. Further, that public and popular literature, as opposed to research and first-hand experience, are often instrumental in creating these notions of national group identity. The existence of a consistent national culture in most nations is questionable. Supporting this idea, Kroeber (1939/1963, 1944, 1947) and Wisser (1917/1957), summarised in the *International Encyclopedia of the Social Sciences* (1968), the idea of *culture areas* is proposed as distinct from nations.

The concept of *culture area* in anthropology is a contiguous geographic area comprising a number of societies that possess the same or similar traits or that share a dominant cultural orientation. The *culture area* concept was refined by Mason (1895), Holmes (1914), Harris (1968, p. 374), and Robertson (1993). Societal cultures can differ and regions within a society can vary, especially in large and complex societies, including nations. A *culture area* is a contiguous geographic area comprising one or a number of societies that possess the same or similar traits or that share a dominant cultural orientation. In anthropology *culture clusters* and *culture areas* tend to be used interchangeably, see, e.g. Merriam, Brouwer, Foster, Ramke & Sparshott (1959).

Williams (1989) discusses the processes involved in the formation of categorical identities, and the confused meanings for the political and economic dimensions of social

organization. Political changes have redrawn historical boundaries between many traditional culture areas and the populations within them, whilst increasing international economic interdependencies have raised questions about the appropriate scale for analytic units. Many investigators recognize that the typological boundaries they draw around populations, and the types of social organization so outlined obscure as much as they reveal about social processes within and between these populations. Given this situation, one must question the nation as a unit of study relating to ethnic culture. However, in business ecologies the nation is certainly influential in terms of the imposition of laws relating to commercial interaction, though perhaps less so when designing products and advertising.

Carrying the idea of culture area to clusters, scholars largely agree that cultural values at the societal level develop in response to basic challenges that are faced by societies. However, societies differ in the nature of responses to these challenges, and the specific set of challenges varies amongst different ecologies.

THEORETICAL APPROACHES TO DEFINING CULTURAL VALUE DIMENSIONS

Leung (1989, p. 715) proposes that a well-developed theory should be able to generate *a priori* predictions regarding ranking of a given set of cultures on an outcome variable and its antecedent variables, and should assist us in understanding the relationship between these variables. Additionally, if the predictions are confirmed empirically, Leung proposes it is unlikely that some analytical bias is the explanation for the results observed. If predictions for several antecedent and outcome variables are made and confirmed, the likelihood of a bias explanation is further lowered. For example, Minkov's (2007, 2011) approach to cross-cultural theory development combines empirical field survey research from the World Values Survey (WVS) with behavioural and economic data that he believes, and endeavours to demonstrate, differentiate and codify inhabitants of nations. Minkov notes that for a dimension of culture to be of any interest, use or value it must be significantly associated with important social phenomena, and hence help us understand the effects of differences in the phenomena on valences of cultural dimensions.

Values cannot be studied in isolation. Maslow (1943, p. 370) stated, "Human needs arrange themselves in hierarchies of prepotency. That is to say, the appearance of one need usually rests on the prior satisfaction of another, more pre-potent need. Man is a perpetually wanting animal. *Also no need or drive can be treated as if it were isolated or discrete; every drive is related to the state of satisfaction or dissatisfaction of other drives*" (my emphasis). Schwartz (n.d.) tells us theories of cultural value dimensions:

> "…explicate a structural aspect of values, namely, the dynamic relations among them. Actions in pursuit of any value have psychological, practical, and social consequences that may conflict or may be congruent with the pursuit of other values. For example, the pursuit of achievement values may conflict with the pursuit of benevolence values - seeking success for self is likely to obstruct actions aimed at enhancing the welfare of others who need one's help. However, the pursuit of achievement values may be compatible with the pursuit of power values - seeking personal success for oneself is likely to strengthen and to be

> strengthened by actions aimed at enhancing one's own social position and authority over others…"

So an array of value dimensions is required to define a culture. Let us now turn to how to determine clustering of cultural value dimensions.

METHOD

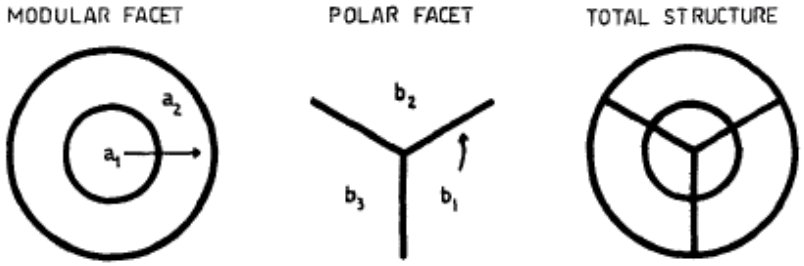
Ronen & Shenkar (1985) identify and display clusters through use of MDS SSA, which considers correlations amongst a set of measures; computer programs have been written to accurately display relationships in two- or three-dimensional charts. The method is widely used.

Smallest Space Analysis Facet Approach to Theory Development

Smallest Space Analysis (SSA) (Bailey, 1974) consists of defining or identifying latent variables by visually inspecting patterns of arrangements of survey items in Euclidian space, with the distances based upon Pearson correlations. SSA is a method of non-metric analysis developed by Guttman (1968) whilst at The Hebrew University of Jerusalem. Guttman defined an algorithm for mapping results of relationships in the space of the smallest number of dimensions capable of reflecting pairwise similarity (e.g. correlations) between them. The technique has been frequently used in cross-cultural social science research; see for example Schwartz and Bilsky (1987); Elizur and Guttman (1976); Elizur (1984); and Elizur, Borg, Hunt and Beck (1991). Elizur (1984) found SSA suitable for analyzing the relations amongst work-value survey items and for testing the hypotheses concerning the structure of personal value domains. Elizur explained every item is represented by a point in the space; the distances amongst the points are inversely related to the observed relationships amongst the items (size of correlations). When the similarity between two items is high, the distance between the points representing them is relatively small. Conversely, when the similarity between two items is low, the distance between their points should be relatively large. Relationships indicated by the configuration of the points can be visually examined. When there is an *a priori* facet definition framework specified, it is possible to examine whether the space can be partitioned into regions that reflect the facets. Division into facet regions is accomplished by drawing partition lines according to the definition suggested by the content of the items defining dimensions.

Some items at the edge of one region should still have lower correlation with other items of another identified region than they do with items in their hypothesised region. Hypotheses are tested by inspection of the content of the items in a facet. Facets may have various interrelationships. Elizur (1984, p. 382) depicts frequently observed patterns that occur in Figure 1. A core and periphery pattern may occur, or polar facets with opposing values at opposite ends of a diagonal, or a combination of core and polar facets. Such differences indicate different structural arrangement of dimensions, complicating or simplifying interpretations as to whether dimensions might be bi-polar, circumplex, or overlapping. No statistical tests have yet been published to evaluate the goodness of fit between a definitional framework and patterns of facet partitioning in the SSA space.

FIGURE 1.
Frequently Observed Facet Patterns from Smallest Space Analyses



SSA is recommended for analyses where the investigator desires a rigorous multivariate analysis under the constraints of no special assumptions (Bloombaum, 1970). The question addressed by SSA is what is the smallest space in which a body of data may be adequately represented? *Smallest space* refers to the fewest number of dimensions. Bloombaum (1970, p. 415) specifies that SSA provides,

- a multivariate technique suitable for fairly large numbers of variables;
- geometric output to render the structure of a body of data easily comprehensible;
- no special assumptions with respect to level of measurement, linearity of data, etc.;
- gives the fewest number of dimensions to geometrically represent relationships;
- provides a measure of goodness of fit for multidimensional representations (how many dimensions does it take for an adequate representation?);
- results that remain invariant under rotation;
- eliminates the necessity of choosing between orthogonal and oblique factor solutions;
- no communalities to estimate.

As values represent desirable goals, measures of values tend to have negatively skewed responses to items, that is, distributions of responses that are not normal. One attraction of SSA is the lack of assumptions concerning level of measurement and conformity to normality. Hence, MDS SSA can be used to investigate the existence of clusters of societal cultures from data provided across several theories or models.

Analyses and Discussion

Data for the analyses were obtained as follows:

- The GLOBE project culture dimension national mean scores and the 21 and 6 leadership dimension mean scores were obtained from House et al. (2004), Chhokar et al. (2007), and unpublished scores and problematic data were provided and clarified by the GLOBE project team, facilitated by Mary Sully de Luque of Thunderbird School of Global Management.
- The 4, 5, and 6 dimension national mean scores for Hofstede's cultural value dimensions were obtained from the www.geerthofstede.nl website; from Hofstede, Hofstede, and Minkov (2010), and Minkov (2007).

- Minkov's national means for dimensions were obtained from Minkov (2011), and additional data provided by Minkov via personal communication (2011).
- The published charts from the World Values Survey (Inglehart & Welzel, 2005 & 2010), and Schwartz (personal communication) were verified using those theorists publically available data sets as sufficiently accurate to represent the operationalisation of the models, and their displays of relationships are employed.

I begin with an analysis of the GLOBE project (House et al., 2004) dimension data. The project proposes 10 cultural clusters and devises procedures to demonstrate their fit to predicted clusters. Four measures are provided that can be used to verify the validity of clusters, (1) societal means for "as is" culture scores, (2) "should be" culture scores, (3) scores for twenty-one first order leadership dimensions, and (4) scores for six second order leadership dimensions. The clusters defined by the project are:

- **Anglo**: Canada, US, Australia, Ireland, England, South Africa-White Sample, New Zealand
- **Confucian Asi**a: Singapore, Hong Kong, Taiwan, China, Republic of Korea (Korea-South), Japan
- **Eastern Europe**: Greece, Hungary, Albania, Slovenia, Poland, Russia, Georgia, Kazakhstan
- **Germanic Europe**: Austria, The Netherlands, Switzerland-German-Speaking, Germany-Eastern, Germany-Western
- **Latin America**: Ecuador, El Salvador, Columbia, Bolivia, Brazil, Guatemala, Argentina, Costa Rica, Venezuela, Mexico
- **Latin Europe**: Israel, Italy, Switzerland-French-Speaking, Spain, Portugal, France
- **Middle East**: Turkey, Kuwait, Egypt, Morocco, Qatar
- **Nordic Europe**: Denmark, Finland, Sweden
- **Southern Asia**: Philippines, Indonesia, Malaysia, India, Thailand, Iran
- **Sub-Saharan Africa**: Zimbabwe, Namibia, Zambia, Nigeria, South Africa-Black Sample

Worth noting as potentially influential for national similarities is that the colony of South West Africa, now Namibia, was a colony of Germany from 1884 until 1915, when it came under the colonial rule of South Africa under the auspices of the British Empire, finally becoming Namibia in 1990. The South African Administrator served both legislative and executive functions, generally serving South African white minority interests and actively encouraged white settlement from South Africa into South West Africa (Wellington, 1967:272-273).

Also worth noting is that the GLOBE project presents an unusual interpretation of the historical culture of Jews in Israel as being primarily influenced by Spanish culture. Sampling within Israel unless carefully managed will usually oversample either Mizrahi ("Sephardic" in vernacular usage, generally from Collectivist cultures) or Ashkenazi (generally from Individualist cultures) ethnic groups. The 2011 CIA World Factbook publishes the following demographics: Jewish 76.4% (of which Israel-born 67.1%, Europe/America-born 22.6%, Africa-born 5.9%, Asia-born 4.2%), non-Jewish 23.6% (mostly Arab). These groups, and other sub-cultures, should be studied individually for accurately representative comparisons.

No multinational study adequately analyses Switzerland's culture areas, which consist of at least two: Germanic and Latin (French- and Italian-speaking), or three: German-, French-, and Italian-speaking. A thorough discussion of the differences is available in von Egnach (2003) who identifies distinct culture areas with different sets of values.

From the literature review, for a theory to be plausible it needs to incorporate ethnic, linguistic, religious, societal, social, economic, and political phenomena as explanatory variables in addition to average values for a set of value dimensions to support the existence of clusters. The GLOBE clusters generally accommodate these phenomena, and if the literature is correct, should replicate their clusters in analyses of the four measures. I would have more confidence in the analysis if participants' raw data were available for validation by other researchers (as provided by Schwartz and the World Values Survey), but they are not.

MDS SSA of the Four Measures Provided by the GLOBE Project

Prior to inspecting the figures created by MDS SSA, the following are some general observations relating to the lack of consistency in clustering observed in my analyses of the proposed cluster membership across sources of data. Analyses of the four measures from the GLOBE project indicate:

- France and Israel do not cluster with Latin Europe using any set of measures.
- Singapore does not cluster with Confucian Asia using any set of measures.
- Albania is not consistently included in any of the *a priori* clusters.
- Spain, Italy, and Portugal tend to cluster with Latin America, and not with Israel, French-speaking Switzerland, or France.
- Except for the twenty-one first factor leadership scores, a Nordic cluster is observed, frequently near the Anglo cluster.

In Figure 2 the MDS SSA analysis results indicate:

Results from "As Is" Culture Scores – Figure 2

- There is a distinct northwestern Europe area.
- There is a distinct Anglo area that includes France, with Singapore near Australia, and Namibia near the White South Africa sample, and excluding Ireland, which is near China and Malaysia. The UK sample is more similar to the Germanic Europe cluster than to other Anglo members.
- The Latin clusters and the Sub-Saharan Africa, Middle East, and Asian clusters are intermixed.
- Confucian Asia samples are intermixed with various countries and areas.
- A rather dispersed Nordic Europe cluster can be observed, with Denmark an outlier and Sweden and Finland near French-speaking Switzerland.

"Should Be" Culture Scores – Figure 3

- An Anglo cluster is identifiable that includes French-speaking Switzerland, intermixed with the Nordic Europe samples, with Singapore, Israel, and Kazakhstan nearby.
- China, Japan, Taiwan, South Korea, Hongkong, and Singapore are distant from one another.
- A distinct Latin cluster is defined, including Latin America and Portugal, France, Italy and Spain; Brazil is an outlier.
- A Middle East cluster can be identified, howeverTurkey is distant from Middle East societies and nearest to Brazil.
- A Sub-Saharan Africa cluster can be identifed, that includes Namibia.

The Twenty-one First Order Leadership Dimensions – Figure 4

- There are no discernable clusters fitting the GLOBE project categories.

The Six Second Order Leadership Dimensions – Figure 5

- An Anglo cluster is definable, that includes The Netherlands and Greece, with Australia as an outlier.
- A Germanic Europe cluster is definable.
- The Latin cluster overlaps India, China, Japan, Singapore, and most of the Sub-Saharan Africa group. Brazil and Mexico are outliers.
- Turkey is nearest Malaysia.

Conclusions Concerning Clustering from GLOBE Project Societal Means

- A consistent cluster appears to exist for the US, the UK, English-speaking Canada; Australia, and New Zealand. Ireland, the South African White samples, and sometimes New Zealand, are excluded for some measures. Namibia is frequently located near South Africa. Singapore tends to frequently appear near the Anglo cluster.
- There is a consistent Germanic Europe cluster.
- A Latin cluster consistently appears that combines Italy, Spain, and Portugal with Latin America, and does not include France, French-speaking Switzerland, or Israel. The Latin cluster frequently overlaps samples from the Middle East and Southeast Asia, and sometimes Sub-Saharan Africa.
- Reviewing the charts, Nigeria tends to cluster with Latin American nations.

None of the measurements produce clusters that do not include nations defined to be a member of a different cluster in House et al. (2004) or have countries missing that are hypothesised to be included.

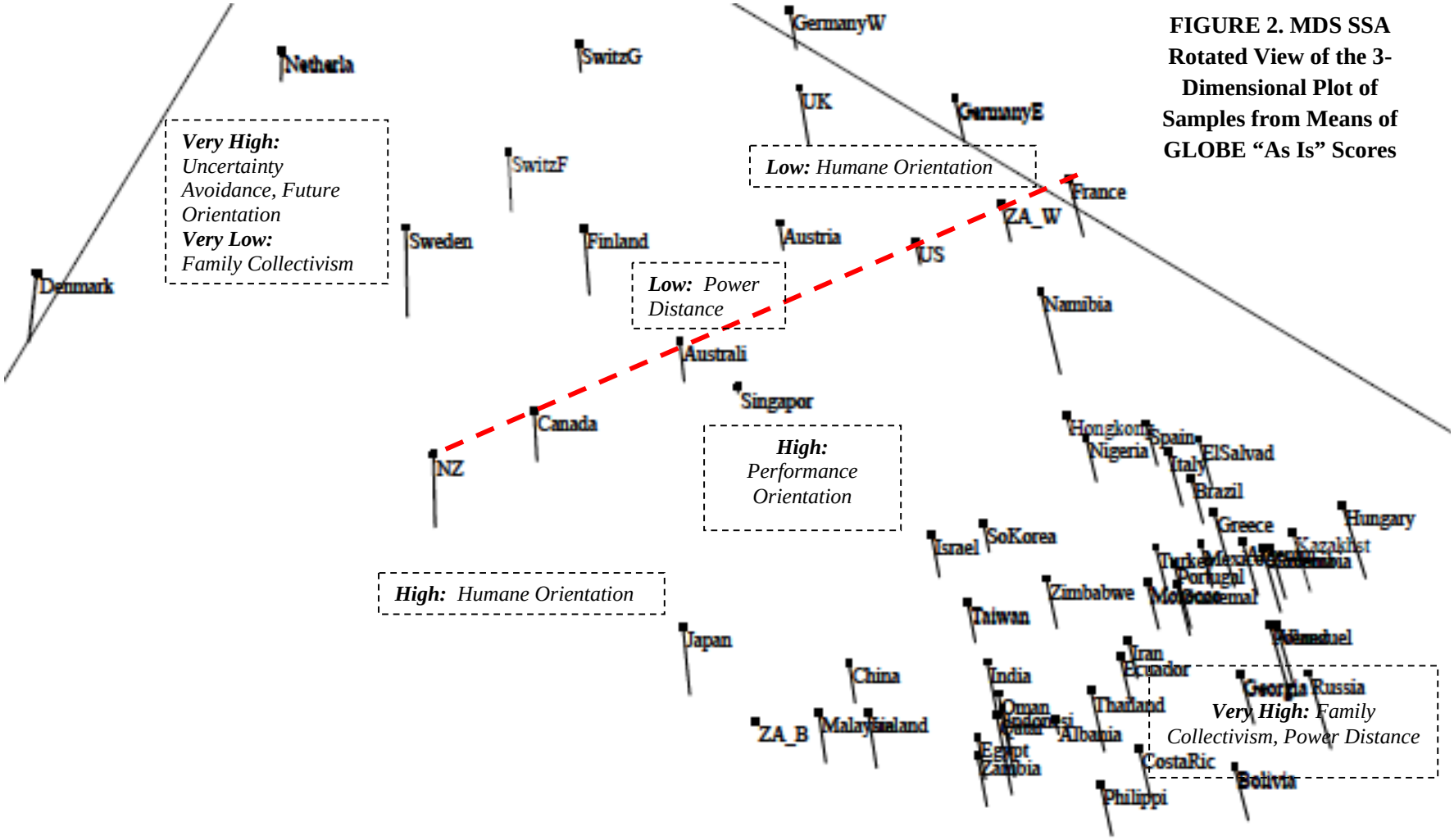


FIGURE 2. MDS SSA Rotated View of the 3-Dimensional Plot of Samples from Means of GLOBE "As Is" Scores

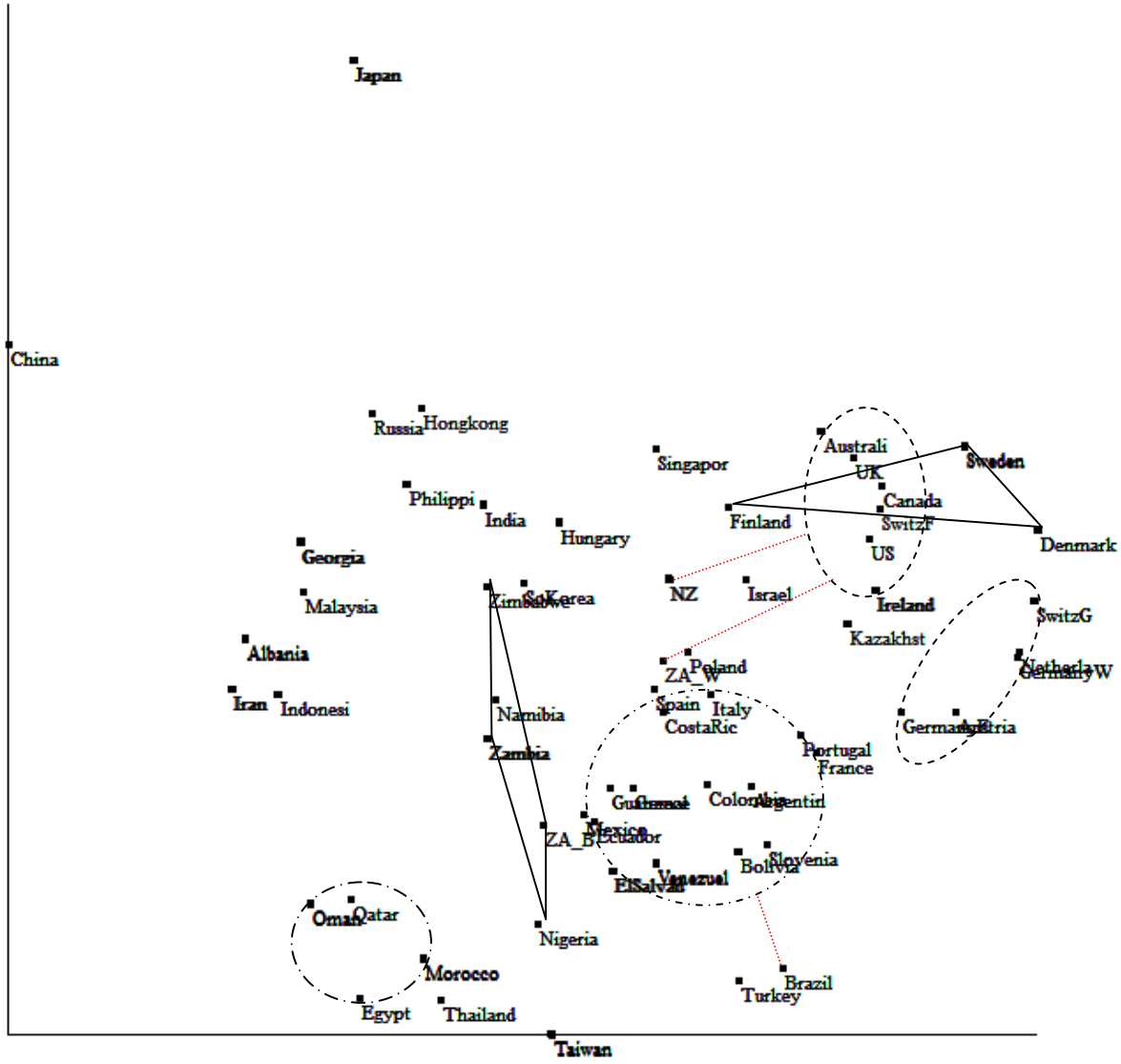


FIGURE 3. MDS SSA Two-Dimensional Plot of Samples from Means of GLOBE "Should Be" Scores

Notes:

- Japan and China are distant outliers
- There is no Confucian Asia cluster

We see well-defined clusters for:

- Middle East, excluding Turkey
- Sub-Saharan Africa
- Germanic Europe that includes The Netherlands
- Overlapping Anglo and Nordic clusters, with South African Whites and New Zealand as outliers
- The Latin cluster includes both Europe and the Americas

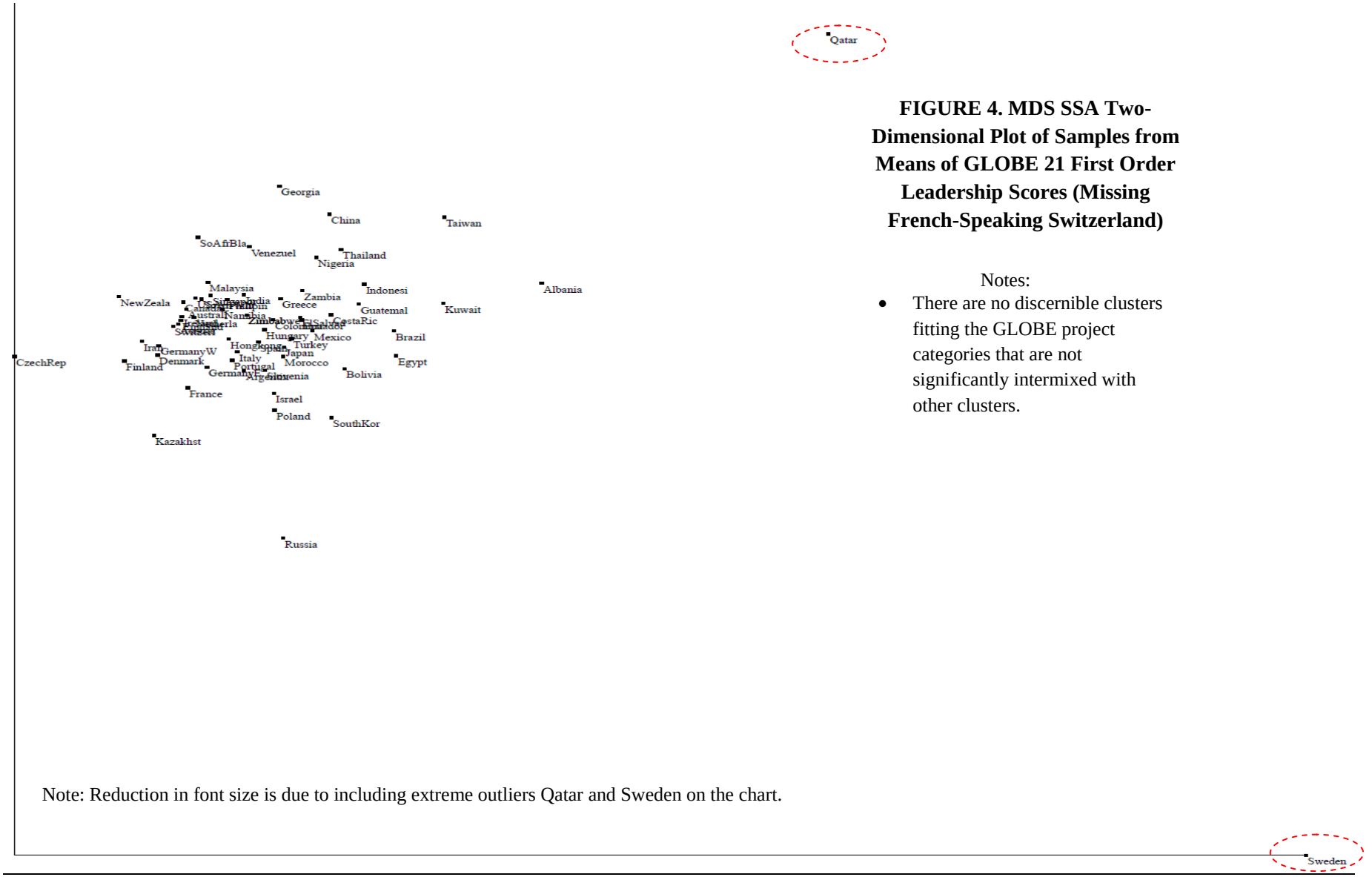


FIGURE 4. MDS SSA Two-Dimensional Plot of Samples from Means of GLOBE 21 First Order Leadership Scores (Missing French-Speaking Switzerland)

Notes:

- There are no discernible clusters fitting the GLOBE project categories that are not significantly intermixed with other clusters.

Note: Reduction in font size is due to including extreme outliers Qatar and Sweden on the chart.

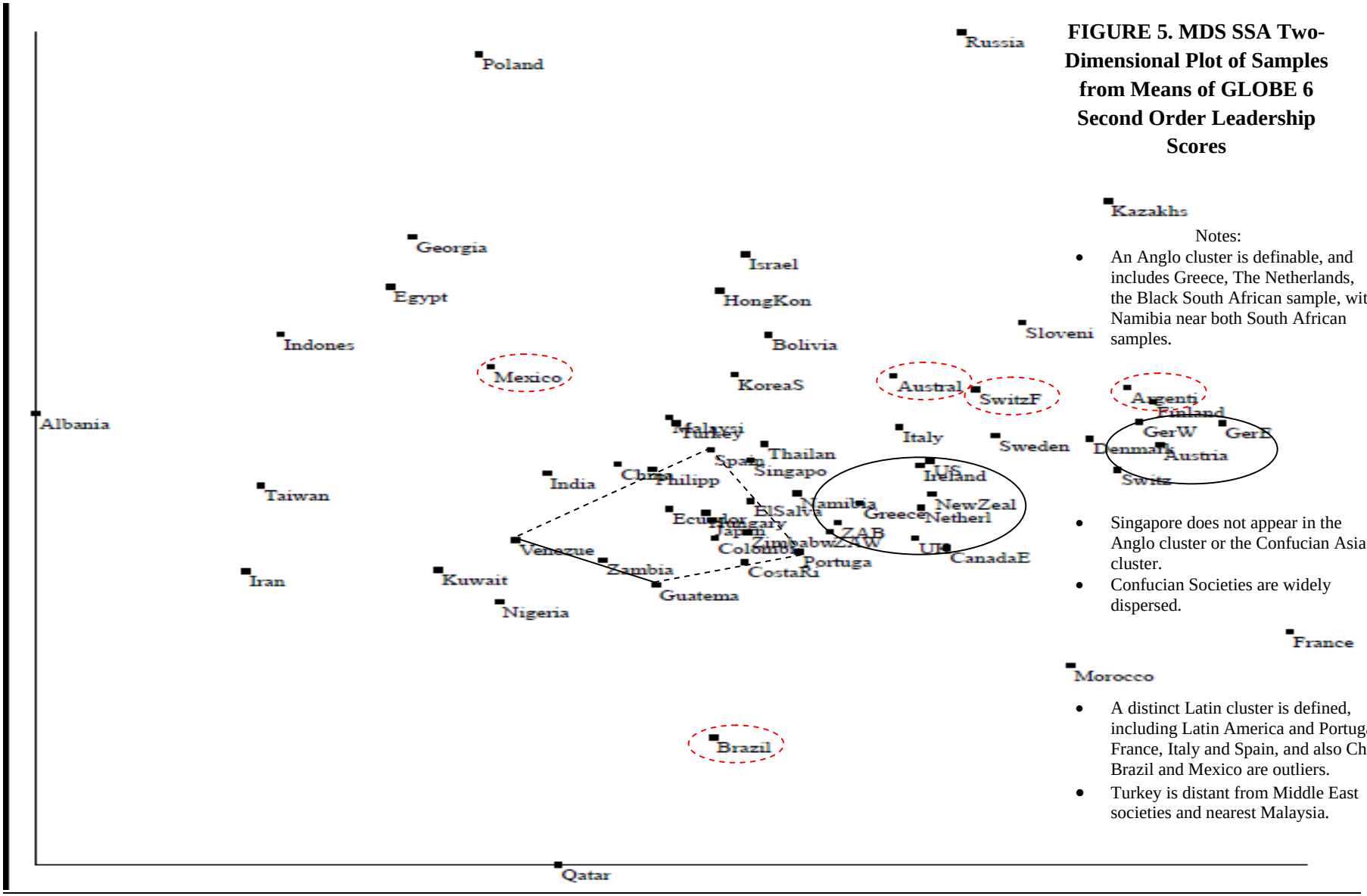


FIGURE 5. MDS SSA Two-Dimensional Plot of Samples from Means of GLOBE 6 Second Order Leadership Scores

Notes:

- An Anglo cluster is definable, and includes Greece, The Netherlands, the Black South African sample, with Namibia near both South African samples.
- Singapore does not appear in the Anglo cluster or the Confucian Asia cluster.
- Confucian Societies are widely dispersed.
- A distinct Latin cluster is defined, including Latin America and Portugal, France, Italy and Spain, and also China, Brazil and Mexico are outliers.
- Turkey is distant from Middle East societies and nearest Malaysia.

Interlude: Tests from Another Method: Hierarchical Cluster Analysis

Testing, ***Hypothesis: Consistency in Results from Analyses****: All analysis techniques using cultural value dimensions and a particular basis, e.g., correlation, to identify clusters will produce identical clusters of cultures,* from the GLOBE 61 "as is" sample means, 18 definite members of an Anglo/west European cluster were identified, including Namibia and Singapore at the periphery. Employing Hierarchical Cluster Analysis to test the cohesiveness of an Anglo cluster; see in Table 1a, compared to the MDS SSA analysis, a similar north and west European and Anglo cluster was obtained that included Israel, Poland, and Kazakhstan. In Table 1b, factor analyses of the GLOBE project "as is" culture scores, employing Direct Oblique, and Promax rotations, three factors are obtained characterised by (1) Europe+Some European Colonies+Kazakhstan, (2) Asia, and (3) overlapping Africa+Latin America+Taiwan. The hypothesis is rejected; different methods of analysis employing the same data set produce different clusters.

TABLE 1a. Hierarchical Cluster Analysis of GLOBE Project "As Is" Scores: North& West European Cluster of 19 Countries – Identified at 4th cluster of 61: Sub-Clusters Established at About 45 Clusters

Anglo/western Europe—Early Association with Poland and Kazakhstan

Clusters	*60*	*59*	*58*	*57*	*56*	*55*	*54*	*53*	*52*	*51*	*50*	*49*	*48*	*47*	*46*	*45*
Australia	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
UK	11	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Canada	7	7	7	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	6
US	12	11	11	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	6
Ireland	8	8	8	8	8	8	8	8	**7**	**7**	**7**	**7**	**7**	**7**	**7**	6
Switzerland_F	56	55	54	53	52	51	50	49	48	47	46	45	44	43	**7**	6
Israel	52	51	50	49	48	47	46	45	44	44	9	9	9	9	9	8
ZA_W	10	10	10	10	10	10	10	10	9	9	9	9	9	9	9	8
Poland	30	29	29	28	28	27	27	27	26	26	26	26	26	9	9	8
Kazakhstan	29	28	28	27	27	26	26	26	25	25	25	25	25	25	25	24
Denmark	38	37	37	36	36	35	34	34	33	33	33	33	32	31	31	30
Finland	39	38	38	37	37	36	35	35	34	34	34	34	33	32	32	31
Sweden	40	39	39	38	38	37	36	36	35	35	35	35	34	33	33	32
France	51	50	49	48	47	46	45	44	43	43	43	42	41	40	40	39

Germanic Europe-The Netherlands is most dissimilar, then eastern Germany, western Germany and German-speaking Switzerland are most similar

Austria	33	32	32	31	31	30	30	30	29	29	29	29	28	27	27	26
GermanyE	34	33	33	32	32	31	31	31	30	30	30	30	29	28	28	27
GermanyW	35	34	34	33	33	32	**32**	**32**	**31**	**31**	**31**	**31**	**30**	**29**	**29**	**28**
Switzerland_G	37	36	36	35	35	34	**32**	**32**	**31**	**31**	**31**	**31**	**30**	**29**	**29**	**28**
Netherlands	36	35	35	34	34	33	33	33	32	32	32	32	31	30	30	29

TABLE 1b. Factor Analyses of GLOBE Project "As Is" Scores: Three Factors: 1. Europe+Some European Colonies+Kazakhstan, 2. Asia, and 3. Overlapping Africa+Latin America+Taiwan

Varimax	1	2	3	Zambia	Dir. OBLIMIN	1	?	3	4	Promax	1	2	3	Zambia
Argentina	0.7	0.6			Argentina	0.6				Argentina	0.6	0.5		
Australia	0.8		0.5		Australia	0.9				Australia	0.9		0.4	
Austria	0.8	0.5			Austria	0.9				Austria	0.9			
Canada	0.9		0.4		Bolivia	0.6				Canada	1.0			
Colombia	0.7	0.6	0.4		Brazil	0.5	0.4			Colombia	0.5	0.5		
CostaRica	0.6	0.6	0.4		Canada	0.9				CostaRica	0.5			
Denmark	0.9				Colombia	0.6				Denmark	1.1			
Finland	0.7	0.4	0.5		CostaRica	0.5				Finland	0.7			
France	0.7	0.6			Denmark	1.1				France	0.6	0.4		
GermanyE	0.8	0.5			Finland	0.7				GermanyE	0.8			
GermanyW	0.9	0.4			France	0.7				GermanyW	1.0			
Ireland	0.9	0.4			GermanyE	0.8				Ireland	0.9			
Israel	0.8	0.5	0.5		GermanyW	1.0				Israel	0.7			
Italy	0.7	0.6	0.4		Greece	0.4	0.4			Italy	0.6			
Kazakhstan	*0.8*	*0.5*			Guatemala	0.4			-0.4	*Kazakhstan*	*0.8*			
Netherlands	0.9	0.4			Ireland	0.9				Netherlands	1.1			
NewZealand	0.6	0.5	0.4		Israel	0.7				NewZealand	0.5			
Poland	0.7	0.6	0.4		Italy	0.6				Poland	0.5	0.4		
Portugal	0.8	0.5			*Kazakhstan*	*0.8*			*-0.4*	Portugal	0.7			
Singapore	0.7	0.4	0.6		Netherlands	1.0				Singapore	0.6		0.5	
Slovenia	0.7	0.7			NewZealand	0.5			-0.4	Spain	0.5			
Spain	0.7	0.6	0.5		Poland	0.6			-0.5	Sweden	1.1			
Sweden	0.9				Portugal	0.7				Switz_F	0.9			
Switz_F	0.8	0.3	0.4		Singapore	0.6				Switz_G	1.1			
Switz_G	0.9	0.3			Slovenia	0.6			-0.6	UK	1.0			
UK	0.8		0.5		Spain	0.5				US	0.9			
US	0.8	0.4	0.4		Sweden	1.0				ZA_W	0.5	0.4		
ZA_W	0.7	0.6	0.5		Switz_F	0.9				Albania		0.6	0.6	
Bolivia	0.7	0.7			Switz_G	1.0				Bolivia	0.5	0.6		

Brazil	**0.6**	**0.7**			**UK**	**0.9**				**Brazil**	**0.5**	**0.7**		
Ecuador	**0.6**	**0.7**	**0.4**		**US**	**0.9**				**Ecuador**		**0.7**		
Egypt	**0.3**	**0.9**	**0.4**		**ZA_W**	**0.6**			**-0.4**	**Egypt**		**1.1**		
ElSalvador	**0.6**	**0.7**	**0.3**		***Zambia***		***0.5***	***0.4***		**ElSalvador**		**0.7**		
Greece	**0.6**	**0.6**	**0.4**		**Albania**			**0.5**	**-0.6**	**Greece**	**0.4**	**0.4**		
Guatemala	**0.6**	**0.7**	**0.4**		**Ecuador**	**0.4**			**-0.4**	**Guatemala**		**0.6**		
Mexico	**0.6**	**0.7**	**0.4**		**Egypt**				**-0.9**	**Mexico**		**0.7**		
Morocco	**0.3**	**0.9**	**0.4**		**ElSalvador**	**0.4**			**-0.5**	**Morocco**		**1.1**		
Namibia	**0.5**	**0.7**	**0.5**		**Georgia**			**0.5**	**-0.6**	**Namibia**		**0.6**		
Nigeria	**0.5**	**0.8**	**0.4**		**Mexico**	**0.4**			**-0.5**	**Nigeria**		**0.9**		
Oman	**0.3**	**0.8**	**0.5**		**Morocco**				**-0.8**	**Oman**		**0.9**		
Qatar	**0.4**	**0.8**	**0.5**		**Namibia**				**-0.6**	**Qatar**		**0.9**		
Taiwan	**0.4**	**0.8**			**Nigeria**				**-0.7**	**Slovenia**	**0.5**	**0.7**		
Thailand	**0.3**	**0.9**	**0.4**		**Oman**				**-0.7**	**SouthKorea**		**0.4**		
Turkey	**0.6**	**0.7**			**Qatar**				**-0.7**	**Taiwan**		**1.0**		
Venezuela	**0.6**	**0.7**			**SouthKorea**	**0.4**			**-0.5**	**Thailand**		**1.1**		
ZA_B	**0.5**	**0.7**	**0.4**		**Taiwan**				**-0.7**	**Turkey**	**0.4**	**0.8**		
Zambia	***0.5***	***0.6***	***0.5***	***0.4***	**Thailand**				**-0.8**	**Venezuela**	**0.4**	**0.7**		
Albania	**0.3**	**0.6**	**0.7**		**Turkey**	**0.5**			**-0.5**	**ZA_B**		**0.8**		
China	**0.1**	**0.3**	**0.9**		**Venezuela**	**0.4**			**-0.5**	**China**	**-0.4**		**1.1**	
Georgia		**0.6**	**0.7**		**ZA_B**	**0.3**			**-0.8**	**Georgia**		**0.5**	**0.6**	
HongKong	**0.5**	**0.4**	**0.8**		**China**			**1.0**		**HongKong**			**0.8**	
Hungary	**0.6**	**0.5**	**0.7**		**Denmark**			**0.6**	**-0.4**	**Hungary**	**0.4**		**0.5**	
India	**0.5**	**0.4**	**0.7**		**HongKong**			**0.7**		**India**			**0.7**	
Indonesia		**0.6**	**0.7**		**Hungary**	**0.5**		**0.5**		**Indonesia**		**0.6**	**0.6**	
Iran		**0.6**	**0.7**		**India**	**0.4**		**0.6**		**Iran**		**0.5**	**0.7**	
Japan	**0.4**	**0.0**	**0.9**		**Indonesia**			**0.6**	**-0.4**	**Japan**		**-0.5**	**1.2**	
Malaysia	**0.4**	**0.6**	**0.7**		**Iran**			**0.7**		**Malaysia**		**0.4**	**0.7**	
Philippines	**0.5**	**0.5**	**0.7**		**Japan**			**0.9**		**Philippines**			**0.7**	
Russia	**0.4**	**0.4**	**0.8**		**Philippines**			**0.6**		**Russia**			**0.7**	
SouthKorea	***0.6***	***0.6***	**0.6**		**Russia**			**0.6**	**-0.4**	***Zambia***		***0.4***	***0.4***	***0.4***
Zimbabwe	**0.5**	**0.5**	**0.6**		**Zimbabwe**	**0.4**		**0.5**		**Zimbabwe**			**0.5**	

Clusters from Contemporary Scores from Hofstede's Theory

Hofstede, Hofstede and Minkov (2010) provide an updated set of scores for the national cultural value dimension means for the theory. New estimates of national means for *Long-Term/Short-Term Orientation* are provided, derived from the World Values Survey data. The dimensions consist of the original four from Hofstede (1980): *Individualism/Collectivism, Power Distance, Uncertainty Avoidance, and Masculinity/Femininity*. Hofstede & Bond (1984) added *Long-Term/Short-Term Orientation*, with the measure refined in 2010. Hofstede, Hofstede & Minkov (2010) added a sixth dimension, *Indulgence vs. Restraint*. Indulgence defines a society that allows relatively free gratification of some desires and feelings, especially those that have to do with leisure, merrymaking with friends, spending, consumption, and sex. Its opposite pole, Restraint, defines a society which restricts such gratification, and where people feel less free and able to enjoy their lives. Indulgence is analogous to Schwartz' (1992) Hedonism; inspection of Schwartz Value Survey (SVS, 1992) items opposite Hedonism in the Multidimensional Scaling Smallest Space Analysis reveals items similar to those defining Restraint.

The set of countries is different from the GLOBE project samples, and different clusters appear, such as a Baltic cluster. In Figures 6, 7, and 8, as described in the annotations, there are no consistent clusters across the four-, five-, or six-dimensional model scores.

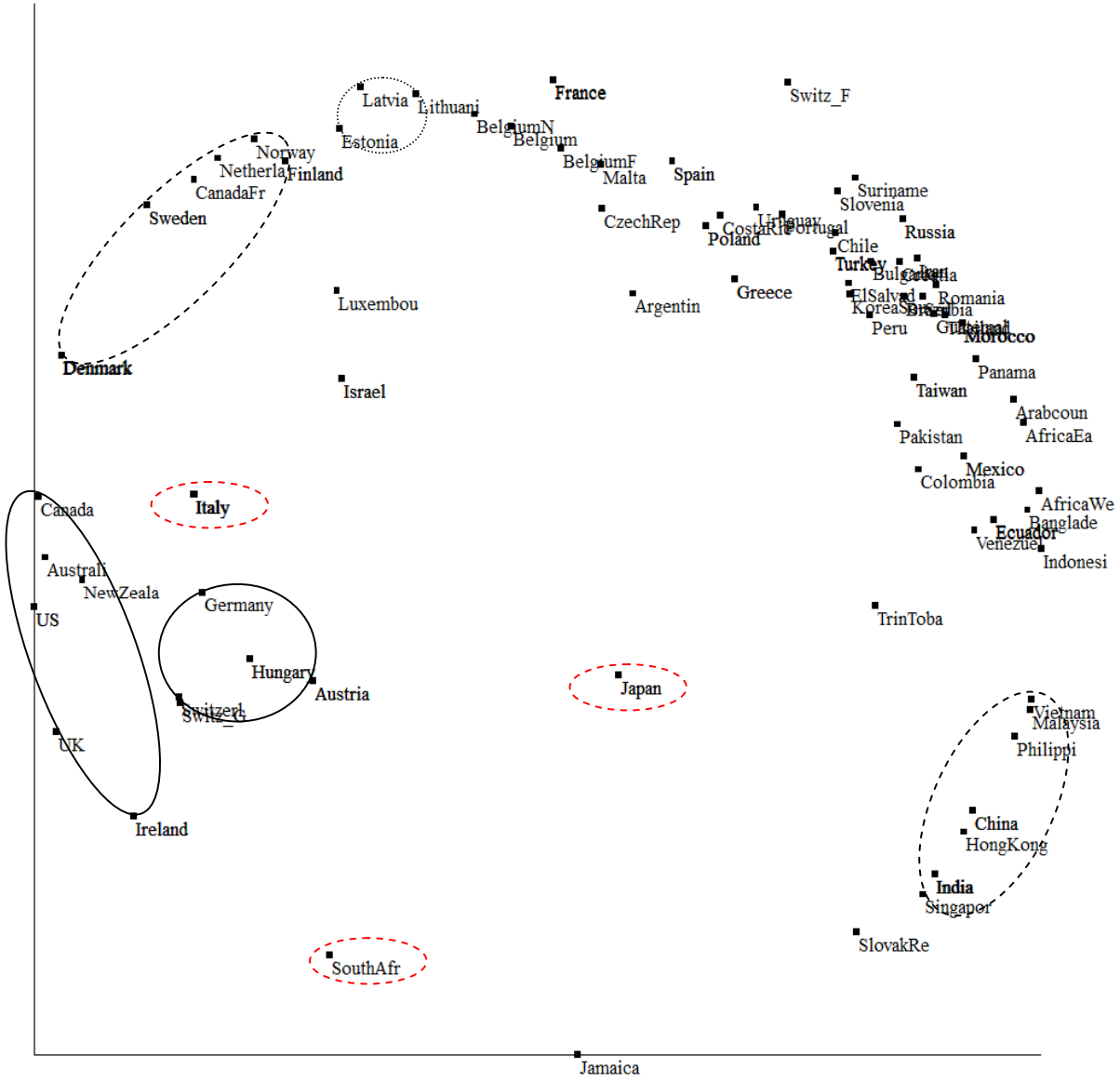


FIGURE 6. MDS SSA Two-Dimensional Plot of Samples from Means of Hofstede's Four Cultural Value Dimension Means from 2010

Notes:

- The Germanic Europe cluster includes Hungary.
- The Anglo cluster is well-defined, with South Africa as an outlier.
- There is a Nordic Europe cluster that includes French-speaking Canada and The Netherlands.
- There is a cluster of Baltic States.
- There is an Asian cluster that includes South East, North, and South, but not South Korea, Taiwan, or Indonesia.
- The Latin, Middle East, and Sub-Saharan Africa country samples are intermixed.
- There are a large number of outliers.

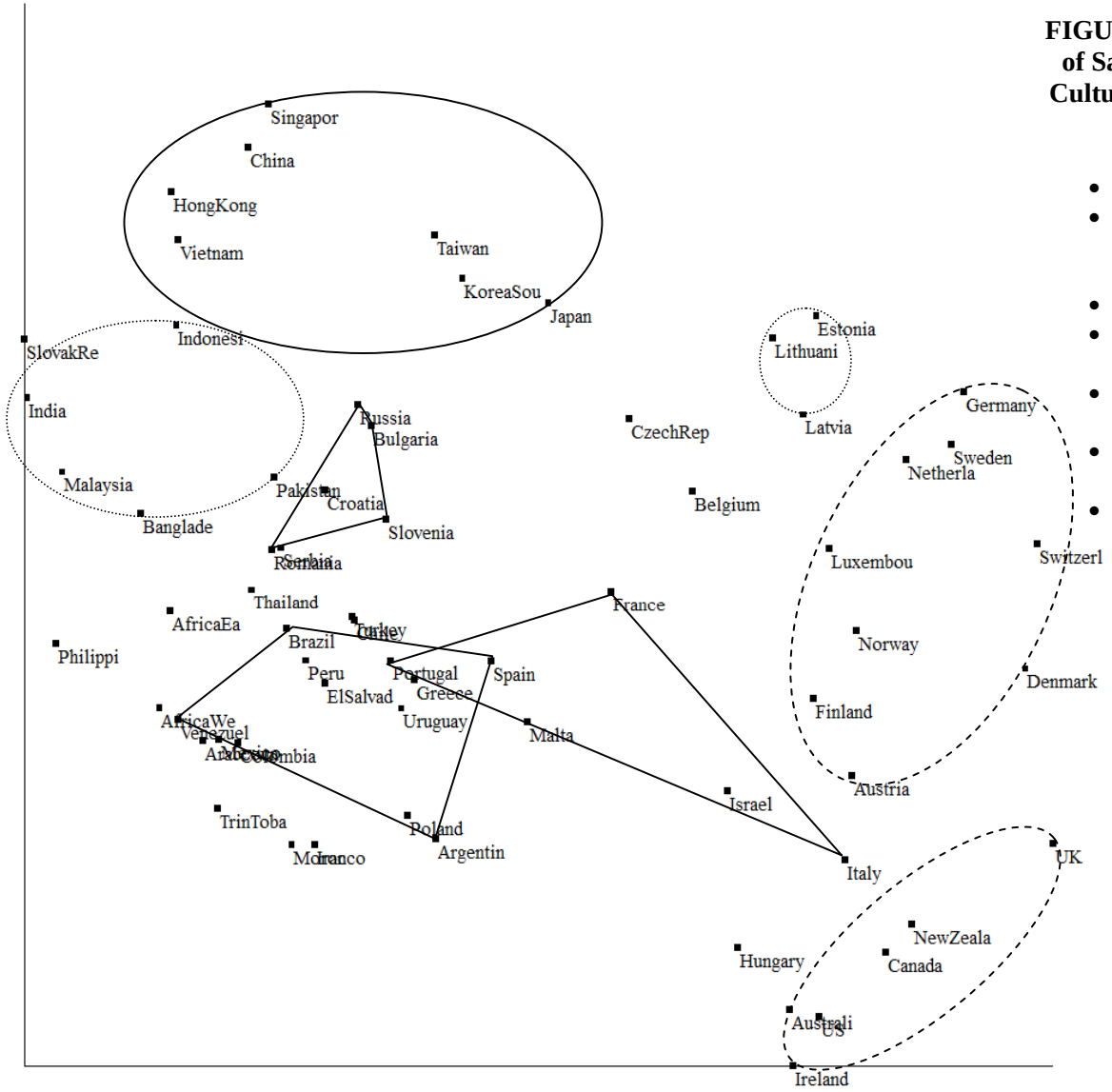


FIGURE 7. MDS SSA Two-Dimensional Plot of Samples from Means of Hofstede's Five Cultural Value Dimension Means from 2010

Notes:

- There is a Northern Europe cluster.
- There is an Eastern Europe cluster, with the Slovak Republic and the Czech Republic as outliers.
- There is a cluster of Baltic States.
- The Anglo cluster is well-defined, with no data for South Africa.
- There is a North Asian cluster and a South Asian cluster.
- The Latin cluster includes Greece and Poland.
- There are many outliers.

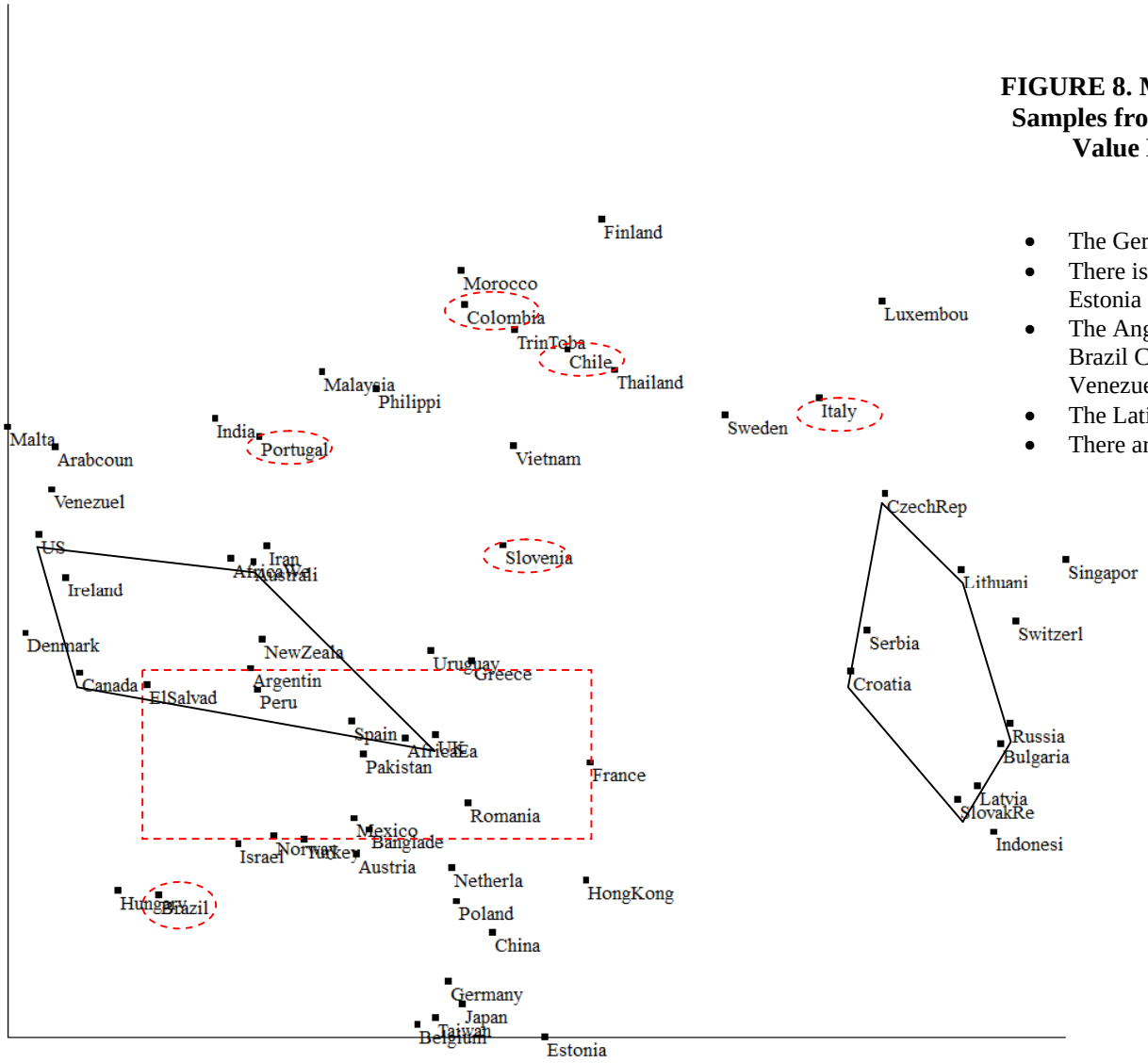


FIGURE 8. MDS SSA Two-Dimensional Plot of Samples from Means of Hofstede's 6 Cultural Value Dimension Means from 2010

Notes:

- The Germanic Europe cluster includes Denmark.
- There is an Eastern Europe and Baltic cluster, with Estonia as an outlier.
- The Anglo cluster overlaps the Latin Cluster; Brazil Columbia, Chile, Portugal, Italy, and Venezuela are outliers.
- The Latin cluster includes Greece and Pakistan.
- There are a large number of outliers.

Minkov's Theoretical Value Dimensions

Knafo, Roccas & Sagiv (2011) place Minkov (2007) in the panoply of important theoretical approaches to defining and assessing cultural value dimensions. Minkov in this 2007 book derived three dichotomous cultural dimensions from the public WVS database (Inglehart, 1977, 1990, 1997; World Values Survey, 2011) and analyses and discusses them in the context of the cultural value dimensions defined by Hofstede, Trompenaars and Hampden-Turner, and the Global Leadership & Organisational Behaviour Effectiveness (GLOBE) project. Additional derivation of support for the dimensions comes from comparisons with various non-governmental organizations, such as Transparency International, various market research organizations, various United Nations publications, the World Health Organization, and various World Bank publications. The author notes the mentorship of Geert Hofstede. In the 2011 book Minkov discusses four dimensions, which are:

- *Exclusionism vs. Universalism*: Is similar, if not identical to, Hofstede's Individualism/Collectivism and GLOBE's In-Group Collectivism.
- *Indulgence vs. Restraint/Industry (Restraint changed to Industry in Minkov 2007 to 2011)*: *Industry* is a cultural behaviour set that identifies personal and societal discipline necessary for achievement of prosperity in contemporary societies, especially in poor countries. The dimension identifies societies that prioritise hard work and thrift, with a low prioritisation of leisure activities. *Indulgence* identifies a relaxed attitude toward hard work and thrift and a high prioritisation of leisure. The dimension was added to Hofstede's theory in Hofstede, Hofstede & Minkov (2010). Minkov & Blagoev (2009) labelled the dimension *Economic Dynamism*, later defined in Minkov's book as *Industry vs. Indulgence*.
- *Monumentalism vs. Flexumility* (a created word, with the dimension name changed to *Self Effacement* in Hofstede's Values Survey Module [VSM] 08): Monumentalism is related to pride in self, national pride, making parents proud, and believing religion to be important. It is similar to McClelland's (1961) concept of "need for achievement", which is also a theoretical basis of the GLOBE dimensions. The Flexumility pole identifies societies valuing humility, with members seeing themselves as not having a stable, invariant self-concept and having a flexible attitude toward truth. Minkov reports similarities between this dimension and Hofstede's masculinity – femininity role-based dimension. Minkov also relates the dimension to Gelfand's "tight vs. loose" (Gelfand, Nishii, & Raver, 2006). It also resembles Schwartz's (1992) "universalism /benevolence /conformity / tradition vs. power/achievement" arrays of items in the SVS.
- *Hypometopia vs. Prudence*. Hypometropia in society is associated with early, abundant, and competitive sexual reproduction activities combined with acceptance of the mortal risks this involves for the individual. The Prudence perspective at the other pole focuses upon the survival of the individual, entailing risk avoidance in reproduction and related matters. Behavioural characteristics of Hypometropia vs. Prudence include, from p. 146 of Minkov (2011):

Hypometropia:		**Prudence:**
• Reproductive instincts are followed competitively, despite dangers to individuals		• Reproductive instincts are prudently managed in order to minimise dangers to individuals
• Recourse to violence when reproductive opportunities and interests associated with them are threatened	Versus	• Violence is not a vehicle for successful reproduction or promotion of interests associated with it.
• Short time horizons		• Long time horizons
• Risk-acceptance		• Risk-avoidance

Clusters derived from Minkov's published scores are based upon fewer countries, and display European, Latin American, Anglo, and Middle Eastern clusters.

Schwartz' Dimensions of Culture

Schwartz (2008) does provide raw data from participants. Using data provided by Schwartz (personal communication, 2010), based upon research results using the Schwartz Values Survey, we see a definite Latin American cluster in the centre of Figure 10, with Peru and Bolivia as outliers. The Anglo Cluster is dispersed, and includes Israel Jews and Japan. Spain and Portugal are located in a Western European Cluster that includes French-speaking Canada. The Confucian Asia Cluster of Taiwan, Hongkong, South Korea, and China does not include Japan. There is a Sub-Saharan Africa cluster that includes Iran, Jordan, and Nepal. Malaysia, Indonesia, and Singapore cluster near South Africa. There is a large Central Europe region that includes Turkey, Cyprus-Greek (which is considerably distant from Greece), Mexico, and perhaps Macedonia and Peru.

Data from World Values Survey

In Figure 11 from the World Values Survey (WVS), which provides raw data for participants, the oval at the lower right shows the mean size of the standard deviation on each of the two dimensions *within* the 53 societies (the shape is oval because the standard deviation on the horizontal axis is larger than on the vertical axis. The World Values Study cultural maps are from Inglehart & Welzel (2005, and 2010, p. 554):

- Defining a Confucian cluster is problematic, as Japan is nearer Europe, Vietnam is in the South Asia cluster, and the remaining Confucian heritage countries are intermixed with East and Central Europe.
- Poland falls in the South Asia group
- Note: Identifiable clusters for Latin Europe, Latin America (with Peru and Bolivia as outliers), Anglo (including Japan and Israel Jews), Eastern Europe, Confucian, and Sub-Saharan Africa (including Iran, Jordan, and Nepal)

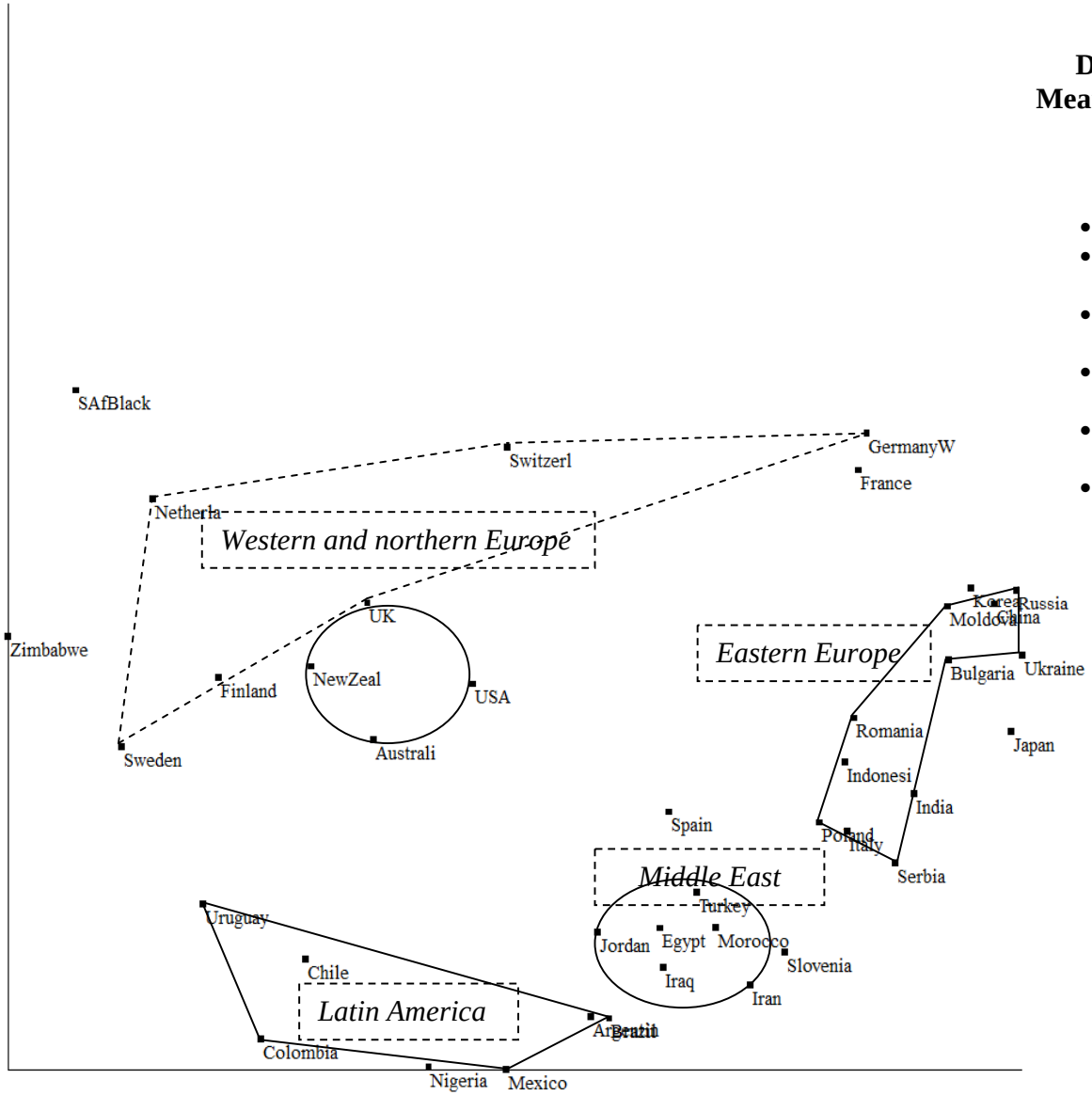


FIGURE 9. MDS SSA Two-Dimensional Plot of Samples from Means of Minkov's Four Cultural Value Dimension Means from 2011

Notes:

- There is a clearly defined Anglo cluster.
- There is a clearly defined Middle Eastern cluster.
- The Latin America cluster appears to include Nigeria.
- There is an intermixed cluster of Eastern Europe, Asia, and Italy.
- There are indications of a west and north Europe cluster that may include France.
- Spain and Italy are much closer to Eastern Europe than to a Latin cluster that includes France.

FIGURE 10.
MDS SSA Chart of 77 National Groups on Schwartz' Seven Cultural Orientations

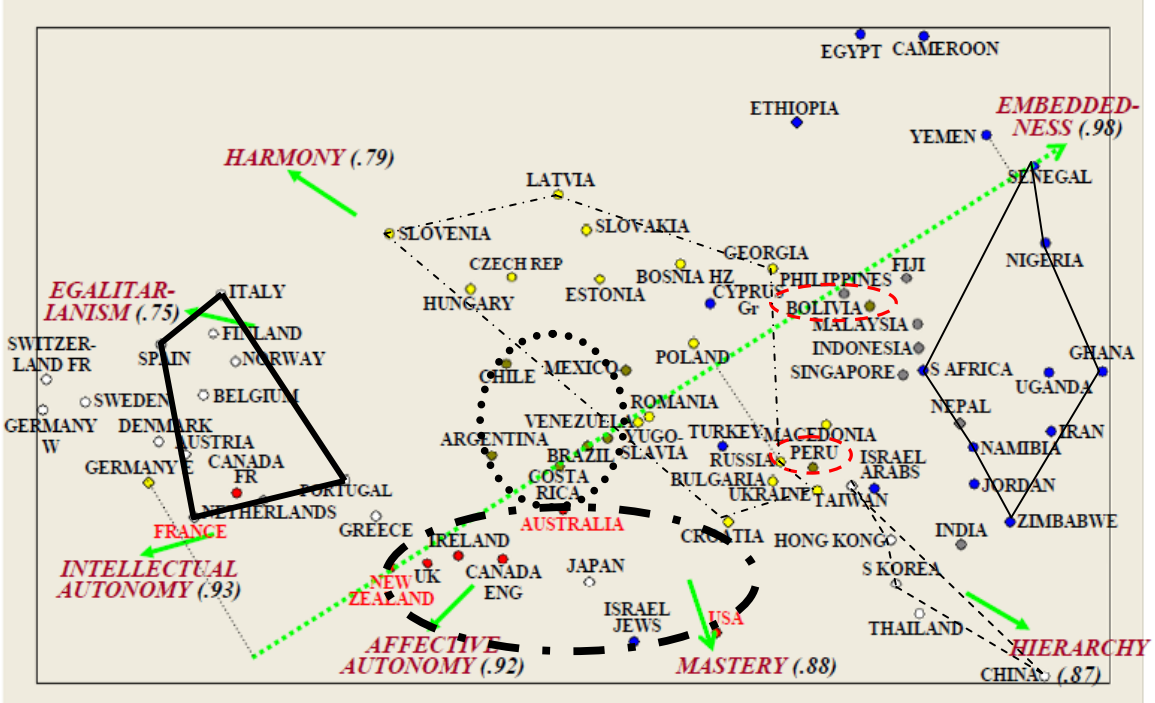
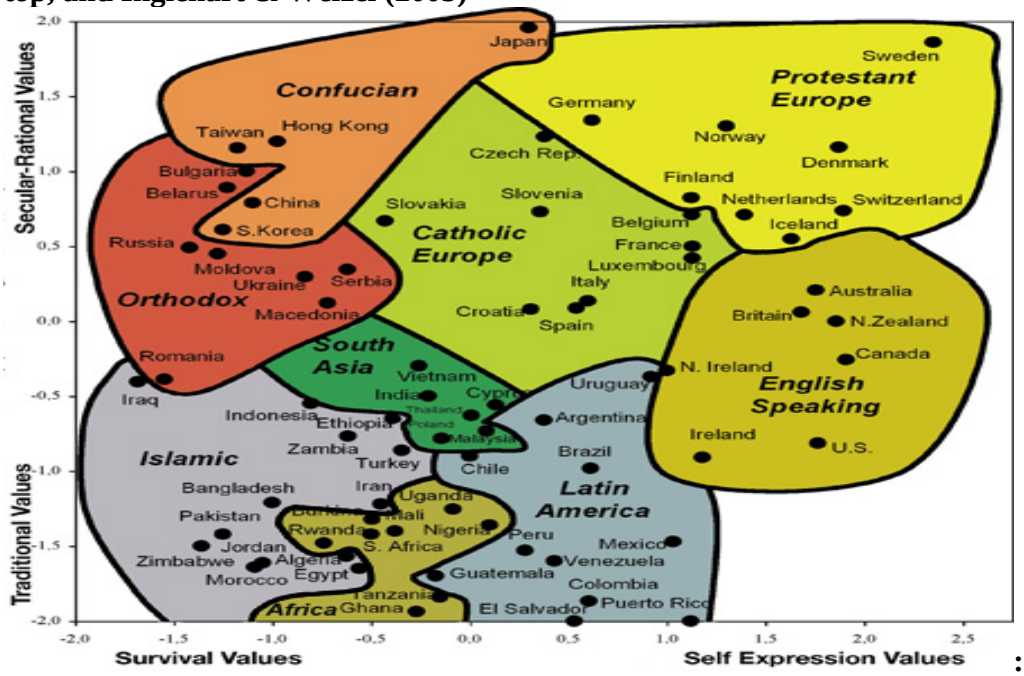


FIGURE 11. World Values Survey Map of 53 Societies—from Inglehart & Welzel (2010), top, and Inglehart & Welzel (2005)



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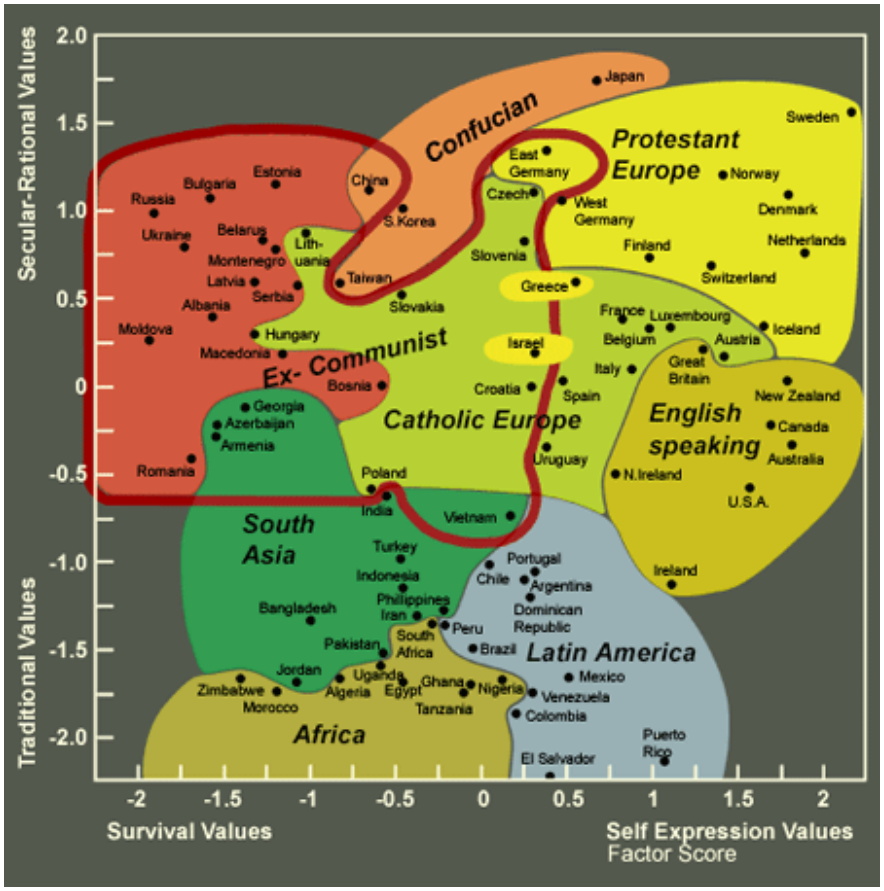

http://www.worldvaluessurvey.org/wvs/articles/folder_published/article_base_54

China and Confucian Clusters

The idea of a *"Confucian Asia" cluster* continually appears in cultural comparison studies, recently in Ashkanasy (2002), defined as China, Hong Kong, Japan, Singapore, South Korea, and Taiwan. Vietnam, a country with a strong Confucian heritage, is omitted. Linh (2010) notes, "Vietnam belongs to the group of countries such as China, Japan, Korea, Taiwan, and Singapore that are heavily influenced by Confucianism." However, Hofstede & Minkov (2010) implicitly question the existence of a unique *Confucian Cluster*, and in fact, the uniqueness of Confucian values in general. My analyses indicate it depends upon what dimensions you have operationalised and measured.

Culture areas: China as an example

In several studies in China the Preferred Leader Behaviour and Values Across Cultures project carried out field survey research using the Leadership Behavior Description Questionnaire XII (LBDQ XII). The survey was administered to people working in business organizations in Zhengzhou City, Henan Province; Hangzhou City, Jiangsu Province; Guangzhou City, Guangdong Province; and in the Macau Special Administrative Region, in the Peoples' Republic of China. Significant differences were found amongst the samples for each of the twelve leader behaviour dimensions of the LBDQ XII among regions, with the exception that the nearby regions of Guangzhou and Macau exhibited no significant differences. The results indicate that "culture areas" exist in China, distinctly different from one another. The number of specific culture areas in China has not been identified, and are defined by a multitude of influences including local dialect, economic history, geographic distance from one another, to name a few of the major ones. Our studies define three regions, Cantonese-speaking South China with a long history of business contacts with other cultures, the more remote Southern Mandarin + Henan dialect speaking Zhengzhou City in Henan Province with only recent international business exposure, and Wu-speaking Hangzhou City in Jiangsu Province, with less international business exposure than Southern China. Other regions exist and differences need to be identified and analyzed.

Tung, Fang & Worm (2008), amongst others, specify regional differences in China as an important contextual level of analysis. My study of regional differences in preferred managerial leader behavior found similarities and differences in preferences as an effect of geographic regions inside China. Ralston, Yu, Wang, Terpstra, and He (1996), in a study of regional differences in individual values in China, found similar regional effects using Schwartz' individual value dimensions.

Ralston et al. selected an ecological-materialist approach as a theoretical foundation for discussing regional differences as it integrates both the evolution and the structure of a society, for further justification of this approach see the article. The materialistic approach identifies a culture as consisting of three components:

1) The implicit cultural values, an ideological superstructure consisting of the opinions, attitudes, beliefs, norms, and values shared by the members of a society.
2) A social structure composed of the explicit behavioral patterns of the members. The social structure is differentiated from the superstructure in that the social structure consists of what people actually do rather than what they think (Sanderson, 1991).

3) Both the superstructure and the social structure are determined by the infrastructure. That is, the values and behaviors of individuals in a society are shaped by the influences of their infrastructure (Harris, 1979), these can include aspects of the physical environment, the resources, tools, and processes producing and distributing goods, and the demographics of the inhabitants. Therefore, to understand the values and behaviors of individuals in a given society, one needs to identify the society's infrastructure that shapes a society's values (Sanderson, 1991).

Ralston et al. (1996) is a seminal work on evaluation of Chinese infrastructure influences. They indicated that some influences were homogeneous countrywide, and therefore not pertinent for regional comparisons, e.g., politics and law have been nearly universal across the regions since the installation of the 1949 Communist government. However, for 2000 years the one ideological constant in China has been Confucianism, defining the core values and exemplary behaviors of China since the Han dynasty (206 BC - 220 AD). The tenets of Confucianism are deeply embedded in the cultural ideology and values of the Chinese. Societal core values change very slowly, and even Mao's Great Cultural Revolution (1966-76), having as one objective the elimination of Confucianism from Chinese society, could not destroy the centuries of adherence to Confucian values.

Ralston et al. found regional differences in China to be influenced by historic precedents, geographic location, economic development, educational level, and technological sophistication. Historic/geographic comparisons indicate that a clear dichotomy occurred historically due to the geographic differences between China's coastal and inland cities. As in many other countries, development began on the coast. China's coastal cities, Shanghai, Guangzhou, and Dalian, have been the international commercial and trading centers for many centuries. Thus, the historic/ geographic comparisons identify a definite coastal-inland contrast.

Huo & Randall (1991) conducted an exploratory data analysis of the sub-cultural value differences amongst managers all sharing the Chinese culture but living in different geographic regions. Using survey responses to Hofstede's VSM, a comparison was made of the values amongst Chinese living in Taiwan, Beijing, Hong Kong, and Wuhan. Strong sub-cultural differences were revealed.

Culture areas are seen to reflect clusters of behavior that often reflected similar ecological adaptive strategies. Thus, culture areas could be defined by trait lists, those uniquely present, and those uniquely absent. The number and placement of culture areas varies depending upon authors and their particular theoretical interests. Any monolithic description of the Chinese people will be in error. Even within the majority Han ethnic group there are many subtleties in their beliefs and practices that make it difficult to categorize this group as one homogenous group. Depending upon where a Chinese comes from, the spoken language, religion, and cultural practices can be different from other Chinese.

Discussion and Conclusions

As a theory is 'a coherent description, explanation and representation of observed or experienced phenomena' (Gioia and Pitre 1990, p. 587), and theory building is ". . .the ongoing process of producing, confirming/disconfirming, applying, and adapting and refining theory" (Lynham 2002a, 222), the models of leadership and societal culture investigated in this study do not provide a consistently coherent theoretical representation of cultural clusters across models. The models are disconfirmed across measures of dimensions. Both ***Hypothesis: Dimensional***

Consistency and ***Hypothesis: Consistency in Results from Statistical Analyses*** are not supported. Some clusters appear relatively consistently in the cultural analyses, but the membership of the clusters is not constant. Provision of raw data by theorists would improve the credibility of their theories by allowing validation by other researchers.

Leung (1989) discusses potential causes of the lack of consistency in placing nations in clusters noted in the analyses above. He believes the problem stems from the fact the we are relying on cultural differences or lack of in an antecedent variable to explain cultural differences or lack of in the outcome variable, without knowing for sure that cultural differences (including no difference) in the antecedent variable represent true, bias-free differences. Verification of presence or lack of bias can follow from looking for another antecedent variable to or set of variables to explain cultural differences in the original antecedent variables. This has the advantage of reducing the likelihood of bias as leading to a pattern. Minkov's (2007, 2011) model has the richest set of data concerning antecedent variables to cultural dimensions. However, the antecedent variables are employed to construct the dimensions, raising questions of self-fulfilling prophecies.

As theories with models that consistently predict clusters of national cultural dimensions those proposed by Hofstede et al. (2010), the GLOBE project (House et al., 2004), Minkov (2007, 2011), Schwartz (figure provided), and the World Values Survey (from the WVS website) are indicative but not definitive. In most we find clusters that can be defined as Anglo, Germanic, Nordic, and Latin (often without France and French-speaking Switzerland), and frequent appearances of eastern Europe, but membership is not constant across theories. Many clusters appear in some but not all models. I conclude that: (1) theory-defining studies are subject to systematic error from lack of sample invariance (see Littrell, 2010, Chapter 2); and (2) the theoretical models are incomplete in terms of defining a sufficient set of dimensions to accurately identify differences between nations and culture areas within nations, leading to spurious clusters.

I conclude that clustering of cultures is a fallacious concept, and can be misleading. Activities requiring comparison of national cultures need to be on a country pair basis, and in large, multicultural nations, even that can be misleading.

IMPLICATIONS FOR PRACTICE

The implications for practice in international human resource management, marketing, general management, and expatriate selection and training are that national and area cultures are different, and the most successful approach to dealing with the differences is to treat each nation or culture area as unique, and design business approaches to consider particular source and destination cultures as unique pairs and plan and implement on that basis. In large, multicultural nations, regional differences can be significant.

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