MEASUREMENT OF TRACES OF REGIONAL CULTURE: A CROSS-GENERATIONAL APPROACH

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Introduction

An area of increasing interest to marketers concerns how regional culture impacts consumer behavior (e.g. see Boote 1981; Clever 1982; Dardis, Derrick, Lehfeld, and Wolfe 1981; Hawkins, Roupe, and Coney 1980; Henry 1976; Schaninger, Bourgeios, and Buss 1985; Schiffman and Kenuk 1978; Vinson, Scott, and Lamont 1977; Wallendorf and Reilly 1983;). An ancilliary issue is how cultural assimilation impacts product and service preferences (Hawkins, Roupe, & Coney 1980; Wallendorf and Reilly 1983; and Kahle 1986). For example, Garreau (1981) suggests a "nine nations" view of regional culture and points out important ramifications for consumer behavior. However, significant research in this area is complicated by the complexity of regional culture. Measurement of this construct requires an understanding of its genesis. In the United States regional culture has its origins as described below:

1. Regional culture reflects the values (religious, economic, moral, consumption and shopping) learned from parents, teachers, and institutions. Differential acculturation among regions is hypothesized to be caused by differing rearing and educational approaches (Rokeach 1973).

2. These differing rearing and educational approaches are in turn learned by spouses, within a household, from the parents and teachers.

3. Finally, it follows that regional culture is the culmination of the differing cultures from the ancesters of each spouse.

Objectives of the Study

The prior discussion leads to the conclusion that measurement of a given regional culture requires the measurement of regional identification of preceding generations for the households being investigated. But measurement of regional culture is a difficult task, leading to an immense coding procedure. For example, information from a typical household might include the city and state of the household, the city and state where each spouse is reared and educated, and the city and state where each of the parents of each spouse were reared and educated. This kind of information may result in numerous combinations that would be difficult to analyze and to use to trace regional culture through time and space. Each household may have a diverse "regional background" that, when traced back through two generations, would lead to what we will call a "regional trace".

A simple and meaningful approach to measuring such a "regional trace" is needed if we are to examine its impact on value systems. We have coded location data (city and state for each spouse and their parents) over two generations.

An example of an intergenerational trace of one household is shown in **Figure 1**. In addition, we have gathered instrumental and terminal values (Rokeach 1973). Using the spatial trace approach--to be described later--we transform the transgenerational data to a form more applicable for identifying consumer clusters that have similar regional backgrounds. We then plan to analyze the regional traces for differences in values.

The New Measurement Approach

Figure 2 shows that the histories of both spouses should be used to trace regional culture. This diagram suggests that each spouse is influenced by the culture of the region in which they were reared and educated. In addition, each spouse is influenced by the regional culture where their parents, in turn, were reared and educated. As already indicated, the impact of regional culture across generations can be viewed as a "regional trace". Steps in finding unique regional traces are now presented.

First, the households to be analyzed should be chosen on some basis that requires the sample to be representative of the population of interest. In general, a randomized, proportionate, stratified sample may be used. For purposes of demonstration, we have chosen a sample that is representative of a regional area in the United States.

Second, an approach should be designed to gather the appropriate data, such as a self-administered questionnaire, personal interview, or other information gathering procedure. Regardless of the approach, three kinds of information should be gathered: (1) The state and city where each spouse, and their parents, were reared and educated should be collected (see **Figure 2**); (2) the appropriate values for each household (for example, Rokeach values, consumption values, or economic values) should be measured and examined for relationship to values; and (3) if, as Garreau suggests, regional culture is related to product preferences and behaviors, information to test these hypotheses should be collected.

Third, hierarchial cluster analysis can be used to search for regional traces. The centroids of the clusters from this analysis should reflect unique patterns of transgenerational locations (reflecting where each generation was reared and educated).

To facilitate the cluster analysis this proposal suggests the following data transformation: (1) convert each city and state location to its equivalent longitude and latitude (this is done by reference to a map); and (2) carry out the cluster analysis on the longitude and latitude data.

Questionnaire and Sample

Data were collected from two mail surveys from a panel of households in Arkansas. The first questionnaire requested information on the level of assimilation in the state subculture by asking respondents to record the city and state where they were reared and educated. This information was converted to longitude and latitude for purpose of analysis. This method of data collection was used because of the hypothesized correlation between length of residency in a given area and degree of subcultural assimilation.

The second questionnaire was used to obtain information concerning respondents' evaluations of personal values and how they view retail salespersons from six retail chains. Personal values were hypothesized to be different across subcultural regions. In order to obtain this information, respondents were provided a list of terminal values developed by Rokeach (1973) and asked to indicate the relative importance of each value on a 5-point scale ranging from not important (coded "1") to most imnportant (coded "5"). Rokeach's terminal values were selected because of the usability of the scale as shown in past studies (Hawkins and Coney 1980; Howell 1979; and Powell 1980).

Respondents' evaluations of retail salespersons were obtained using a 6-point scale. A rating of "1" was assigned to the retail store whose retail salespersons the consumer most preferred, while a rating of "6" was assigned to the retail store whose retail salespersons the consumer least preferred. Wal-Mart, Sears, K-Mart, Penneys, Dillards, and Kinneys Shoes were selected as retail chains in the study because of consumers familiarity with them in the South Central United States.

Analysis

Hierarchical Profile-Grouping Analysis (H-group) was used to combine the data into five clusters as shown in **Table 1**.

TABLE 1
RESULTS OF THE H-GROUP SOLUTION

	Location[1] Variable	Total Grand Mean	Means for Group: 1	2	3	4	5	F-ratio[4]
I. Univariate Statistics[2]	1.Male Long.	91.9	90.7	119.5	94.8	91.8	80.8	59.1
	2.Male Lat.	35.7	38.8	36.0	36.1	34.9	39.9	36.0
	3.Fem. Long.	91.8	91.1	93.3	94.6	91.9	80.4	91.8
	4.Fem. Lat.	35.5	38.9	37.9	36.2	34.7	37.4	37.4
	Group size	195.0	23.0	2.0	23.0	141.0	6.0	
	Percent of Total	100.0	11.8	1.2	11.8	72.3	3.1	
II. Multivariate Statistics								
	1. F-ratio						43.9	0.00
	2. Degrees of Freedom[3]						16(571)	
III. Cluster Significance								
	1. Sample C Statistic = 2.451							
	2. Critical C(unimodal) = 1.3564 Tested at the .05 level of significance							
	3. Critical C (uniform) = 1.5798							

[1]Male and female longitude and latitude where reared and educated.
[2]Univariate degrees of freedom are 4 (model) and 190 (error).
[3]Model and (error) degrees of freedom, respectively.
[4]P < 0.00

Initially, the four, five, and six hierarchical group solutions were examined for use in this study. The five group solution was chosen because it displayed acceptable grouping characteristics. The location variables measure where each spouse was reared and educated. As shown in **Table 1**, Arnold's C-Statistic indicates a highly significant separation among the groups.

The mean longitude and latitude for each group is presented in **Figures 3** and **4**. The grand centroid for the sample is located in northeastern Arkanasas. The mean location for group 1 for both male and female spouse is near St. Louis, Missouri. The mean location for group 2 is different for male and female spouse. The grand mean for the male spouse is located slightly north of Los Angeles, California, while the female spouse was on average reared and educated near Kansas City, Missouri. For group 3, both spouses were reared and educated near each other along the Arkansas--Oklahoma border. In group 4, both spouses were reared and educated in Central Arkansas and in group 5, both spouses were reared and educated in West Virginia.

Although the results of the centroid analysis reveals five distinct groups, Group 3 has an Arkansan influence. For example, almost 73 percent of the respondents were reared and educated in Arkansas. In addition, another 12 percent of the sample (group 2) were reared and educated along the Arkansas--Oklahoma border. This may have an undue impact on shopping orientations.

Cultural Values

Rokeach's terminal values were tested for relationship with regional category using MANOVA. The MANOVA test was performed with an unbalanced design requiring the use of PROC SAS GLM with PDIFF and LSMEANS options. Wilk's criterion, Phillai's trace, Hotelling-Lawley trace, and Roy's maximum root were used as tests of significance. The tests statistics for overall significancee for the values among groups are shown in **Table 2**. The results indicate a significant difference in values among the groups.

TABLE 2
TEST STATISTICS FOR OVERALL SIGNIFICANCE FOR VALUES AMONG GROUPS

I.	Wilke's Criterion = 0.5845 W = 91.0309 U = 169.5000 Z = 3.9323 B = 17.5000 F = 1.28 Prob > F = 0.0653
II.	Pillai's Trace = 0.4841 F = 1.25 Prob > F = 0.0904
III.	Hotelling-Lawley Trace = 0.6004 F = 1.32 Prob > F = 0.0454
IV.	Roy's Maximum Root Criterion = 0.3567 F = 3.23 (Upper Bound)

The results for Rokeach's terminal values are shown in Table 3.

TABLE 3
MANOVA SOLUTION FOR ROKEACH TERMINAL VALUES

Variable	DF	F Value	PR>F	R-Square
1. Mature Love	4 (177)	3.60	0.0076	0.075159
2. Salvation	4 (177)	8.66	0.0001	0.163619
3. A Comfortable Life	4 (177)	1.12	0.3740	0.024747
4. A Sense of Accomplishment	4 (177)	0.36	0.8337	0.008170
5. A World at Peace	4 (177)	1.53	0.1959	0.033384
6. Equality	4 (177)	1.53	0.1948	0.033469
7. Happiness	4 (177)	0.90	0.4657	0.019917
8. National Security	4 (177)	1.04	0.3882	0.022958
9. Pleasure	4 (177)	1.08	0.3699	0.023739
10. Social Recognition	4 (177)	1.66	0.1611	0.036179
11. True Friendship	4 (177)	0.70	0.5906	0.015647
12. Wisdom	4 (177)	0.13	0.9703	0.002987
13. An Exciting Life	4 (177)	0.20	0.9401	0.004414
14. A World of Beauty	4 (177)	0.34	0.8503	0.007639
15. Family Security	4 (177)	1.62	0.1703	0.035391
16. Freedom	4 (177)	0.66	0.6235	0.014605
17. Inner Harmony	4 (177)	1.11	0.3553	0.024385
18. Self-respect	4 (177)	1.12	0.3509	0.024588

Two variables, mature love ($F(4,177) = 3.60$; $p > 0.0076$) and salvation ($F(4,177) = 8.66$; $p > 0.0001$) were highly significant.

Regional Factors

A factor analysis with VARIMAX rotation is shown in Table 4. It was used to determine if the location where the spouses were reared and educated loaded on two different factors. The results indicate that male longitude and latitude load on Factor 1 and female longitude and latitude load on Factor 2.

TABLE 4
FACTOR ANALYSIS SOLUTION WITH VARIMAX ROTATION

I. Factor Loadings	Factor 1	Factor 2	h^2
	0.88	-0.23	0.83
	0.52	-0.64	0.68
	0.87	0.35	0.88
	0.16	0.89	0.82
II. Factor Statistics			
Eigenvalue	1.83	1.38	3.21
Difference	0.48	0.79	
Proportion	0.46	0.34	
Cumulative	0.46	0.80	

Summary and Implications

This study demonstrates that one approach to capturing regional influence on consumer values is to convert the nominal location where a subject is reared and educated to a set or ratio numbers. Specifically, we recommend that the longitude and latitude of the location where a subject is reared and educated be substituted for names of towns. This procedure involves collecting city and state information on subjects, locating where they were reared and educated on a map, and substituting the longitude and latitude of this location for residential codes.

The results of this study show that these data can be analyzed with traditional multimeasurement techniques, assuming metric measurement qualities. The subjects in this study were classified using hierarchical cluster analysis. Five locational groups (where reared and educated) were found that were distinctly different among groups. Consumers values were examined with MANOVA to see if locational group membership related to Rokeachs' measures (1973). The group value centroids were significantly different among groups.

The major use of this research into regional influence and its measurement from a marketing perspective may be to investigate Garreau's (1981) nine nation thesis. If distinctly different marketing regional profiles assimilation is found--using this measure of regional assimilation--marketers can adapt their strategies to meet regional profiles within given market areas. For example, a book publisher may target its offering to one regional group within its market area. This research into methods to measure regional influence should find wide use in future marketing studies.

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FIGURE 1

THE CONCEPT OF INTERGENERATIONAL REGIONAL TRACES:
AN EXAMPLE OF ONE HOUSEHOLD

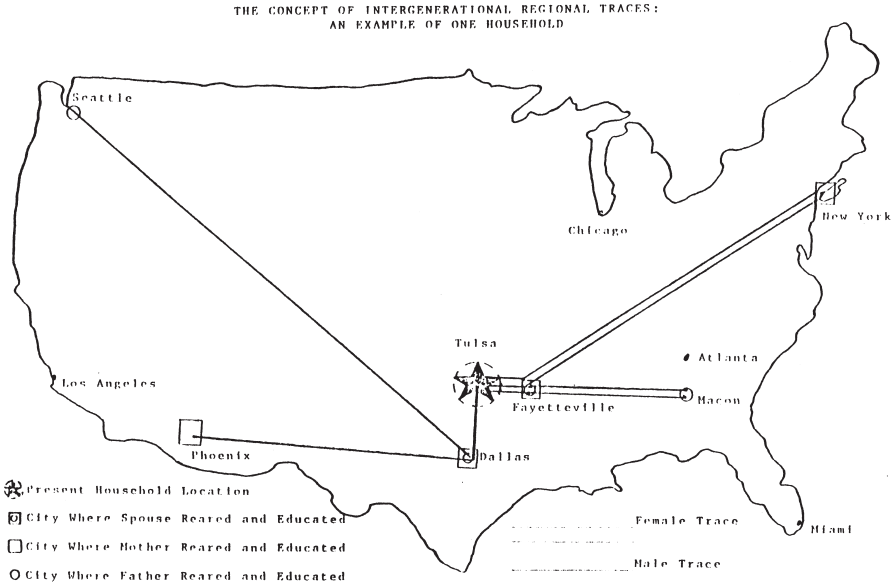

FIGURE 2

A TRACE OF ONE HOUSEHOLD BACK THROUGH TWO GENERATIONS:

(WHERE EACH WAS REARED AND EDUCATED)

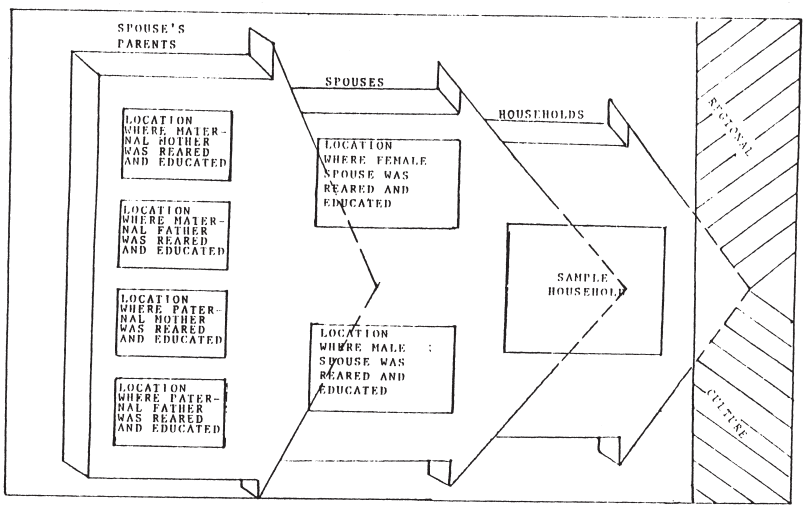

Figure 3
GROUP REGIONAL CENTROIDS: WHERE SPOUSES ARE REARED AND EDUCATED

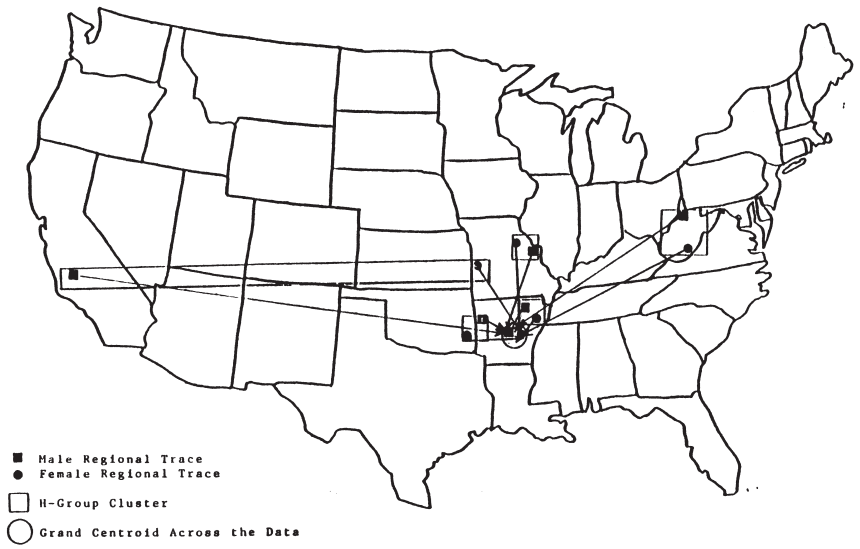

Figure 4
LOCATION OF GROUPS 1-5 REGIONAL CENTROID