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## Appeals to Ownership of Automobiles in Style Magazines of the U.S. and U.K., 1930-2000

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Appeals to Ownership of Automobiles in Style Magazines of the U.S. and U.K., 1930-2000

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**ABSTRACT**

We report an analysis of attribute and motive content of appeals to automobile ownership in print advertising of style magazines in the U.S. and U.K. Results of the analyses show significant country differences in appeals to technology, status and subcategories of motivation.

**KEYWORDS:** Cross-national advertising content, automobile advertising, content analysis, consumption artifacts, and time trends in advertising content

**INTRODUCTION**

A basic difficulty in studying relationships between culture and consumption has been in defining dimensions of consumption (Silver 2002). We will suggest that these dimensions can be usefully defined in attributes or characteristics of differentiated goods (Bajari and Benkard 2005). Among the contributions of studying differentiated goods is the increased likelihood that they include the range of functional and stylistic contrasts in attributes that have been a mainstay in the study of consumption artifacts (Bettinger 1996; Stoetzel 2017).

As has been recognized, that cultural variation in the importance of or preference for attributes of goods and services can meaningful be studies in the content of advertising (Borèus and Bergström 2017). In addressing cultural variation in ad content, there is some advantage to studying countries that have a commonality in language and a correspondence in legal and social institutions but have acknowledged variation in aspects of informal culture that are important to personal consumption. U.S.-U.K. comparisons of the content of print ads provide these conditions. Our interest will be in testing whether measures the importance of attributes of a differentiated good and motive content inferred from advertising content are consistent with oft-cited cultural differences in comparison societies. Following a review of background studies of U.S.-U.K. comparisons in thematic content, we will define the sampling and content analyses methodology. Results of the coding and analyses will then be reported. Finally, results will be interpreted in national contexts for the relevant study periods.

**BACKGROUND STUDIES**

Available studies of U.S.-U.K. thematic content that relate to culture differ in method, content and dependent variables. While not entirely consistent in their results, these studies offer background for contrasts between countries. Czellar (2003) has studied U.S.-U.K. differences in prestige judgments using a word association text. He found that U.K. respondents were higher in "exclusivity" and "quality" themes but lower in "personal success themes" than U.S. respondents. Caillat and Mueller (1996) in their study of TV beer advertising in the U.S. and U.K. found that American ads exhibited more individualism/independence, modernity/newness, and achievement

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content than U.K. ads. Although Tansey, Hyman, Zinkhan and Choudhury (1997) did not find consistently significant differences in work themes they studied in U.S. and U.K. print ad content, they did find that a higher proportion of automobile ads with achievement themes in the U.K. sample than in a U.S. sample. Koslow and Costley (2010) indicate that U.K. ads in general tend to be more focused on overall product quality while U.S. ads tend to have more specific information and price content. Results of these studies suggest composite profiles of the U.S. as a society that is higher in individualism and entrepreneurial "spirit" and aspects of achievement motivation but lower in collectivism, explicit status marking and quality and workmanship orientations than U.K. society.

Benefits of restricting content analysis to a single product category have been noted by Caillat and Mueller (1996); Neuendorf (2016) and Tansey, Hyman, Zinkhan and Choudhury (1997). The functional and symbolic importance of automobiles as a consumer good has been well recognized (Conley 2016; Gartman 1994; Hensher, Barnard, Smith and Milthorpe 1989; Thoms, Holden and Claydon 2016). While available cross-national studies of automobiles have most often addressed country-of-origin effects in communication (Ahmed and d'Astours 1993; Nagashima 1970; Haubl 1996), we study automobiles as a differentiated durable good across a set of representative attributes. Such a more extensive representation of the good can support more definitive identification of societal differences and their interpretation.

Analysis of media content has been a common method used for imputation of cross-national variation in both product attributes and the preferences they imply for a range of products (e.g., Boréus and Bergström 2017, Samiee and Jeong 1994). In this tradition, the study of magazine print advertising can provide data on both cultural and historical variations in attributes of a differentiated good and is unmatched in its continuity and diversity. The significant differences in country comparisons that have been reported in previous studies further indicate that analysis of print advertising can be an important contributor to documenting and interpreting cross-national differences in appeals to the use of consumer goods and motive content in ad copy.

"Efficient market" accounts (e.g., Fama 1998) can support an assertion that competition among producers results in ad content that is shaped to closely reflect consumer preferences. In addition to the importance of attributes to inferring preferences among those who study culture and consumption, attributes that underlie preferences have been of continuing interest to those who design and manage differentiated consumer products (Tai 2004). Although we also recognize that there are intermediary processes that determine how preferences are manifested in choice (e.g., Horsky, Nelson and Posovac 2004), we follow assumptions of previous investigators that the study of attribute content in artifacts and advertising supports inference on the underlying preferences of those who own and use the goods (e.g. Conley 2016). We study what can be designated as style magazines with a readership that has higher education and income than median national levels. The designation of style magazine indicates that they introduce directions for life style and consumption in humor, fiction and reporting.

### **Magazine Sources and Ad Sample**

Unlike the U.S., there are few popular magazines with continuous publication histories that span many decades in the U.K. We will sample ads from the humor, fiction and style or fashion magazine *Punch* in a series for the U.K. The higher mean income and education of the readership of this magazine is likely to allow a wide range of attributes to be manifested in advertising.

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Clearly, *Punch* does not have an exact correspondence in a U.S. magazine title. We will study the U.S. magazine that is likely to be most comparable to *Punch* over the study period, *Esquire* magazine has been a publisher of American fiction and an indicator of fashion to the demographic of its readership for much of its history. We designate both titles as style magazines. The demographics of its readership have a direct correspondence to *Punch* in the relative income and occupation/education positions for years in which data is reported. *Esquire* was published in 1933. *Punch* ceased publication in 2002. Our study period will span the decades of 1930s to 1990s.

## HYPOTHESES

We offer the following hypotheses on attributes and motive content in U.S. and U.K. print ads for the differentiated good of automobiles.

h<sub>1</sub>: Technology as an attribute is expected to be more frequent in appeals to automobile ownership in U.S. ads than in U.K. ads.

Technology has been often cited as the engine of growth in the U.S. economy in the post-war period under study (Baily 2004; Mundlak 2005; Fernald and Rammath 2004). The importance of a technology-based “ethic” in the U.S. in observing the rapid growth of the U.S. economy over most of the post-WWII period (e.g., Litan 2001). In contrast, a decline in technology-related ethic in the U.K. over this time period has been cited (e.g. Collins and Robins 1990).

h<sub>2</sub>: Style and comfort as attributes are expected to be more frequent appeals to automobile ownership in U.S. ads than in U.K. ads.

Style and comfort are often considered to be hallmarks of an affluent American society (Cole 1991). The U.S. has been described, as one in which there is more status competition through ownership and use of consumer goods than alternative Western societies. Other authors (e.g., Silver 2015[2002]) have discussed the possible basis for this in terms of differences in the formal status-granting institutions put in place by cultural histories of societies. We expect status competition to be manifested in appeals to style and comfort.

h<sub>3</sub>: Quality and efficiency as attributes are expected to be more frequent in appeals to automobile ownership in U.K. ads than in U.S. ads.

Workmanship and its contribution to quality and reliability has also been discussed as a traditional value of British industry (e.g., Collins and Robbins 1990; Greasley and Oxley 1998), although the extent to which it has declined in the post-WWII period and the reasons for the decline (e.g., Collins and Robins 1990; Raven 1989) have been debated. In contrast, the U.S. has been described as an individualistic, entrepreneurial society (e.g., Han nad Shavitt 1994; Sagie, Elizur and Yamauchi 1996) over the study period. There also are bases to expect that differences in income and the prices of fuel and maintenance between countries in the periods under study will result in differences in the importance of the attribute of efficiency.

h<sub>4</sub>: Achievement related appeals to meeting or exceeding a “standard of excellence” are expected to be more frequent in U.K. ads than in U.S. ads (e.g., Winter 1984).

h<sub>5</sub>: Achievement related appeals of “winning and competing” are expected to be more

frequent in U.S. ads than in U.K. ads.

The importance of workmanship we cite in U.K. history is expected to be reflected in the “standard of excellence” component of the achievement construct. While we consider “standard of excellence” to be a workmanship-related motive, we consider “winning or competing” to reflect individualistic and competitive orientations in American society.

## METHOD

### Product Attributes and Motives in Ad Content

Our initial pool of attributes is from those that have been identified in a range of previous studies (e.g., Fernandez-Castro and Smith 2002; Hensher et al 1989) or are reported by agencies that compare automobiles (e.g., *Crain Automotive* and *Wards Automotive Yearbook*). We also represent the achievement motive (e.g. Winter 1984) as a motive that relates to workmanship and quality in goods and services in our coding of ad text and have been previously studied in advertising content (e.g. Tansey et al 1997).

Attributes and motives under study are listed and defined in Table 1

**Table 1**  
**Coding Attributes of Automobiles in Magazine Ads**

<i>Attributes of Automobile</i>	<i>definition</i>
Value	mention of quality for Price
Technology	mention of a technology – general or specific e.g., dual diagonal brakes
Style	mention of style/appearance
Durability/Reliability	mention of longevity, durability, consistency, dependability
Efficiency	mention of low cost in operation, maintenance, mileage per gallon
Performance	mention of power, acceleration
Comfort	mention of interior room, comfortable seating or operation
Quality	mention of very high standards; price not relevant
Safety/Security	mention of safety/security – general or specific – e.g., side airbags
Handling	mention of control, responsiveness
Price	mention of low or moderate price, low price as an explicit appeal
<i>Achievement Content</i>	<i>definition</i>
1. Standard of Excellence	meets or exceeds certain high standards, can be in mention of brand e.g., Bosch parts, Body by Fisher
2. Winning or Competing with others	favorable comparison to other cars; awards or honors
3. Unique Accomplishment	only brand to offer feature or form; first to introduce it

### Sampling Procedure.

For each of the years in which the magazines were published between 1930 and 1999, ten ads of at least half a page were selected from both *Punch* and *Esquire* magazines according to a random procedure. Random numbers between 1 and 20 were drawn for two issues in each year; one closest to the date March 15, the other to October 15. The first five ads in the number sequence were used to select the ads in an issue. If a number in the random sequence was greater than the number of ads in an issue, the next number in the random sequence was drawn.

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*Esquire* did not have automobile ads for World War II years of 1942-1944 in the early 1940s. *Punch* did not have automobile ads between 1941 and 1945. A total of 580 ads for *Punch* and 614 for *Esquire* were used in the analysis.

### **Coding Procedure.**

The ads were coded on the set of attributes and the motive in achievement content listed in Table 1. Two coders each coded more than .7 of the total ad sample with the overlap used to assess reliability. Ads were assigned to each coder following a stratified time sample procedure so that each coder received the same number of ads in a year for each country. Both coders were initially trained with coding of a sample of ads from each magazine that were not part of the sample used in the study we report.

### **Coding scales.**

In pre-study investigation, we found that the difference between low and high importance of an appeal to ownership could be reliably discriminated. Each attribute was consequently coded on a three-point scale of absent, present-low importance and present-high importance. Achievement sub-categories were coded for their presence or absence in an ad following the procedure outlined by Winter (1984).

A recursive partitioning algorithm (CART: Breiman, Friedman, Olshen and Stone 1984; Rutkowski, Jaworski, Pietruczuk and Duda 2014) was used to identify the splits in the attribute and motive coding categories that best classified countries. CART develops a classification or branching scheme that predicts a dependent variable based on the levels of multiple independent variables. Whereas stepwise regression methods pick the independent variable to enter from the reduction in total variance in the dependent variable in the next step, CART has superior procedures to “look ahead” at subsequent splits any candidate split will result in and select the splits that minimize a measure of variation in the dependent variable.

CART constructs a large tree from sample observations by minimizing at each step some “impurity” function for the unexplained variation. The constructed tree is then “pruned” with a penalty criterion in which the penalty is proportional to the number of leaves (nodes) in the tree to obtain more parsimonious specifications of splits in the independent variables. We use CART as exploratory methodology to guide splits in coding categories used in logistic regression.

A classification tree based on a binary classification of the attributes of the presence or absence of technology, comfort and efficiency, the achievement sub-categories of standard of excellence and unique accomplishment, and style-appeals as high importance vs. low importance or absence was found to generate a discrimination of country that minimized the residual variation in CART. Collinearity is unlikely to affect these results since none of the attribute and motive variables evidence a coefficient greater than .24.

### Logit Model of Country Attribute Profiles in Print Ads

We use the binary logit model in eq. (1) to predict country of origin from coded attributes and motives.

$$(1) \quad \text{pr}(j = \text{countryA}) = F(\beta_0 + \beta_1 \text{att}_1 + \dots + \beta_n \text{att}_n)$$

where F is the cumulative logistic distribution function

$$F(z) = 1/(1 + e^{-z}), \quad z = \log[\text{pr}(j=A)/\text{Pr}(j=B)] = \beta_0 + \beta_1 \text{att}_1 + \dots + \beta_n \text{att}_n.$$

$\beta_0$  is an intercept and  $\beta_k, k=1, \dots, n$  are coefficients for the  $n$  attributes in Table 1.

Equation (1) can be estimated with data from procedures that we next describe. The sign and statistical significance of the coefficients for attributes and motives in the estimated model will be used for hypothesis testing.

## RESULTS

### Coder Reliability

Agreement between coders on a binary categorization of absence or presence of appeals to an attribute were assessed with intra-class correlation methods. These methods as applied in an interval scale by Shrout and Fleiss (1979) have been extended to binary scales (e.g., Ridout, Demetrio and Firth 1999). For the 160 ads that were coded by both coders, the coder agreement on the absence-presence categorization of attributes and motives was between .82 and .94. Coefficients exceeded .85 for all but the status attribute for which they were .81.

### Logit Models of Country Differences in Attribute and Motive Content

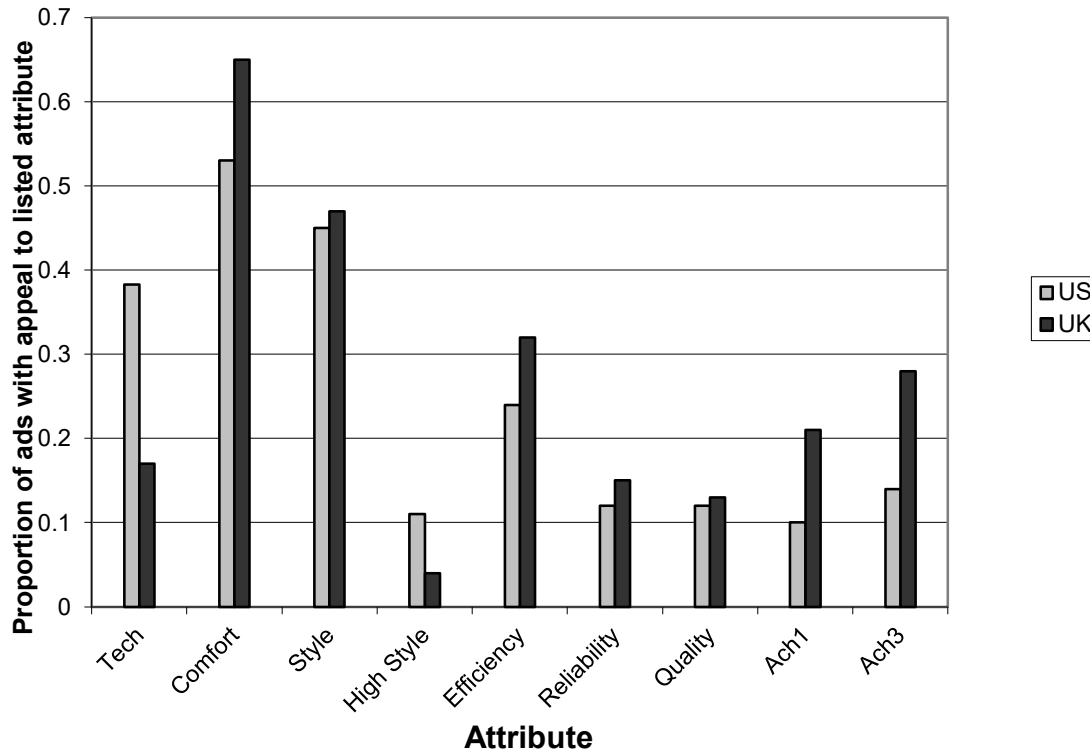
Estimation of a logit model of country-preferred attributes was undertaken with maximum likelihood procedures of SAS for the binary classification of country. Consistent with the results of the CART recursive partitioning, our backward stepwise procedure of model estimation indicated that only the presence or absence of technology, comfort and efficiency and the binary classification presence of style-appeals-high importance vs. low importance or absence and the motive content of the presence of achievement sub-categories of standard of excellence and unique accomplishment significantly increased model fit.

Measures of overall model fit all show highly significant increases from the attributes and motives we include in the final model (Final -2log likelihood=728.70; Pseudo  $R^2 = .218$ , Cox and Snell  $R^2 = .172$ , Nagelkerke  $R^2 = .230$ ). Removal of any of the attributes and motives in the final model all result in a highly significant ( $p < .001$ ) decrease in model fit (*i.e.*, a significant increase in the -2log likelihood). The absence of a significant Hosmer and Lemshow (1989) statistic ( $\chi^2 = 6.85$ ,  $df = 7$ ,  $p > .25$ ) also supports our inference on adequacy of model fit.

Figure 1 shows a profile of the mean proportions in which coded attributes and motives were present in the ad sample for the U.S. and U.K. Table 2 reports the coefficient estimates for the

set of attributes and motives in the final model. Coefficients are for the U.S. with the U.K. as the comparison country.

**Figure 1: Overall US-UK Comparison in Attribute and Motive Profiles**



**Table 2**

**Coefficient Estimates for Attribute and Motive Variables in the Model**

	B	S.E.	Wald	df	p	Exp(B)
tech	1.692	.165	105.590	1	.000	5.433
style_h	1.119	.272	16.872	1	.000	3.060
comf	-.689	.131	27.661	1	.000	.502
effic	-.462	.142	10.654	1	.001	.630
ach1	-1.206	.195	38.123	1	.000	.299
ach3	-.959	.173	30.541	1	.000	.383
Constant	.039	.351	.013	1	.911	.040

Note: B = logistic coefficient; S.E. = standard error; Wald = Wald statistic; p = significance level; Exp(B) = exponentiated coefficient.

Results for the accuracy of classification of country by attributes and motive in ad content are reported in Table 3.



**Table 3**  
**Classification Table: Entire Sample**

Observed			Predicted		Percentage Correct
			US=1, UK=2		
			1.00	2.00	
Step 1	US=1, UK=2	1.00	400	214	65.1
		2.00	172	408	70.3
	Overall Percentage				67.7

In addition to the “jackknifed” procedure for results in Table 3, we also cross-validated the classification of country in the logistic regression model with split-sample methodology (e.g., Huberty 1984). Our procedure was to first randomly assign the ads in a sample to a main sample and a hold-out sample with a stratified sample design in which half the ads in each year of the overall sample were assigned to one of the two sub-samples. Results for the analysis and hold-out samples we obtained are presented in Table 4.

**Table 4. Classification Table: Hold-out Sample Results**

Actual Group	Predicted Group Membership					
	Analysis Sample			Holdout Sample		
	Group 1	Group 2	Total	Group 1	Group 2	Total
Group 1: U.S.	197	115	.63	198	104	.66
Group 2: U.K.	75	214	.73	75	216	.73
Total	272	329	.68	273	320	.69

More than two-thirds of the sample was correctly classified by the study variables in the hold out sample. This is in comparison to correct categorization of .51 by a proportional chance criterion or the assignment of all ads to the country with the larger number of ads in the sample. Press' Q statistic as a measure of classification accuracy yielded a chi-square of 146.67 for the entire sample, 102.95 for the analysis sample and 79.93 for the holdout sample. Each of these  $\chi^2$  levels exceeds the critical value for  $\alpha = .01$  ( $\chi^2 = 6.63$ ). Thus we conclude that the classifications of ads in both the analysis and holdout sample were significantly better than chance or an assignment of all ads in the respective sample to the country with the larger ad sample.

## DISCUSSION

We have reported results of a study of cross-national differences in appeals to ownership of print advertising for automobiles in style magazines of the U.S. and the U.K. over the decades 1920-1990. While previous studies have focused upon content inferred in values and motives from

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communication variables, we directly study a set of product attributes that are invoked in appeals to automobile ownership as a differentiated good. In our initial review, we noted bases to hypothesize that U.S. ads would have higher frequencies of technology, style and comfort appeals but lower frequencies of efficiency, quality and reliability appeals than U.K. ads would have. In achievement motive content, a number of previous studies predict higher frequencies of ads with achievement content in U.S. ads. We disaggregated components of achievement and predicted U.K. ads to have higher frequencies of ads with a mention of a standard of excellence but lower frequencies of ads with mention of winning or competing.

Our results indicated that among the attributes we study, the presence of technology appeals was significantly more frequent in U.S. ads than in U.K. ads and was the best discriminator of country in the logit models. Technology has been seen as a dominant theme in the U.S. as commonly designated entrepreneurial society for the period we studied. For the contrast in the attribute of style, we found the high importance of style in an ad to be more frequent in U.S. ads and to also significantly contribute to the discrimination of country. Fewer institutional status contests in the U.S. have been suggested as basis for the increased importance of style in the U.S. consumption ad appeals (Silver 2015[2002]). The above results are consistent with study hypotheses. The presence of appeals to comfort was not found to significantly discriminate countries. This is contrary to our hypothesis for this attribute.

We also found that U.K. ads more frequently had achievement content than U.S. ads. Disaggregating achievement content, both "standard of excellence" and "unique accomplishment" were more frequent in U.K. ads than in U.S. ads. Differences in "competing or winning competition" did not discriminate country. The results we report encourage further comparative study of product attributes for differentiated goods and application of methodology for using historical record for inference on time trends in preferences. As noted in our review, there have been few comparative studies of consumption with the scope in attributes of the one we report. We have also noted the distinct advantages in studying a differentiated good in terms of attributes.

Results do indicate that even countries with high commonalities in language and institutions significantly differ in the attributes that predominate in their market appeals to consumers for differentiated consumption goods with functional and symbolic importance. These results further encourage social theorists to more explicitly include them in conjecture on how culture maps preferences in consumption. They also suggest that multinational companies continue to differentiate product classes by countries of different appeals, attributes and appeals to ownership even when as in the case of automobiles there are substantial correspondences in underlying product forms.

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