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Generalizing About Trade Show Effectiveness: A Cross-National Comparison

Trade shows are a multibillion-dollar business in the United States and the United Kingdom, but little is known about the determinants of trade show effectiveness. The authors build a model that captures differences in trade show effectiveness across industries, companies, and two countries. They focus on the differences in trade show effectiveness measured in a similar way across similar samples of 221 U.S. and 135 UK firm-show experiences between 1982 and 1993. Although the variables explain different amounts of variance in these two countries and some variables tend to have different relative effects, the similarities outweigh the differences. The authors are able to generalize about the effect of various show selection (go/not go) variables as well as tactical variables (e.g., booth size, personnel) on observed performance. They conclude by discussing the implications of their research for developing benchmarks for trade show performance.

Trade shows are an important component of the marketing mix for many industrial products, constituting a multibillion-dollar business both in the United States and Europe. They account for about 10% of the business marketing communications budget of U.S. firms and more than 20% of the budget for many European firms (*Business Marketing* 1996; Sandler 1994). According to the Trade Show Bureau (1994), the number of trade shows in the United States and Canada grew from 3289 to 4316 between 1989 and 1994, the number of attendees from 60 million to 85 million, and the number of exhibiting companies from 1.0 million to 1.3 million. A further growth of more than 30% is expected during the 1990s (Trade Show Bureau 1994). In the United Kingdom, companies spent almost £500 million at more than 600 trade shows in 1988, thereby generating more than £1 billion in revenues for the exhibition industry (Cope 1989). Almost 10 million visitors attended these shows, and it is widely believed that the industry grew at an average rate of around 30% a year in the 1980s (Cope 1989). Industry observers estimate that 60% of the world's major trade shows are located in Europe (Cech 1990), and the growing unification of Europe is expected to further stimulate this development (AUMA 1991).

In spite of their importance on both continents, trade shows have received little attention in the academic marketing literature. The few studies on the issue mainly involve national shows held in the United States and are mostly descriptive in nature (e.g., Kerin and Cron 1987; Lilien 1983). There have been especially few reports on the relationship between what a firm does (e.g., preshow promotion, renting booth space, staffing the booth) and what the effects are. A recent study by Gopalakrishna and Lilien (1995) is a rare exception. They develop a three-stage model in which three measures of effectiveness (attraction, contact, and conversion) are linked to several control variables.[1] They estimate their model on data from a *single* U.S. show, however, and do not document the extent to which their results apply to other shows in the same industry, in different industries, or in other countries.

The main reason for the dearth of research on trade show effectiveness is that two types of data—what attendees did and what exhibitors did—are needed to link marketing actions with outcomes. We take advantage of some unique data that link exhibitor and attendee actions at a large number of shows both to develop generalizations about trade show effectiveness and to extend previous findings. As Bass and Wind (1995, G1) point out, "science is a process in

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[1]They define *attraction efficiency* as the percentage of a firm's target audience attracted to its booth, *contact efficiency* as the fraction of those attracted from the target audience that were actually contacted by the salespeople at the booth, and *conversion efficiency* as the percentage of those contacted that turned into sales leads. Because such measures refer to the production of a result rather than to the ratio of result to effort, we refer to them here as *effectiveness* rather than *efficiency* measures.

which data and theory interact, leading to *generalized explanations of disparate types of phenomena.* Thus, empirical generalizations are the building blocks of science." Our research answers their call for more empirical generalizations in marketing. Our specific goals and research objectives are the following:

1. *Generalization within the United States.* Gopalakrishna and Lilien's (1995) study is limited to a single show. Our first goal is to see if the key drivers of trade show effectiveness they identify (preshow promotion, booth size, and booth staffing) generalize to other shows.
2. *Extension within the United States.* The generalization process brings us to different industries and different types and sizes of shows, variables that could influence the effectiveness of show participation. Our second goal is to see how this extension can help us deepen our understanding of how and why effectiveness varies across shows within the United States, an extension that should help support the show selection (go/not go) decision.
3. *Generalization across countries.* If there is reason to believe (and we argue that there is) that the role trade shows play in the marketing mix varies, on average, across countries, then there is value in studying how and to what degree these results hold across countries. Our third goal, therefore, is to study the cross-national generalizability of U.S. trade show effectiveness findings.

We proceed as follows: We first position our work relative to the trade show literature; next, we describe our data and formulate our research hypotheses; then, we discuss the model specification used to test those hypotheses and present our empirical results; and finally, we discuss the managerial implications of our work and highlight areas for further research.

Measuring Trade Show Effectiveness

Wind and Thomas (1994) and others characterize the buying process as a series of stages in which potential buyers have different information needs that correspond to tasks for the marketer to perform. Some of these tasks, such as generating awareness, are performed primarily through impersonal marketing communications, whereas others, such as providing customized product offerings, require personal contact. Most business marketers use a mix of personal and impersonal communication vehicles to meet their marketing communications objectives. Trade shows blend some elements of direct selling (there are usually sales personnel in the booth, and especially in Europe, some selling actually takes place on the show floor) and advertising (the booth generates awareness and can answer some key questions, even without involvement of the booth personnel).[2] Exhibitors have several objectives for participating in a trade show: Some are most interested in generating high-quality leads, others in promoting corporate image, and still others in maintaining contact with current and prospective customers; many have multiple objectives.

Because of this wide range of objectives, most marketers rely on surrogate measures of performance such as audience activity, audience quality, proportion of target audience attracted to the booth, proportion contacted, and number of leads generated (Cavanaugh 1976; Gopalakrishna and Lilien 1995). Although several studies show that lead generation is the most frequently cited measure of trade show effectiveness (e.g., Trade Show Bureau 1994), current and prospective customers must be attracted to the booth and contacted before they can turn into leads. Indeed, we might argue that exhibitors can generate a large number of good-quality leads only when they attract the right customers and prospects to their booth and properly contact and screen them. We therefore use a firm's *performance in attracting its target customers to its booth and contacting them* as a measure of trade show effectiveness. Gopalakrishna and Lilien (1994, 1995) use a similar operationalization and offer more detailed support for selecting this measure. Wind and Thomas's (1994) conceptualization helps justify our choice of dependent measure and supports our search for cross-national differences: Customers go through stages of the buying process, from recognizing needs and how products and services might satisfy those needs, to preferring certain supplier solutions to others, to actually making purchases, and finally to postpurchase feedback. Marketing activities, identifying where a prospect is in the buying process, and targeting efforts accordingly help manage this process.

Consider two prospective customers, Bill and Margaret, at a trade show. Bill has some vaguely recognized needs and is searching broadly for products or suppliers that could provide some solutions. Margaret is further down the buying cycle: She already has defined a need clearly and has reduced her set of considered products or suppliers to three or four. We use the term *consideration set* loosely here to refer to either those products or suppliers about which the attendee is simply interested in learning more or those in which he or she is interested seriously. Preshow promotion (both publicity and direct mail/invitations to visit the booth) by exhibiting firms, as well as booth visibility (size and location) and other on-site promotion activities, could have an important influence on Bill's booth-visiting activities at the show. The same marketing actions could affect Margaret also, but mainly for the smaller number of alternatives in her set of considered solutions. Furthermore, Margaret might be motivated to seek out (or make an appointment to visit) a small, poorly located, and less heavily promoted booth of a supplier in her consideration set, whereas Bill might not be so motivated.

Trade shows in most industries attract a mixture of Bills and Margarets. In shows with a large proportion of Bills, we should expect that people will have unformed (implicitly larger) consideration sets, and hence, we should see more booth-visiting activity with a major proportion of the variance in that activity explained by the preshow and at-show activities of exhibitors. In shows with a large proportion of Margarets, the amount of booth-visiting might be lower (fewer visitors per booth), and the variance in the number of visitors attributable to these preshow and at-show activities also could be lower.

Our story about Bill and Margaret relates to some differences in the role of trade shows in the United States and the United Kingdom, which are described more fully in the

[2]For a detailed discussion of the role of trade shows in the marketing communications mix, see Gopalakrishna and Lilien (1995).

next section. Visitors to U.S. trade shows typically are earlier in the buying process than are those in the United Kingdom, so we expect that exhibitor-controlled attraction variables will explain less variance in the United Kingdom than they will in the United States and that the mean level of attraction effectiveness will be higher in the United States than in the United Kingdom.

Data and Hypotheses

We describe our data before our model, because our research is both made possible and limited by the data we have available. These data were collected between 1982 and 1993 by two closely related exhibit research firms: Exhibit Surveys Inc. in the United States and Exhibition Surveys Ltd. in the United Kingdom. Both firms use a similar set of measurements and methods for a wide range of shows. Their data-collection process consists of two parts. First, the research firm mails a questionnaire to a probability sample of show attendees to measure their product category interest (which is based on the question "What products were you interested in seeing at the show?" in response to which respondents checked various product *categories*, not specific brands) and the number of visitors attracted to the booth of an exhibiting firm (from the question "Which booths did you visit at the show to collect information or to speak to a salesperson?"). We used these data, combined with information about the product categories that each exhibitor displayed at the show, to measure booth-attraction effectiveness (i.e., the fraction of the attendees interested in the product categories a firm exhibited who actually visited that firm's booth to talk or obtain literature):

$$\eta = \frac{\text{number of attendees from target audience who actually visited the booth to talk or obtain literature}}{\text{size of the target audience (based on stated product category interest)}}$$

This measure spans the first and second stages in the three-stage framework of Gopalakrishna and Lilien (1995). They define *attraction effectiveness* in their first stage as the percentage of the target audience attracted to the booth and *contact effectiveness* in their second stage as the percentage of booth visitors (out of the target audience) with whom salespeople at the booth talked. The booth-attraction measure we use here corresponds to the product of the first- and second-stage effectiveness measures used by Gopalakrishna and Lilien (1995), apart from the fraction of visitors coming to the booth to get literature without talking to the salespeople.

In the second part of the data-collection process, the research firm sends a separate questionnaire to its client firms that exhibited at the shows. That questionnaire asks for information on several tactical decision variables, such as booth size, extent of preshow promotion, and number of personnel at the booth. Unlike Gopalakrishna and Lilien (1995), who only use data on participation at a single show, we use data across many shows. We therefore also include several show-specific characteristics to explain the observed variance in booth-attraction effectiveness across show participations. Show organizers provided several of these measures (e.g., the attendance figures), and we used a key-informant approach for others, asking the managers of the exhibit research firms to classify the shows as horizontal or vertical and the firms as major or minor players at a particular show in their respective industries.

In organizing the available data from the U.S. and UK trade shows, we first examined the coverage of different industries in the two data sets. Because the U.S. data had a much wider representation of industries than the UK data, we restricted our analysis to those represented in both data sets. Such sample matching at the industry level is important because it ensures some uniformity in the data and removes idiosyncratic industry factors as possible causes of cross-country differences. Our matching process resulted in ten industries for which there were comparable data in the two countries: building and construction; communications; computers and computer applications; electrical and electronics; medical and health care; packaging; petroleum, oil, and gas; plastics; printing; and radio, television, and cable.

We initially had 126 complete observations (i.e., firm-show appearances) in the U.S. sample and 80 complete observations in the UK sample across the ten industries. As is typical in this type of commercial (though proprietary) data, there were additional observations with missing entries for one or two explanatory variables. To increase the statistical power of our analysis, we augmented the original set of observations by imputing missing values for one variable, total preshow promotion expenditure: We used an auxiliary regression in each country separately, linking preshow promotion to other variables (e.g., Little 1992). We obtained an R^2 exceeding 70% in both countries. We tested several specifications to impute the missing values and found that the imputation was insensitive to the functional form of the auxiliary regression. We imputed missing values for 108 additional U.S. observations and 65 UK observations, thus generating a data set containing 234 U.S. and 145 UK firm-show participations. Following a statistical analysis of influence points, we obtained a final data set containing 221 U.S. and 135 UK observations. Counting the same show held in different years only once, the data include observations from 40 U.S. and 24 UK shows. In the following section, we formulate a set of hypotheses on the effects of our explanatory variables in each country and describe how we operationalized these variables.

Differences Between Countries

Business press articles suggest that differences exist between the United States and the United Kingdom. European shows attract more chief executive officers and senior executives (Friedlander 1992), who are more likely to come to the show with a single objective in mind and often make their buying decisions at the show (Dykeman 1979). Preshow promotional expenditures in Europe often are used to set formal appointments, whereas in the United States such expenditures usually are aimed at generating initial interest. Promotional practices and booth characteristics also tend to differ between the United States and Europe (Dykeman 1979; Tanner 1995); for example, circus-like on-site promotions such as gimmicks, magicians, and games are less acceptable in Europe. Differences in the physical

construction of the exhibits also indicates that European shows are geared less toward initial attention-getting and more toward in-depth dealings: Booths with a separate or enclosed conference area are more prevalent in Europe than in the United States. Because of these differences, some tactical decision variables could have different levels of effectiveness in the United Kingdom compared with the United States, but because of a lack of prior theory, we have not developed any hypotheses about these specific variable differences. Still, because visitors to UK shows are typically further down the buying cycle, we would expect them to have smaller consideration sets at the time they go to the show and be more selective in which booths they visit. As a consequence, they also should be less influenced by exhibitors' actions during or immediately preceding the show. We therefore hypothesize the following:

H_1: Attraction variables explain more variance and have larger effects in the United States than they do in the United Kingdom.

Note that H_1, if confirmed, could affect the managerial relevance of our findings for application in the United Kingdom. We return to this issue when we discuss our results and conclusions.

Because visitors to UK shows are typically further down the buying cycle and have reduced their consideration set to a short list, we also would expect them to visit a smaller fraction of all potential suppliers exhibiting in a product category in which they are interested. Hence, we hypothesize the following:

H_2: The mean level of attraction effectiveness in the United States is higher than that in the United Kingdom.

Firm-Specific Characteristics

Preshow promotion. Firms often announce well in advance that they will exhibit at a particular show (Tanner 1995). For example, they might send personalized invitations using their own customer or prospect list or the registration list made available by the show organizers. Other firms contact their customers by telephone or advertise in specialized trade magazines to announce their presence at an upcoming show. We did not have such detailed information on a firm's choice of various promotional preshow instruments. Moreover, we had to impute the overall level of preshow spending for a proportion of our observations. Because the number of different promotional instruments that firms can adopt is quite large, and because piecewise linear specifications are more robust to stochastic errors generated by imputation (Hamilton 1992), we followed Gopalakrishna and Lilien (1995) and discretized the aggregate amount of preshow promotional expenditures. We defined three categories: high, medium, and low spenders. After converting all spending levels in both the United Kingdom and the United States into constant 1975 U.S. dollars, we defined high (low) spenders as those in the upper (lower) third of the spending distribution in their country. (We assess the sensitivity of our findings to this allocation rule subsequently.) Our hypothesis follows:

H_3: Preshow promotion has a positive effect on booth-attraction effectiveness.

Booth size. Researchers and practitioners argue that the potential of a booth to attract people is related positively to its size (Gopalakrishna and Lilien 1995; Tanner 1995). We use the square root of a booth's surface as our measure of booth size primarily to avoid statistical artifacts in our results. Because of the variety of shows in our sample, the floor surface (in square feet) of the booths varies greatly and shows a highly skewed distribution. By taking the square root of booth surface, we reduce the skew in the data and avoid having a small number of extreme observations driving our empirical findings (Hamilton 1992). We do not have the necessary data to operationalize booth size relative to other booths at a particular show. This might have been a better measure, consistent with the retail and brand choice literature relating the performance of a brand to its share of available shelf space (Bultez and Naert 1988). We hypothesize the following:

H_4: Booth size has a positive effect on attraction effectiveness.

Personnel. The number of salespeople present at the booth should have a positive impact on the number of people contacted, according to Gopalakrishna and Lilien (1995). They did not include the number of salespeople in the first stage of their model but found it to be an important determinant of the second-stage conversion effectiveness. CEIR (1996) reports that the average number of staff had a significant impact in the first stage as well in three out of six shows it analyzed. Because our performance measure captures effectiveness across both stages, we hypothesize the following:

H_5: Personnel density, expressed as the number of salespeople relative to the area of the booth, has a positive effect on attraction effectiveness.

Firm prominence. Well-known companies could have a competitive advantage in attracting people to their booths. Kerin and Cron (1987) find that firms with a larger customer base and greater sales volume perform better at trade shows, and Williams, Gopalakrishna, and Cox (1993) find that larger firms draw a larger share of the relevant target audience to their booth. Rather than using absolute measures of company size, such as sales or personnel count, we used the reputation and position of the firm in its industry compared with other exhibitors at the show (i.e., its prominence). We believe it is a more relevant determinant of the firm's attraction effectiveness, especially in a cross-industry data set such as ours. We used subjective evaluations provided by managers at the exhibit research firms to determine whether a firm in our sample was a major player in the industry represented at a given show. Our hypothesis follows:

H_6: Firm prominence has a positive effect on attraction effectiveness.

Show-Specific Characteristics

Vertical/horizontal shows. Trade shows traditionally are classified as vertical or horizontal on the basis of their market coverage. The former have a fairly narrow focus and attract a specific type of visitor (e.g., the Association of Operating Room Nurses show, where the products displayed are used almost exclusively in operating rooms).

TABLE 1
Descriptive Statistics for Model Variables

Variable	UNITED STATES N = 221 Mean	Standard Deviation	Range	UNITED KINGDOM N = 135 Mean	Standard Deviation	Range
Independent Variables						
Preshow promotion*						
small	34%	—	—	33%	—	—
medium	33%	—	—	33%	—	—
Booth size (feet)	47.5	19.4	14.1–112.3	42.9	16.6	15.4–101.1
Personnel density	.011	.006	.002–.046	.009	.005	.001–.025
Firm prominence*	53%	—	—	46%	—	—
Show type*	10%	—	—	64%	—	—
Show size*	49%	—	—	52%	—	—
Industry*	28%	—	—	61%	—	—
Dependent Variable						
Efficiency	27.6%	12.2%	5.6–62.8%	26.5%	11.8%	5.5–59.4%

*0–1 variables. We report the proportion of the observations having the value 1.
Firm prominence: 0 if prominent firm, 1 otherwise.
Show type: 0 if vertical show, 1 otherwise.
Show size: 0 if small show, 1 otherwise.
Industry: 0 if fast moving/high technology, 1 otherwise.

Horizontal shows attract a much wider audience, and the interest in any one of the displayed product categories is much lower (e.g., many computer shows such as COMDEX are not aimed at a specific market segment but feature a wide variety of applications). Gopalakrishna and Williams (1992) and Kerin and Cron (1987) report lower effectiveness at horizontal shows than at vertical shows. We therefore hypothesize the following:

H_7: Firms participating in horizontal shows experience lower attraction effectiveness than do firms exhibiting at vertical shows.

Show size. The larger the show, the harder it might be for attendees to find what they want (Bertrand 1989; Carman 1968). Using the attendance figures provided by the show organizers, we categorized shows into two categories—large (upper 50%) and small—within each country. We decided not to do the comparison across the entire sample, because the approach we chose better represents the problem that exhibitors face. To attract a given audience, they first select a specific geographic market (country); only then does the specific type of show, large or small, become relevant. Moreover, the perceptions of what constitutes a large show could differ between U.S. and UK visitors. We assess the robustness of our findings to this definition of show size (i.e., relative to other shows in the same country) subsequently. We hypothesize the following:

H_8: Firms participating in small shows experience higher attraction effectiveness than do firms exhibiting at large shows.

Industry Characteristics

Industry class. Firms in different classes of industries could have different expectations or objectives when attending trade shows or could use different strategies to attract customers to their booths. Kerin and Cron (1987) identify several industry factors as potential moderators for a firm's trade show performance. Gopalakrishna and Lilien (1994) find that the show effectiveness in the telecommunications and computer industries (i.e., fast-moving, high-technology products) saw a lower carryover effect from previous trade show participations and a higher effect of the characteristics of the current show participation than it did in other industries. We use the same classification in our study to assess the extent to which firms in the two fast-moving/high-technology industries (i.e., telecommunications and computer) can expect a higher or lower *immediate* effectiveness when participating at a show than firms in the other eight industries. Specifically, in line with Gopalakrishna and Lilien's findings, we hypothesize the following:

H_9: Firms in fast-moving/high-technology industries see greater attraction effectiveness than do those in slower-moving industries.

We present summary statistics for the different variables in Table 1. The samples are similar in their (average) effectiveness, as well as most explanatory variables (e.g., firm prominence, booth size, personnel density) with two exceptions: the proportion of fast-moving/high-technology firms (much higher in the United States) and the proportion of horizontal shows (much lower in the United States). The dominance of vertical shows in our U.S. data set reflects the

high prevalence (roughly 75% to 80%) of vertical shows in the U.S. trade show industry.

Modeling Framework

To test the hypotheses, we use a logistic regression model, which ensures logical consistency (η lies between 0 and 1 for all possible values of the independent variables) and incorporates the notion of an S-shaped reaction curve:

$$(1)\qquad \ln\left\{\frac{\eta}{1-\eta}\right\} = \beta_0 + \beta_1 P_1 + \beta_2 P_2 + \beta_3 BS + \beta_4 PD + \beta_5 FP + \beta_6 ST + \beta_7 SS + \beta_8 IC + \varepsilon,$$

where

η = Attraction effectiveness;
β_j = Parameters to be estimated (j = 0, ..., 8);
P_1 (P_2) = Amount of preshow promotional expenditures (P_1 = 1 if small, P_2 = 1 if medium, $P_1 = P_2 = 0$ if large);
BS = Booth size (continuous variable expressed in feet);
PD = Personnel density, measuring the number of booth personnel per square feet (continuous variable);
FP = Firm prominence (0 if high, 1 if low);
ST = Show type (0 if vertical, 1 if horizontal);
SS = Show size (0 if small, 1 if large);
IC = Industry class (0 if fast moving/high technology, 1 otherwise);
ε = Error term.

First, we estimate the model in Equation 1 separately for the United Kingdom and the United States, after which we use Equation 2 to test the equality of the corresponding coefficients on the pooled model:

$$(2)\qquad \ln\left\{\frac{\eta}{1-\eta}\right\} = \left[\beta_{0,US} + \sum_{j=1}^{8} \beta_{j,US}(X_j * US)\right] + \left[\beta_{0,UK} + \sum_{j=1}^{8} \beta_{j,UK}(X_j * UK)\right] + \varepsilon,$$

where

US (UK) = Indicator variable taking the value of 1 for a U.S. (UK) observation, 0 otherwise.
X_j (j = 1, ..., 8) = The aforementioned firm, show, and industry characteristics.

Gopalakrishna and Lilien (1995) use an alternative model specification that also ensures logical consistency when estimated for a single country:

$$(3)\qquad \eta = \alpha_1^{P1}\alpha_2^{P2}\left\{1 - \exp(-\lambda_1 BS)\right\}\left\{1 - \exp(-\lambda_2 SD)\right\}\alpha_3^{FP}\alpha_4^{ST}\alpha_5^{SS}\alpha_6^{IC} + \varepsilon,$$

with $0 \le \alpha_i \le 1$. Although this specification has several attractive normative properties, we have not been able to generalize it to a two-country setting while maintaining all the desired flexibility and logical consistency properties (technical details are available from the authors). The key reason for this is that the α parameters determine both the effect of the dummy variables and the ultimate ceiling value of the dependent variable. Hence, we use the simpler logistic specification that keeps these two issues separate and meets our primary goal of easy generalizability. As we report in the following section, our within-country conclusions are robust to these differences in model specification.

TABLE 2
Parameter Estimates

VARIABLE	UNITED STATES	UNITED KINGDOM
	R^2 = .537 R^2adjusted = .520	R^2 = .293 R^2adjusted = .248
Intercept	−1.113[a]	−1.225[a]
Preshow promotion		
small	−.389[a]	−.364[a]
medium	−.229[a]	−.099
Booth size	.012[a]	.017[a]
Staff density	8.273[b]	−1.247
Firm prominence	−.552[a]	−.051
Show type	−.173[b]	−.457[a]
Show size	−.128[a]	.016
Industry	−.120[b]	−.256[a]

[a]significant at $p < .05$.
[b]significant at $p < .10$.
Note: Tests for intercepts are two-sided; others are one-sided. The regression equations are significantly different between countries ($F_{9, 338} = 3.145$, $p < .01$). We analyzed the equality of individual parameters between countries by imposing a single *equality constraint* at a time on the full 18-parameter model specification (Equation 2). Tests using White's heteroskedasticity consistent variance estimates show significantly different parameter estimates for firm prominence ($p < .001$) and show type ($p < .10$).

Empirical Findings

Parameter Estimates

Results for the United States. For the United States, we obtain a good model fit, with 54% of the sample variation in attraction effectiveness explained by firm and show characteristics (Table 2). Moreover, all parameter estimates are statistically significant ($p \le .10$ or better) and have the expected sign. In terms of the tactical decision variables, firms can expect to attract a higher percentage of their target audience when they spend a larger amount on preshow promotions (H_3), have a larger booth (H_4), staff the booth with more personnel per square foot (H_5), and participate in a vertical rather than a horizontal show. More prominent firms attract a larger proportion of their target audience (H_6). We also find evidence that potential customers navigate smaller shows more effectively, as a higher percentage of the target audience finds its way to booths exhibiting products in which they are interested (H_8). Firms exhibiting high-technology/fast-moving products have a higher effectiveness (H_9). This corroborates the finding by Gopalakrishna and

Lilien (1994) that such firms experience less carryover from one trade show to the next but larger immediate effects from their current actions. Therefore, firms displaying high-technology, short life cycle products attract a higher proportion of interested attendees, all else being equal, but these same firms must keep coming up with attractive new products to maintain their attraction. As the show participations in our sample cover more than ten years, we also tested for systematic changes in effectiveness over time, considering both a continuous trend and discrete shifts at several switching points (e.g., 1987, 1988, ...). Our resulting parameter estimate was quite sensitive to the choice of switching point and resulted in no significant effects or changes in explanatory power, which indicates that systematic changes of effectiveness are not apparent.

To summarize, the U.S. results provide both a successful *generalization* (i.e., booth size, personnel, and preshow promotional expenditures are major determinants of a firm's trade show effectiveness across a wide range of shows) and *extension* (by also considering the impact of show and industry characteristics) of previous research. These results are consistent with H_3–H_9 and help fulfill the first two goals for this article.

Results for the United Kingdom. We found a poorer fit in the United Kingdom ($R^2 = .29$; R^2adjusted = .25) than in the United States, as hypothesized in H_1. However, this result also might be explained partly by some of the differences in sample structure between the two countries: The vast majority (90%) of the shows in the United States were vertical compared with those in the United Kingdom (36%). Therefore, we reestimated the UK model for show participations in vertical shows only (N = 49), but obtained only a marginally better fit ($R^2 = .36$; R^2adjusted = .25). This fit is still considerably poorer than the model fit in the United States ($R^2 = .537$; R^2adjusted = .520). This difference in fit supports H_1. Using the same reasoning, we tested H_2 using the intercepts of the U.S. and UK models only for vertical shows. The results ($\beta_{0,US} = -1.136$ versus $\beta_{0,UK} = -1.613$) indicate that attraction levels are higher in the United States than in the United Kingdom after controlling for other explanatory variables, which provides directional support for H_2. Although the difference in point estimates is rather large, corresponding to attraction effectiveness levels of 24.3% in the United States and only 16.6% in the United Kingdom, the variance of the UK estimate is too large for this difference to be statistically significant.

Also consistent with H_1 is the result that firm prominence and booth personnel variables have significant impacts in the United States, but a negligible (nonsignificant) effect in the United Kingdom: The larger the proportion of trade show visitors who merely "browse" or "wander around," the more effective it is to have a "brand-name" firm with sufficient highly visible booth staff who encourage wanderers to stop at the booth. People who are farther along in the buying process and have a short list of "must-see" exhibits, conversely, do not need that extra stimulation to stop by. For other characteristics, such as show type, preshow promotion, industry classification, and booth size, we find statistically significant effects in both the United Sates and the United Kingdom. To compare the magnitude of these effects, we pooled the data and tested for the equality of these parameters between countries by imposing a single equality constraint at a time on the full 18-parameter specification in Equation 2. Tests showed significantly different parameter estimates for show type only ($p \leq .10$).

We can conclude that even though many of the U.S. findings carry over to UK-based trade shows, attendees in these two countries seem to behave differently. As such, different performance benchmarks should be used when participating in different countries, and a simple transfer of the evaluation rules used in one country might be inappropriate when applied to trade shows elsewhere. This finding helps fulfill our third goal. In what follows, we first validate our findings and then illustrate their implications.

Validation and Estimation Issues

Sensitivity to using observations with imputed values. To assess the extent to which our results are robust to the use of imputed data, we repeated the analysis using only those observations for which we had actual preshow promotion figures (118 in United States; 75 in United Kingdom). The significant UK parameter estimates were affected only slightly, and the results of the hypothesis tests remained the same. Coefficient estimates were affected only slightly in the U.S. sample as well, but the loss of power caused by the sample size reduction was such that three coefficients that were originally significant at 10% now became insignificant (show type, staff density, and industry). Overall, we can conclude that our coefficient estimates are robust to whether we used imputed values. Also, our model again explained more variance in the United States than it did in the United Kingdom (47% versus 38%).

Sensitivity to choice of cutoff values.[3] We tested the sensitivity of our results to the choice of cutoff points and found our substantive findings for the preshow expenditures to be robust across a wide range of alternative choices. For example, we obtained similar results when discretizing the preshow expenditures in the proportions {20%, 60%, 20%} and {40%, 20%, 40%}, rather than {33%, 33%, 33%}. For the show size variable, our results were more sensitive to the cutoff rule. European trade shows are typically larger than their U.S. counterparts (Starchild 1991), and in our data set, the median value we used to classify a show as large versus small was higher in the United Kingdom (21,000) than in the United States (14,305). We obtained the same qualitative results (significance in the United States, but not in the United Kingdom) when using 14,305 as the cutoff level in

[3]We discretized several variables, such as preshow promotional expenditures and show size, for four reasons. First, the missing data for preshow expenditure could be related to difficulties respondents experienced in providing reliable data on this dimension. Discrete variables are more robust to such measurement error. Second, errors resulting from using imputed rather than observed values are also smaller. Third, Gopalakrishna and Lilien (1995) use discrete variables also, and we tried to build on their approach as much as possible. Fourth, we believe that response to preshow promotion, show size, and the like has a lower threshold and an upper bound (i.e., is S-shaped). Our discrete variables provide a better approximation of these threshold/saturation effects than a continuous variable would.

both countries but found no significant impact in either country when using 21,000 as the cutoff in both the United States and the United Kingdom. These results suggest that a show-size effect exists, even though the magnitude and significance of the corresponding parameter estimate is sensitive to the choice of cutoff value (i.e., country specific or common to both countries). We need more research on this issue, especially because the perception of a show as large or small depends not only on the number of visitors, but also on the number of exhibitors and the total floor area of the show, data not available in our current data set.

Collinearity. All correlations between the independent variables in our model were well below .8, and we never had a condition index higher than 20 in our analyses, which indicates that our results are free of statistical artifacts stemming from collinearity. Collinearity was not a problem when we used the original continuous variables for preshow promotion and show size or deleted all imputed values from the estimation sample. Hence, the absence of collinearity is not due to the specific coding scheme we used.

Reliability of the estimates. We used a jackknife procedure to test the stability of the parameter estimates. Our results were extremely stable in all analyses in terms of sign, significance, and relative magnitude. (Results on the jackknife estimates are available from the authors.)

Alternative model specifications. We validated our findings using three alternative model specifications: the linear model, the multiplicative or Cobb-Douglas model, and the formulation used by Gopalakrishna and Lilien (1995). The first two can generate predicted effectiveness levels outside the logical 0–1 region, and hence are not logically consistent, even when applied to a single country. The last model is consistent for a single country, but we have not been able to extend it satisfactorily with interaction terms to capture cross-country differences. In spite of these limitations, all models resulted in almost identical fits when estimated for each country separately. The R^2 of the various specifications varied between .520 and .538 in the United States and between .293 and .298 in the United Kingdom. The signs and significance levels of the parameter estimates were comparable in all model specifications, with the single exception that we found no industry effect for the multiplicative model in the United States. In summary, our specification results in comparable fit values and similar substantive insights but is more appealing than the considered competing models because of its logical consistency, necessary for the managerial uses suggested subsequently.

Forecasting validation. We assessed our models' predictive validity using a procedure similar to that used by Gopalakrishna and Lilien (1995). We omitted every tenth data observation starting with the first one and estimated the model on the basis of the remaining data points. We then used the resulting parameter estimates to forecast the omitted observations and computed the predictive R^2 and mean squared prediction error. Next, we repeated this analysis starting with the second observation, the third, and so on until we rotated through the entire data set. Finally, we computed the average mean-squared prediction error and average predicted R^2. In both countries, the mean-squared prediction error was close to the mean-squared error in the main estimation (only 10% higher in the U.S. sample and 15% higher in the UK sample). The predicted R^2 values, .464 in the U.S. sample and .257 in the UK sample, were similar to the values for the main sample. The results, therefore, appear to be quite stable.

Using the Estimated Response Model

Gopalakrishna and Lilien (1995) identify several potential uses for this kind of response model, such as answering what-if questions, assessing trade-offs between different decision variables, and conducting performance audits. In the latter case, the model is used to derive a norm or performance benchmark against which the actual performance can be compared. Buzzell and Gale (1987) describe benchmarking applications derived from the PIMS data, in which R^2 values vary from .31 to .52, and Lilien and Weinstein (1984) report results for a pooled U.S./European sample for ADVISOR data, with R^2 values varying from .53 to .72. Our findings indicate that different benchmarks should be used when evaluating a firm's performance at U.S. and UK trade shows, and that the UK results (with explanatory power of .29, near the bottom of the range of comparable studies reported previously) perhaps should be used with some caution. The U.S. results, however, are comfortably within the range of the results noted previously and therefore could be used with more confidence.

As an illustration of using our results in performance audits, consider the following two firms in our U.S. data set. Firm A has a prominent position in a fast-moving/high-technology industry. When participating at a large horizontal show, it spent a medium amount on preshow promotions and had a booth size of 3000 square feet staffed with 24 people. Firm B also belongs to a fast-moving/high-technology industry but does not have a prominent position. It participated at a large vertical show, where it spent a medium amount on preshow promotions, rented a booth of 5000 square feet, and staffed it with 60 people. Using the predicted values of a restricted model in which all insignificant parameters are set to zero as the firms' norms, we find that firm A fell somewhat below its expectations in the United States. Its actual booth attraction was 25.3% versus a U.S. norm of 28.8%. Its management might try to determine what caused this slightly inferior performance, such as poor execution of the preshow promotional campaign, inadequate training of its personnel, poor exhibit location, or lack of exciting products. Had this firm participated in a UK show and achieved the same 25.3% attraction, essentially the same conclusion would have been reached (UK norm = 31.2%). Conversely, firm B appears to have done well in the United States, as it outperformed its U.S. benchmark (actual attraction = 36.7% versus U.S. norm = 25.7%). However, if it had achieved this same level of attraction in the United Kingdom rather than in the United States, its performance should have been considered less than satisfactory, as the relevant UK-based norm would have been 48%. This illustrates not only the use of our models for assessing perfor-

mance, but also the risks associated with erroneously applying U.S.-based benchmarks to other countries.

As we mentioned, benchmarking is not the only practical use for our results. Our U.S. and UK models can help managers to make go/not go decisions as well as to run what-if scenarios for different shows (e.g., horizontal versus vertical, large versus small) and different tactical activities at those shows (e.g., number of booth personnel, size of booth, level of preshow promotion).

Conclusion

Our study has generalized and extended the previous research findings on trade shows in three ways:

- We have tested and extended findings from a single U.S. show to a large sample of U.S. shows.
- By considering multiple shows, we have augmented previous U.S.-based benchmark results with show- and industry-specific variables.
- We have tried to describe and explain the extent to which U.S.-based findings are generalizable to trade shows in another country, the United Kingdom. Although trade shows play a different role in the marketing mix in these two countries and trade show attendees might behave somewhat differently in the United States and the United Kingdom, we found that several of the effects did not differ across both countries (e.g., the importance of booth size and preshow promotion).

Many of our findings are exploratory in nature, though, and identify several areas for further research. Our research was both made possible and constrained by the available data. On the positive side, we used comparable samples in two different countries (collected using the same measurement procedures), and the commercial nature of our data ensures that this is also the type of information managers generally can expect to have available to evaluate their trade show performance. However, there are some important limitations. As we used an observational rather than experimental design, we cannot preclude the possibility of reverse causality (e.g., firms expecting a large proportion of their target audience to visit them might tend to rent a large exhibit). Also, we had no data on the type of preshow promotional expenditures used and had to use a crude proxy to capture the size of a show. This proxy could have been refined if data on the total show area and the number of exhibitors had been available. Another limitation of this study (and most other research efforts of this sort, like PIMS and ADVISOR) is the potential for self-selection bias by study participants. Smaller, more poorly funded firms are less likely to commission the type of studies executed by the two research companies that provided the data for our analysis. Further research should address these limitations.

A key limitation and potential area for improvement is the absence of data on the objectives of show visitors, the amount of preshow planning by those visitors, the suppliers they planned to visit and those they decided not to visit, and so forth. The differences we found in parameters across countries suggest that the effects of tactical variables could hinge on how much trade show attendees plan their visits and where they are in their buying decision process. Research involving measures of the moderating effect of preshow planning and buying stage would be particularly valuable to exhibitors, because such information would help them tailor their trade show decisions to their objectives and target groups (e.g., creating awareness among "suspects" versus generating immediate sales from hot "prospects"). If companies (guided perhaps by exhibit research firms) begin collecting such data, models such as ours should be able to explain show effectiveness better, especially in settings where such variables are likely to have a larger impact, such as slow-moving industries and European countries.

Another important avenue for further research is to assess the returns of various types of trade show investments in terms of lead generation, dollar contribution, and other exhibitor objectives. The sales or profit impact of exhibitions relative to other types of marketing communication also demands more research, as emphasized by a recent large-scale study sponsored by CEIR (1996).

Our study focused on trade show participation in the United States and the United Kingdom. More work is needed to extend our findings to other countries. The differences we observed in this study are likely to be a conservative estimate of those we would encounter when going to other European, Asian, or African countries. Not only is the United Kingdom quite similar to the United States in terms of the percentage of the communications budget spent on trade shows compared with other European countries (around 10%–20%, as opposed to approximately 25%–30% in Germany, for example), but U.S. manufacturers going to trade shows in the United Kingdom do not face the language barriers they encounter when going to France or Germany. Given that we have found substantial differences between the United States and the United Kingdom, U.S. managers should be even more careful when transferring their domestic trade show practices to countries other than the United Kingdom.

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