

THE ROLE OF TRADE SHOWS IN BUSINESS-TO-BUSINESS SELLING STRATEGIES: A METHOD FOR ASSESSING THE EFFECTIVENESS OF MARKETING COMMUNICATIONS

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ABSTRACT

The use of trade shows in the forest products and related industries has increased significantly over the past decade. However, little empirical research has addressed the impact of these events on company returns or other industrial marketing mix elements. The following paper examines the effectiveness of trade show and follow-up personal selling efforts for a woodworking machinery exhibitor. The authors report evidence of substantial economic returns and increased personal selling efficiency attributed to trade show attendance.

Keywords: Business-to-business, marketing communications, trade shows, personal selling, woodworking machinery.

INTRODUCTION

The competitiveness of the forest products industry is increasingly tied to improved processing technology and increasingly more sophisticated selling strategies. However, forest products firms have generally left process innovation and the marketing of these innovations to equipment manufacturers (West and Sinclair 1991). Traditionally, the forest products industry has relied on foreign countries, primarily Germany, Italy, and Taiwan, for much of their woodworking machinery technology needs. But, U.S. firms are restricted in the degree to which they can tap into foreign technologies. Without strong domestic suppliers and a core technology base at home, it is difficult for secondary forest products firms to ensure a long-term competitive advantage

(Porter 1990; Prestowitz 1988). By improving the competitive position of U.S. woodworking machinery manufacturers and their buyers through more effective sales and marketing strategies, the forest products sector stands to gain substantial synergies and thus technological advantage (Smith and Smith 1999; Smith and West 1994). To this end, the two most prevalent industrial marketing activities—personal selling and trade shows—are examined in this paper. A framework is suggested to assist woodworking machinery manufacturers, and more generally forest products marketers in measuring the effectiveness of their sales force and trade show activities.

Personal selling expenditures typically represent the largest share of industrial marketing budgets, including those of woodworking machinery manufacturers. It is also a relatively expensive resource. Personal selling has been

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found to represent nearly 50% of marketing budgets across all industry types and has been reported to account for over 60% marketing budgets among business-to-business companies (Sind 1996). Industry estimates indicate that the cost of one sales call can be as high as \$240 (Marchetti 1998). Typically, an average of three calls is required to close a sale with an existing account, and the level of sales effort increases to about seven calls in the case of new accounts (Churchill et al. 1997). Therefore, the use and effectiveness of trade show expenditures are frequently viewed as playing a supporting role to the personal selling function. For instance, trade shows often act as the sole source of obtaining qualified leads for salespeople. Trade shows have also been shown to present an important selling opportunity in their own right: Parasuraman (1981) reported that trade shows rank second only to direct selling in terms of promotional factors influencing the purchasing process of industrial buyers; Kerin and Cron (1987) linked a number of exhibitor characteristics to better trade show performance; Bello (1992) matched information sources to show buyers by size of firm and hierarchical level of the individual; and Gopalakrishna et al. (1995) demonstrated a positive return on trade show investment (ROTSI), albeit in a fairly limited selling environment.

Trade shows are a multibillion dollar industry. Projections indicate that by the year 2000, there will be over 4,700 shows featured annually in the United States, with nearly 140 million attendees and 1.5 million exhibitors participating annually. The growth of woodworking machinery trade shows to display new product innovations, enhance current customer relationships, promote corporate image, and above all, sell products has also been significant. The 1998 International Woodworking Fair (IWF '98) reported attendance growth of nearly 9% over its most previous 1996 show, representing a 34% increase in attendance from just 6 years ago (IWF 1999; Anonymous 1994). Ligna '99, held in Hannover, Germany, and Interbimall '98 (Xylexpo) of Milan, Italy,

have each reported 14% increases in exhibitor attendance over their previous years' shows (Acimall 1999; Deutsche Messe 1999). Despite these impressive numbers, there is little academic research that has attempted to definitively quantify the marketing value of trade shows. Historically, a firm's trade show expenditures have been justified through ad hoc approaches (such as updating the previous year's expenditures) or plain rhetoric (we must participate in this show because our competitors will be there [Bonoma 1983]). The issue of improving marketing efficiency in the sales force context is also linked to the important issue of accountability. Firms are striving to gain a competitive advantage by treating marketing expenditures as investments (Marketing News 1999). The demand for accountability from trade shows and other marketing activities also highlights several challenges in tracking the outcomes.

The trade show industry has widely publicized its claim that, on average, less than one follow-up sales call is needed to close a lead generated at a trade show, whereas more than five times the sales calls are necessary to close a non-show lead (Trade Show Bureau 1992). While some have questioned the validity of these findings, more importantly, such studies have not attempted to account for the confounding effects of other marketing mix elements. Gopalakrishna et al. (1995) provide the only known study of trade show effectiveness in which substantial care was taken in creating a relatively "clean" environment in which sales could be directly attributed a firm's exhibit. While their work helps to provide a better understanding of the nature of trade show effectiveness, the atypical environment in which the Gopalakrishna et al. (1995) study took place limits the applicability of its results (only trade shows and direct mail activities were examined). Our study has been designed to address the effectiveness of trade show expenditures in a more common business-to-business marketing environment. By allowing the effects of personal selling efforts to enter the equation, academicians and practitioners

will gain a better understanding of the relationship between the two most used elements of the business marketing communications mix. Therefore, the objectives of this paper are as follows: 1) identify the economic value of trade show exhibition in a realistic business marketing environment; 2) develop a better understanding of the effectiveness of trade shows over time; and 3) examine the relationship between trade show and personal selling activities in an active marketing communications system.

BUSINESS-TO-BUSINESS MARKETING COMMUNICATIONS

The effects of marketing communication efforts can be thought of as taking shape in two ways—direct sales effects and cognitive (attitudinal) effects. Therefore, effective marketing communication should result in a positive effect on sales, either immediately or after some period of time. Robinson et al. (1967) and several other researchers have characterized the industrial buying process as a series of stages in which buyers have different informational and procurement needs at each stage. For this reason, it is suggested that business marketers use a variety of impersonal and personal communication vehicles to walk customers through the process of awareness and interest generation, product specification evaluation, supplier selection, intent, and final purchase. Effective forms of marketing communication should have a positive effect within these stages; however, the cost-effectiveness of communication devices varies, depending on the stage of the buying process. Advertising, typically through trade journals and direct-mail in the business-to-business marketing environment, tends to be more effective early in the buying process. Conversely, personal selling tends to be more cost-effective in the latter stages of the buying process as the buyer moves closer to the selection phase (Kotler 1997). Trade shows are a mix between direct selling (usually a booth is staffed with some sales personnel) and advertising (the booth is

also designed to generate awareness and provide information without the personal involvement of booth personnel). Trade shows have been found to play a cost-effective role in the communications mix, especially in the early stages—need recognition, development of product specifications, and supplier search. However, the cost-effectiveness is thought to diminish as the process progresses towards customer evaluation and selection (Gopalakrishna and Lilien 1995).

Given this background, it is easy to see the potential synergy between trade shows and personal selling activity. The exposure to products exhibited at a show can accelerate the buyer's recognition of the product's ability to meet his or her needs. The show may also help the buyer develop specifications and facilitate supplier search as the exhibitor (seller) moves further in the selling process by qualifying the customer. The advancement in the buying and selling process would therefore make it easier for the salesperson to follow up on the lead and attempt to convert it into a sale.

METHODOLOGY

Our study pertains to the International Woodworking Machinery & Furniture Supply Fair held in August 1996 in Atlanta, Georgia (IWF '96), the largest show catering to the woodworking machinery industry in the United States. This show is a biannual event and is commonly attended by major manufacturers and suppliers of the industry. The show attracted nearly 30,000 attendees and contracted exhibit space to 1,254 exhibiting firms.

A number of confounding factors have typically plagued efforts to measure the effectiveness of trade shows. First, the exhibiting firms' objectives for participation vary widely, and each of these objectives may have its own associated incremental returns over very different time horizons. Second, trade shows are typically utilized as part of a comprehensive marketing program, thus subject to and interacting with other elements of the marketing communication mix. And third, the buying cy-

cle in many industrial purchases can extend into years of continual communication and relationship building. In order to address these factors, care was taken in creating an environment that minimized the effects of additional marketing mix elements and past marketing communication efforts. A desired, but not absolute, set of environmental characteristics were developed as follows:

- C1. Lack of impersonal communication: Little or no target advertising or direct-mail activity should be present. When these other elements are kept out, we are better able to attribute sales or other effects to the two elements that are the focus—trade show and personal selling.
- C2. New product: Trade shows often feature new products. By focusing on a new product introduced at the trade show, previous marketing activities do not come into play. This makes it easier to attribute effects to the trade show/direct selling activity.
- C3. Matching procedure: An extensive customer data base is needed to allow the researchers to establish both a “test” and “control” group, in which the main or only difference is their exposure to trade show and the level of post-show personal selling effort directed on the customer/distributor.
- C4. Cooperating firm: The participating company must be willing to provide access to distributor lists, sales figures, and marketing expenses. The company must also enable the researchers to measure post-show personal selling effort.

Consistent with these desired characteristics, we were able to gain the support of a major manufacturer of high-quality woodworking machinery (C4), henceforth referred to as EAS, Inc.¹ The study focuses on a piece

of machinery introduced at IWF '96 as part of a product line extension strategy (C2), and sold exclusively through a large network of independent distributors (C3). All measurements of direct sales and indirect cognitive effects within this study are conducted at the distributor level. Pre-show personal selling may affect the relationship between manufacturer and distributor; however, the machine in question is a new product introduction; thus only post-show personal selling directly affects the sales of this particular product. Consistent with C1, EAS does not engage in targeted advertising toward its distributors of this product line. Every distributor receives the same monthly mailing providing relevant company and product information, promotions, and special events scheduling. Additional advertising targets the end-user of the machine and stresses information already disclosed to distributors through channel communications. Therefore, advertising effects are assumed to be equal across all distributors.

Data collection

Data collection was conducted in three broad phases. The first phase focuses on a pre-show survey of EAS's independent industrial distributors. The primary purpose in the first stage is to gather basic information on distributor characteristics as well as ascertain future purchase intentions. We designed and implemented a mail survey instrument using a modification of the total design method (Dillman 1978). In accordance with these techniques, we sent mail questionnaires to all of the 632 independent distributors actively selling EAS's industrial line of woodworking machinery. Pre-show survey efforts occurred approximately six weeks prior to the show. Data collection in this phase resulted in 163 distributors responding to the pre-show survey, a response rate of 26%. EAS ranks distributors by purchase volume and classifies the top 200 (based on previous year purchases) as large distributors. We followed the same classification procedure and used their 1995 purchases

¹ Because of the sensitivity of income and expenditure information, the participating company examined in this study has requested to remain anonymous.

to identify large and small distributors. Based on the distributor list provided by EAS, of the 632 distributors included in the study, 178 were classified as being large distributors and 464 were classified as small.

In Phase 2, the main task is the identification of distributors who attended IWF '96. We worked closely with the show's organizers to identify the distributors on our list who attended the show. It is important to note that distributors acted in a normal manner before, during and after the show. No experimental procedures were imposed on the subjects that would have affected their attendance or purchasing behavior.

In the third phase, post-show surveys of distributors and manufacture sales representatives are conducted, and sales data are tracked. Distributor surveys in this phase assess interest levels in the product following the show. Similar to the pre-show survey efforts, post-show surveys were sent to all 632 distributors approximately three months after the show. Post-show survey efforts yielded 139 respondents, a 22% response rate. Two well-accepted methods were used to examine potential nonresponse bias in both pre- and post-show distributor surveys. First, we compared early respondents with those returning surveys after follow-up efforts were made (Armstrong and Overton 1977). Second, we compared pre-show respondents to post-show respondents not responding to the pre-show questionnaire, and vice versa. These comparisons did not uncover any significant differences in firm size, show attendance, or intent to purchase machinery.

Surveys were also conducted with all affected EAS's salespeople ($n = 41$) in the third phase of the study. The focus of these efforts was to determine the personal selling effort directed towards each of their assigned distributors for the four-month period following IWF '96 (25 August–31 December 1996). The survey asked the sales representatives to rate the relative amount of time spent selling the focal product to their assigned distributors based on a 7 point scale, where 1 = relatively

less time and 7 = relatively more time. Sales representatives were also asked to rate their overall activity level, in terms of the number of sales contacts made each month to their "average" distributor.² The average activity levels by distributor category were: Large distributors/attended show—4.81 calls; Large distributors/did not attend show—4.96 calls; Small distributors/attended show—4.00 calls; Small distributors/did not attend show—4.38 calls. Thus, we conclude that relative ratings between sales representatives are approximately equal. For example, a distributor receiving a relative score of 5 from one sales representative and a distributor receiving the same score from another representative are assumed to have been exposed to the same amount of post-show selling activities.

Sales of the exhibited machine were tracked by distributor for a period of 129 days after the show (25 August–31 December 1996). Shipments were tracked by order date so that the timing of distributor purchases within the experimental period as well as cumulative distributor purchases could be observed.

RESULTS AND DISCUSSION

In an effort to determine if distributors planning to attend the show differ in a significant manner from those not planning to attend the show, we measured distributor pre-show buying intentions in terms of projected future purchases in the product category relative to the previous year's purchase levels. We used a rating scale with a minimum value of 1 and a maximum value of 7, where 1 indicated plans to purchase 30% less than last year and 7 indicated plans to purchase 30% more than last

² Given the account-based/relationship nature of selling to channel intermediaries, many salespeople knew the individual distributors at a personal level. Indirectly, such a relationship reduces the need for a face-to-face call in the context of a sales visit. A sales contact (call) in the context of this study includes face-to-face and telephone communications. We do not know the proportion of time each sales representative spent on telephone versus face-to-face calls. However, we do know that customer contact by telephone was specifically in the context of selling activity only.

TABLE 1. *Distributor intentions prior to the trade show (IWF '96).*

Distributor category	n	Pre-show buying intentions	
		Mean ¹	P value ²
Large Distributor			
Plan to attend show	31	4.74	0.825
Did not plan to attend show	35	4.69	
Small Distributor			
Plan to attend show	18	4.22	0.547
Did not plan to attend show	67	4.03	
Total			
Plan to attend show	49	4.55	0.143
Did not plan to attend show	102	4.25	

¹ Based on a 7-point scale, where 1 = plan to purchase 30% less than last year, and 7 = plan to purchase 30% more than last year.

² Results of independent *t*-tests. Significance is denoted by *P*-values less than 0.05.

year. The buying intention scores among small and large distributors, further classified by plans to attend versus not attend the show are indicated in Table 1. No significant differences were noted at the 0.05 level, indicating that pre-show buying intentions among distributors planning to attend the show versus those not planning to attend appear to be comparable for both large and small distributors. We also examined the firmographic profiles of distributors planning to attend IWF '96 versus those not planning to attend the show. We considered variables such as number of employees, previous year's sales, and product category mix to identify areas of potential differences between potential show attendees and nonattendees. No significant differences were detected among these variables across the two groups, reinforcing our belief that the profile of distributions in the two groups is quite similar.

Personal selling activity was the major component of the post-show follow-up effort with the distributors. We obtained information on sales contact activity from EAS's salespeople using a 7-point rating scale (1 = relatively less time and 7 = relatively more time). The salespeople used this scale to indicate the relative amount of time they spent selling to each distributor, in their assigned area, during the four-

month period following the show. The distribution of these ratings appeared bimodal, indicating that sales representatives either expended a lot of effort or very little effort on each distributor they were calling on. Because of this bimodal distribution, we classified those distributors receiving relatively more calls from EAS sales personnel (a rating higher than 4) as receiving 'strong' personal selling exposure. Similarly, we classified distributors with ratings of 4 or lower as receiving 'weak' post-show sales effort. This process identified 195 distributors as receiving 'strong' post-show sales effort, and 437 receiving 'weak' sales effort. Since distributors were also classified by size (large/small) and by whether or not they attended the show, we had a total of eight categories. In all, 95 distributors were actually present at the show, forming the test group, and 537 distributors were not present, forming the control group.

Return-on-trade show investment

Sales dollars attributed to the show were analyzed along with allocated trade show expenditures in order to calculate a return on trade show investment (ROTSI). The difference between cumulative sales of distributors attending the show and distributors not attending the show was calculated for each blocked category (size and personal selling effort) to determine incremental sales attributed to the show.

Incremental sales attributed to the trade show.—Average cumulative sales and incremental sales for each category of distributors are presented in Table 2. Computations of cumulative and incremental sales were performed at the end of the experimental period (31 December 1996). All categories of distributors attending IWF'96 posted higher average cumulative sales as compared to distributors not attending the show, with the exception of small distributors receiving weak post-show personal selling effort. Positive incremental sales attributed to distributors' exposed to the

TABLE 2. *Incremental total sales attributable to trade show attendance.*

Distributor description ^{1,2,3}	n	Average cumulative sales 21 August–31 December	Incremental sales attributed to the show	Incremental total sales
Small/Strong personal selling				
Attended trade show	13	\$1,772.31	\$236.31	\$3,072.03
Did not attend trade show	75	\$1,536.00		
Large/Strong personal selling				
Attended trade show	39	\$27,175.38	\$3,837.03	\$149,644.17
Did not attend trade show	68	\$23,338.35		
Small/Weak personal selling				
Attended trade show	23	\$250.44	(\$31.48)	(\$724.04)
Did not attend trade show	343	\$281.92		
Large/Weak personal selling				
Attended trade show	20	\$20,885.71	\$7,417.47	\$148,349.40
Did not attend trade show	51	\$13,468.24		

¹ The top 200 distributors, in terms of previous year sales dollars, and adjusted for those not carrying the industrial line are classified as large distributors. Small distributors are all those not included in the top 200.

² Personal selling effort is based on supplier sales force relative to personal selling ratings. Strong personal selling ratings were assigned to distributors receiving above average ratings, whereas weak personal selling ratings were assigned to distributors who received average or below average personal selling ratings.

³ Distributors attending IWF'96 are assumed to have also attended the manufacturers' booths of the products they carry.

show are also seen in all categories except for these small/weak selling effort distributors.

Incremental mean sales in this situation can be interpreted as the additional sales generated per show-attending distributor. Incremental total sales are, therefore, the incremental sales per show-attending distributor multiplied by the number of distributors in each test group category. Table 2 shows a distinct difference in incremental total sales between large and small distributors; large distributors posted much larger sales figures directly attributed to their attendance at IWF'96.

Return on investment calculations.—The trade show's return on investment (ROTSI) is calculated in Table 3, for all categories of distributors. Total incremental sales are multiplied by a gross margin figure (EAS management indicated an estimated gross margin for the machine in question of 35%) and compared to the allocated costs of showing the machine in order to obtain a ROTSI for each size and personal selling combination of attending distributors. A 15% allocation of EAS's total trade show expenditure at IWF '96 of \$178,550 (or \$26,782) was assigned to the machine examined in this research based on

approximate total both space occupied by the machine.³ Large positive returns were calculated for large distributors (821% and 376%); however, substantial negative returns are seen among small distributors (−71% and −104%).

A weighted average ROTSI is calculated based on the individual category ROTSI figures (Table 3) and the proportional trade show investment for each type of distributor. This weighted average ROTSI can be viewed as the total return on investment for the exhibited machine for the experimental time period. Although it is believed that the majority of the returns attributable to the show have been realized, additional returns are expected to continue beyond our cut-off date. Therefore the weighted average ROTSI of 292% represents a conservative short-term value proposition.

³ The ROTSI calculation is highly sensitive to the method by which show costs are allocated to the machine in question. Two logical allocation methods were examined most closely: an allocation based on the number of machines exhibited, and an allocation based on total floor space. These methods indicated allocations of 8% and 15% of show expenses, respectively. Therefore, the 15% allocation used in our analysis provides a relatively conservative estimate of the costs associated with exhibiting this particular machine at the show.

TABLE 3. *Estimated return on trade show investment (ROTSI) by distributor category.*

Distributor description	Incremental total sales	Incremental gross profit ¹	Cost of exhibiting ²	ROTSI ³
Small/Strong personal selling				
Attended trade show	\$3,072.03	\$1,075.21	\$3,664.97	-70.66%
Large/Strong personal selling				
Attended trade show	\$149,644.17	\$52,375.46	\$10,994.92	376.36%
Small/Weak personal selling				
Attended trade show	(\$724.04)	(\$253.41)	\$6,484.18	-103.91%
Large/Weak personal selling				
Attended trade show	\$148,349.40	\$51,922.29	\$5,638.42	820.87%

¹ Gross profit is based on a gross margin of 35% of sales.

² Cost of exhibiting the machine in question is estimated to be \$26,782. This amount was allocated across distributor categories based on the number of distributors in each cell attending the show. This allocation method used to distribute costs can have a dramatic effect on ROTSI. However, even a very large shift in show expenses allocated to the machine has little managerial effect on the ROTSI. A 50% increase in allocated costs still generates an overall ROTSI of 161%, with large distributors yielding highly positive ROTSI and small distributors yielding highly negative ROTSI.

³ ROTSI = Incremental Total Gross Profit - Cost of Exhibiting/Cost of Exhibiting.

Weighted Average ROTSI

$$= w_{ss}k_{ss} + w_{ls}k_{ls} + w_{sw}k_{sw} + w_{lw}k_{lw}$$

$$= (0.14)(-70.66\%) + (0.41)(376.36\%)$$

$$+ (0.24)(-103.91\%) + (0.21)(820.87\%)$$

$$= 291.86\%$$

w_{lw} = proportion of large distributors receiving weak personal selling effort attending IWF '96.

k_{lw} = return generated from large distributors receiving weak personal selling effort attributed to IWF '96 attendance.

where:

w_{ss} = proportion of small distributors receiving strong personal selling effort attending IWF '96.

k_{ss} = return generated from small distributors receiving strong personal selling effort attributed to IWF '96 attendance.

w_{ls} = proportion of large distributors receiving strong personal selling effort attending IWF '96.

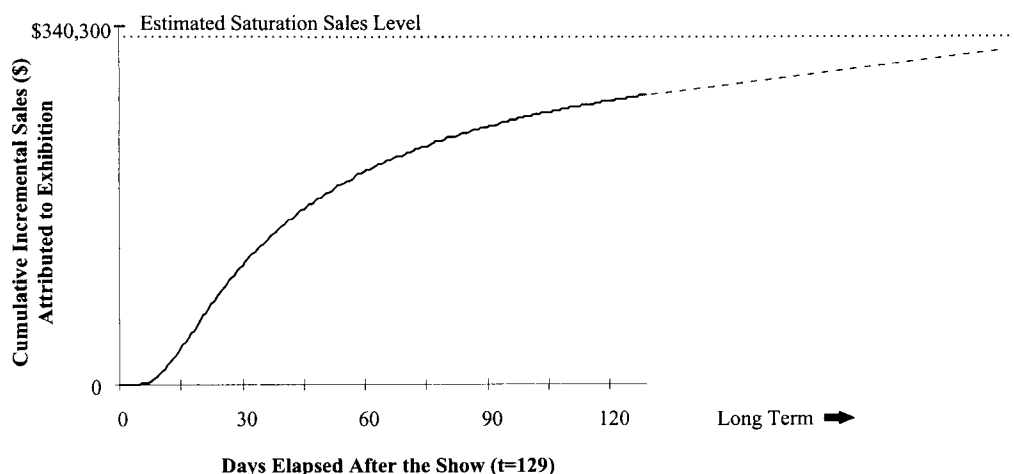
k_{ls} = return generated from large distributors receiving strong personal selling effort attributed to IWF '96 attendance.

w_{sw} = proportion of small distributors receiving weak personal selling effort attending IWF '96 attendance.

k_{sw} = return generated from small distributors receiving weak personal selling effort attributed to IWF '96 attendance.

A fitted regression approach.—A logarithmic reciprocal model of the form $S = \exp(\alpha - \beta/t)$, where S = cumulative incremental sales and t = days following the show, with α and β the regressed parameters, was utilized in estimating the long-term economic effect of the show. The log reciprocal curve was used because it is conceptually consistent with the data, as well as the marketing communication literature (Lilien et al. 1992; Gopalakrishna et al. 1995). Observed sales data were fitted to this function, resulting in parameter estimates of $\alpha = 12.74$ and $\beta = 42.56$. An adjusted $R^2 = 0.69$ was calculated using this projection model indicating a relatively good fit of the data. Therefore, an estimated long-term saturation sales level ($S_{sat} = \exp[\alpha]$) of \$340,299 was calculated. This projection suggests that if conditions remained the same following our experimental cut-off date, our best estimate of a long-term ROTSI would be equal to 345%.

Although our analysis is descriptive in nature and involves a census of the entire population of distributors responsible for selling



Month	Observed Cumulative		Fitted Cumulative	
	Incremental Sales (\$)	Observed ROTSI	Incremental Sales (\$)¹	Fitted ROTSI
September	179,708.50	135%	107,713.33	41%
October	142,331.25	86%	181,980.27	138%
November	215,890.18	182%	220,414.18	188%²
December	300,341.52	292%	244,662.32	220%
Long Term			340,299.03	345%³

¹ A log reciprocal model of the form $S = \exp(\alpha - \beta / t)$, where S = cumulative incremental sales, t = days following the show, and α and β are parameters was used with $R^2 = 0.69$.

² Asymptotic (large sample approximations) 95% Confidence intervals were conducted on the parameters in the above nonlinear regression. As of December 31, 1996, the upper bound cumulative incremental sales figure is \$300,587 resulting in an ROTSI of 293%. The lower bound figure was calculated at \$199,143 resulting in a ROTSI of 160%.

³ Asymptotic 95% confidence intervals indicated an upper bound of long-term saturation sales of \$388,071 and a lower bound of \$298,407, resulting in Long-term ROTSI's of between 290% and 405%.

FIG. 1. Fitted and observed dynamics of trade show ROI.

EAS's machinery, insight into the applicability of this research on future shows can be gained by a closer look at the confidence intervals surrounding our fitted regression. The log reciprocal curve (Fig. 1) provided asymptotic 95% confidence intervals for parameters α and β such that expected cumulative incremental sales would fall between \$199,143 and \$300,587, if this experiment could be duplicated many times over. This translates into a short-term ROTSI of between 160 and 293%, and a long-term saturation ROTSI of between 290 and 405%. Given this scenario, the observed sales data yielded returns very near the upper bound of the fitted model. Seasonal

year-end buying may be one reason for the relatively high observed ROTSI. Therefore, the researchers feel that the fitted ROTSI of 220% may be a better estimate of the show's value to EAS. It is also important to note that even assuming the lower short-term limit on returns of 160%, the selling effects of exhibiting at this show remain very attractive.

Effects on personal selling efficiencies

Another way of viewing a trade show's impact on the selling function is to examine the show's ability to reduce personal selling costs following the event. As mentioned earlier, a

TABLE 4. *Relative effectiveness of follow-up personal selling activity.*

Distributor description	n	Cumulative sales per distributor	Average personal selling effort ¹	Effort per \$100 of sales ²
Small/Strong personal selling				
Attended trade show	13	\$1,772.31	5.385	0.304
Did not attend trade show	75	\$1,536.00	6.720	0.438
Large/Strong personal selling				
Attended trade show	39	\$27,175.38	6.282	0.023
Did not attend trade show	68	\$23,338.35	6.059	0.026
Small/Weak personal selling				
Attended trade show	23	\$250.44	2.565	1.024
Did not attend trade show	343	\$281.92	1.991	0.706
Large/Weak personal selling				
Attended trade show	20	\$20,885.71	3.000	0.014
Did not attend trade show	51	\$13,468.24	3.137	0.023
Total Attendees	95	\$15,856.36	4.568	0.029
Total Non-Attendees	537	\$4,629.02	3.093	0.067

¹ Personal selling effort rated on a 7-point relative scale, where 1 = relatively less time and 7 = relatively more time spent selling the machinery in question.

² Explanation: 5.385/(\$1,772.31/100).

strong argument can be made that trade shows alone do not necessarily generate sales, but rather improve the effectiveness of subsequent personal selling activities in closing sales. The following analysis examines this hypothesis, independent of the analysis in previous sections, and does not suggest that the results identified in this section are in addition to the returns identified above.

Table 4 (column 3) provides the results of the relative personal selling ratings for each category of distributor as indicated by EAS sales representatives. Overall, distributors attending the show received additional personal selling effort versus those not attending. Attendees received a rating of 4.57, on a 7-point scale whereas nonattendees received a rating of only 3.09, representing an increase of roughly 50% in relative terms. This is not surprising given the complementary nature of trade shows; shows are oftentimes used to identify leads for follow-up selling efforts. However, the effectiveness of this increased effort is somewhat astonishing. Selling efficiency is examined by the ratio of personal selling effort per \$100 of sales and is presented in column 4 of Table 4. Based on this ratio, sales representatives selling to distributors

who attended the show were able to close sales (generate revenue) with less than half of the effort required to close distributors who did not attend —0.029 versus 0.067.

Several observations can be made from these results. First, a cell-by-cell comparison of equivalent groups in Table 4 confirms that the required follow-up selling effort on those who attended the show is much lower when compared to those who did not attend the show. For example, considering large distributors receiving weak selling effort (rows 7 and 8), we observe that those attending the show required 39% less follow-up personal selling to generate the same level of sales ($[0.023 - 0.014]/0.023$). The only exception occurs in the case of small distributors receiving weak personal selling effort. For this category of distributors, neither show attendance nor increased personal selling effort improved revenue. Therefore, this is the only category of distributors where those attending the show required additional personal effort to generate the same level of sales. The second observation is that the sales call activity appears to be much more cost-effective for the large distributors as compared to the small distributors. From the last column in Table 4, we observe

TABLE 5. Interest ratings by distributor category.

Distributor category	n	Mean ¹	P-value ²
Large Distributor			
Strong personal selling	35	4.84	0.035
Weak personal selling	11	5.46	
Attended show	23	5.24	
Did not attend show	23	4.74	0.044
Small Distributor			
Strong personal selling	21	4.29	0.434
Weak personal selling	61	4.07	
Attended show	18	4.83	
Did not attend show	64	3.92	0.002
Total			
Strong personal selling	56	4.63	0.069
Weak personal selling	72	4.28	
Attended show	41	5.06	
Did not attend show	87	4.14	0.000

¹ Interest was measured in terms of post-show purchase intentions. A 7-point scale, where 1 = plan to purchase 30% less than last year, and 7 = plan to purchase 30% more than last year was used.

² Results of independent *t*-tests. Post-Show respondents are not necessarily the same distributors as those responding to pre-show survey efforts. Significance is denoted by *P* = values less than 0.05.

that the effort required to generate sales dollars is significantly higher among smaller distributors (i.e., row 1 versus row 3). Roughly, 15 to 70 times the follow-up effort was required to generate comparable sales from a small distributor than a large one. Even when receiving relatively weak levels of personal selling effort, many of these small distributors are unable to purchase sufficient volume to counter the expense of the few sales calls they receive.

One potential explanation for the increased effectiveness in personal selling may be due to the trade show's ability in heightening distributors interest. As part of the Phase 3 post-show survey effort, distributors were asked to assess their level of interest in purchasing the product line. Both large and small distributors attending the show indicated a significantly higher level of interest than those not attending the show (Table 5). These findings contrast sharply with the effects of personal selling efforts on interest levels. Heightened levels of personal selling, although very influential in increasing sales levels, did not significantly enhance distributor interest in the product line.

In fact, among large distributors, increased personal selling effort had a significantly negative impact on interest. This additional evidence supports the notion that a trade show has the ability to generate substantial excitement around exhibited products, which cannot be accomplished as effectively during a sales call.

CONCLUSIONS

Overall, the profitability of trade show efforts in this situation suggests the importance of this medium as a significant element of successful business marketing communication strategies. However, these findings also suggest important implications for managers executing sales strategies that go well beyond the go/no go decision. First, our findings suggest that at-show communications and selling programs could be targeted to segments most influenced by the excitement generated by a show. In our study, large distributors posted extremely high ROTSI—regardless of personal selling effort, whereas, small distributors demonstrated negative returns. Therefore, a more targeted show stands to improve exhibit effectiveness through an improved message to large distributors, or an overall decrease in show expenses. Second, our findings also suggest that promotional activity *prior* to the show can be extremely valuable. Of the 632 active distributors, only 95 (15%) attended the trade show. Even among EAS's largest distributors, only one-third attended the show. If customers (in this case, large distributors) can be persuaded by a carefully planned pre-show promotion campaign to visit the firm's booth at the show, the potential exists for significant increases in total returns. Third, trade show exposure becomes an important dimension in allocating sales force effort. The effectiveness of personal selling is considerably higher when distributors are already exposed to the product at a trade show. Therefore, not only are trade show follow-up activities critical, but given this improved efficiency, additional resources may also be freed for increased selling

activity in profitable segments of nonattending distributors.

While our approach has extended the model for calculating the economic impact of trade show exhibitions to include a situation that much more closely represents a typical business marketing environment, several limitations exist that we believe provide useful avenues for future research. First, the ROTSI calculation applies to a single product exhibited by a single firm. Although it is tempting to generalize our results to other firms or to future shows, to do so would be beyond the scope of our study. Replications of this exploratory work in different types of shows (regional or international shows) and with different segments within the forest products industry (differentiated versus less differentiated products) would enable more far-reaching generalizations. Second, care was taken to select an environment relatively free from external "noise" associated with active business markets. Thus, future studies may attempt to measure the impact of advertising, direct mail, multiple shows, or any other significant communication medium. Third, our study focused on a new product in order to avoid the effects of previous marketing activities. Because we did not track the profits of other machines exhibited at the show, we do not know the ROI for total trade show investments—only their effects on the new machine in question. Additional research is needed to extend these calculations to situations in which existing products are exhibited. Fourth, no spillover effects were measured. Possible spillover effects could have resulted from incremental profits generated from end-use customers who were exposed to the show but purchased through distributors who did not attend the show. An examination of targeted end-users and distributors regarding trade show and personal selling activities would better account for the derived demand influencing channel purchasing behavior.

The use of trade shows, particularly in the forest products industry, has been increasing. Trade show expenditures represent a critical

decision in a firm's marketing communications mix in terms of which shows to attend, the optimum number to attend, and how to evaluate the success of attendance. The economic gain of exhibiting at a trade show remains difficult to measure; however, this study presents a method by which exhibitors may evaluate the effectiveness of their trade show expenditures in terms of a return on trade show investment (ROTSI). In addition, this study has implications for all forest products firms heavily engaged in personal selling activities. We have demonstrated that trade shows can improve the effectiveness of an exhibiting company's sales force.

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