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# PERCEPTUAL DIFFERENCES BETWEEN SHIPPERS AND MOTOR CARRIERS REGARDING THE IMPORTANCE OF CARRIER SELECTION CRITERIA

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## ABSTRACT

The primary focus of this study is the identification of significant differences in the assessment of the importance of 36 carrier selection variables by both carriers and shippers. This study is based on the original 1992 investigation. Currently, statistically significant differences resulted between shipper and carrier mean ratings for nine of the thirty-six selection criteria. In the original study, there were significant differences for nineteen of thirty-five selection variables. The rating and ranking discrepancies in this study indicate that shippers and carriers do not classify the importance of some selection variables similarly, but carrier understanding seems to be improving. Carriers must take the forefront by providing leadership and innovation in relation to their selection mixes, rather than keying on past performance and relationships.

Since the mid-1990's, competition in the motor carrier industry has greatly intensified with globalization, NAFTA, and the move toward requiring technological information support systems (Milligan, 1999). Because of this intense competition, even more attention was focused on satisfying shipper preferences. According to Crum and Allen, "shippers are increasingly demanding better quality service from carriers" (Crum and Allen, 1997). An effective marketing

strategy will deliver better quality service and result in greater shipper satisfaction. Shipper satisfaction is a function of carriers providing a selection variable mix that best serves shippers. Surprisingly, little has been done to determine the nature of carrier understanding of the most significant carrier selection variables. In fact, previous studies indicate that the carrier choice decision may be regarded by shippers and carriers in a much different manner. Specifically,

some shippers and carriers appear to have very different notions of what constitutes satisfactory service by motor carriers.

It is important that the buyer-seller dyad be understood from *both* the shipper and carrier perspectives. Evans and Southard's 1974 study of manufacturers, wholesalers, retailers and motor carriers in Oklahoma investigated how *both* shippers and carriers perceived 28 factors, thought to be important in the selection decision. Respondent evaluations were measured on a five-point scale. Perceptions were then compared by means of t-tests. Evans and Southard found that there were six perceptual differences between shippers and carriers (Evans and Southard, 1974).

Prior to deregulation, only the Evans and Southard study sampled *both* shippers and carriers and specifically investigated the variables related to the selection of motor carriers. In the 1970's, other empirical studies dealing with carrier selection did not specifically investigate the views of both shippers and motor carriers (Stock, 1976; Jerman et al., 1978 and McGinnis, 1979). In the 1980's, studies had a narrow focus, examining only the shipper perspective of the transportation seller-buyer relationship (Krapfel and Mentzer, 1982; Baker, 1984; Chow and Poist, 1984 and Granzin et al., 1986). The original 1992 study investigated the importance of certain motor carrier selection variables to *both* shippers and carriers (Premeaux et al., 1992). No other researchers have investigated the importance of motor carrier selection variables to *both* shippers and carriers since deregulation. This study expands on the original investigation and seeks to provide the information necessary for carriers to better understand the importance of thirty-six motor carrier selection criteria to shippers.

## RESEARCH DESIGN

This research attempts to determine the factors that most influence carrier selection and how *both* carriers and shippers differ in relation to the importance placed on these variables. A

systematic sample of traffic managers and motor carrier managers provided the database for this study. The sample of traffic managers was composed of individuals employed by various manufacturing, wholesaling and retailing organizations and was selected from *The Official Directory of Industrial and Commercial Traffic Executives*. The motor carrier manager sample was drawn from a list of motor freight trucking companies supplied by American Business List.

A mail questionnaire was chosen because of the time necessary to complete the survey and the geographic dispersion of the respondents. Questionnaires were mailed to 2000 shipper traffic managers and 2000 motor carrier managers. Of those queried, 794 shippers and 685 carriers responded. The number of usable questionnaires was 762 and 651, respectively. The usable responses comprised 38.1 percent and 32.5 percent of the survey population, which should provide a reasonably accurate representation of the actual population.

Only nationwide motor carriers were surveyed and their demographic profiles differed only slightly from the 1992 carrier group. These carriers estimated that the majority of their shipments were truckload. The averages for the sample were 74 percent TL shipments and 26 percent LTL shipments. However, it should be noted that these percentages are averages of the total sample of respondents' estimations. Of the shippers responding, 24 percent were producers of home products, 25 percent produced industrial goods destined for further processing, 22 percent were food producers, 11 percent produced electronics products, and 18 percent classified themselves as "other" types of producers. Seventy-eight percent of the shipper sample stated that they normally ship in large lot sizes.

The original 1992 study used thirty-five carrier selection criteria that were drawn from previous work. This research includes the thirty-five original motor carrier selection variables, plus a Web-enhanced Electronic-Data-Interchange (EDI). A Web-enhanced EDI is a frequently mentioned selection variable because it offers

many advantages including electronic billing, rate charge calculations, pickup and delivery scheduling, and shipment tracing. Specifically, utilizing the Internet whenever possible lowers overall transaction costs. However, since Web-based services are only as good as the information systems that support them, hybrid systems that use network providers for some services, and the Internet for others, were most prevalent among the survey respondents. Many in the transportation industry are adopting advanced Web-enhanced EDI systems to enhance customer service (McGovern, 1998). The thirty-six selection criteria listed in Table 1 are thought to be used by shippers in their motor carrier selection decisions. Each of the thirty-six variables included in the survey were briefly defined on the survey instrument to help ensure respondent understanding of each variable. Carrier managers were asked their perceptions of the importance that shippers place on each selection variable. Traffic managers were also asked to rate the importance of each selection variable. The following scale was used:

1. Not important
2. Slightly important
3. Moderately important
4. Very important
5. One of the most important factors

### PERCEPTUAL DIFFERENCES BETWEEN SHIPPERS AND MOTOR CARRIERS

Initially, descriptive statistics in the form of frequency and cross-tabulation tables were computed to get a "feel" for the data. Then, a comparison was made to determine if a difference exists between the perceptions of shippers and carriers regarding the 36 motor carrier selection criteria. Analysis of variance was used to compare the perceived importance assigned to each selection criterion by both shippers and carriers. A mean rating score was calculated for each of the factors for both groups. These responses were compared, and an "F" statistic computed. In all cases, a significance level of .05 was used. The variables with a statistically significant difference between the perception of

shippers and carriers are identified by *asterisks* in Table 1. To evaluate the level of satisfaction provided shippers by carriers, an analysis of the importance of various selection criteria to shippers was conducted. The statistically significant mean ratings and rankings for both shippers and carriers were analyzed and the overall results presented in Table 1.

In both the current and the original 1992 investigation, only six carrier selection variables were ranked exactly the same by both groups. The reliability of on time delivery and pick-up were ranked first and second in both studies, indicating that the importance of these criteria are well understood by both carriers and shippers. A review of the information in Table 1 further reveals that there was general agreement on the relative importance of twenty-seven of the thirty-six selection variables. In the original 1992 study, there was general agreement on only sixteen of thirty-five selection criteria. Currently, statistically significant differences resulted between shipper and carrier mean ratings for nine of the thirty-six selection criteria. In the original study, there were significant differences for nineteen of thirty-five selection variables. Currently, five of the nine statistically significant selection variables were rated higher by shippers. Originally, only four variables were rated higher by shippers than by carriers. The other four statistically significant selection factors were rated higher by carriers, down from fifteen in the original 1992 investigation.

Currently, carriers ranked three of the shippers' ten most important selection variables the same as shippers did. In the original study, carriers ranked only two of the shippers' top ten variables the same. Currently, five of the top ten variables were significantly different. Four of these factors were rated higher by shippers than by carriers. The fact that carriers were not as concerned as shippers with emergency response and providing leadership in offering more flexible rates, could well result in shipper dissatisfaction. Not only was the emergency response issue statistically significant, but it was

**TABLE 1**  
**SUMMARY OF FINDINGS: PERCEPTIONS OF SHIPPERS & CARRIERS REGARDING**  
**THE IMPORTANCE OF CARRIER SELECTION VARIABLES**

Carrier Selection Criteria	Shipping Mean Rating	Carrier Mean Rating	Shipper Ranking	Carrier Ranking
Reliability of on time delivery	4.51	4.55	1	1
Reliability of on time pick-up	4.46	4.49	2	2
Financial stability of carrier	4.23	4.21	3	6
Total transit time for the shipment	4.31	4.23	4	4
Carrier response in emergency or unexpected situations	4.57*	3.81	5	10
Web-Enhanced Electronic-Data-Interchange (EDI)	4.63*	4.09	6	9
Carrier's reputation for dependability	4.09	4.63*	7	3
Handling expedited shipments	4.13	4.19	7	8
Carrier's leadership in offering more flexible rates	4.33*	3.68	9	15
Computerized billing and tracing services	4.49*	4.07	10	16
Geographic coverage of carrier	4.05	4.01	11	13
Past performance of the carrier	4.11	4.62*	12	11
Information provided to shippers by carriers	4.48*	4.07	13	17
Ease of claim settlement (loss or damage)	4.03	4.12	14	12
Carrier cooperation with shipper's personnel	3.91	4.52*	15	7
Carrier representative's knowledge or shipper's needs	3.71	4.62*	16	5
Freight loss experience with the carrier	3.78	3.82	17	18
Condition of equipment	4.08	4.11	18	14
Discount programs offered by carriers	3.69	3.58	19	20

**Table 1**  
**(continued)**

Carrier Selection Criteria	Shipping Mean Rating	Carrier Mean Rating	Shipper Ranking	Carrier Ranking
Scheduling flexibility	3.92	3.89	20	21
Freight damage experience with the carrier	4.29	4.31	21	19
Carrier assistance in obtaining rate or classification changes	3.64	3.63	22	23
Carrier attitude toward acceptance of small shipments	3.66	3.62	23	27
Carrier honors shipper's routing requests	3.46	3.41	24	24
Personal relations with the carrier	4.19	4.22	25	25
Carrier transportation equipment designed to facilitate easy and fast loading and unloading	3.10	3.08	26	29
Overcharge claims service	3.31	3.35	27	26
Feedback from the consignee to the shipper about the quality of service given by specific carriers	3.79	3.77	28	28
Courtesy of vehicle operators	3.94	4.01	29	22
Carrier's ability to handle special requests	3.06	3.09	30	31
Diversion and reconsignment privileges	2.93	2.98	31	33
Fabrication in transit privileges	2.58	2.55	32	36
Carrier willingness to participate in freight consolidation practices	2.43	2.47	33	34
Regular calls by carrier sales representatives	3.68	3.73	34	30
Opinions or recommendations of employees of other firms	3.12	3.19	35	32
Gifts/gratuities offered by carriers	1.39	1.46	36	35

\*Variables were found to be statistically significant at the .05 level

ranked fifth by shippers and tenth by carriers. The ranking discrepancy of the rate flexibility issue was even greater, with a shipper ranking of nine and a carrier ranking of fifteen. The likelihood of shippers being dissatisfied is heightened because these criteria are among the ten most important variables as ranked by shippers. Also, these variables were similarly misunderstood in the original 1992 study. The three other variables both ranked and rated higher by shippers than by carriers are data related. The two statistically significant top ten variables are computerized billing and tracing and a Web-enhanced EDI. The other variable where significant differences exist between shippers and carriers is information provided to shippers by carriers.

Carriers overrated the importance to shippers of four motor carrier selection criteria which may indicate that carriers do not adequately appreciate the nature of shipper needs. The statistically significant variables ranked higher by carriers than by shippers dealt with the carrier's reputation for dependability, carrier representative's knowledge of shipper needs, carrier cooperation with shipper personnel, and past performance of the carrier. They were ranked third, fifth, seventh, and eleventh, respectively. All four of the selection criteria rated higher by carriers than by shippers in the current study were also rated higher by carriers than by shippers in the original 1992 investigation. Carriers also ranked all of these selection variables higher than did shippers. While maintaining the quality of these and other service factors, carriers should probably key on the selection criteria that are rated more important by shippers.

### **SUMMARY OF DIFFERENCES, CAUSES, AND METHODS OF OVERCOMING DIFFERENCES**

Basically, shipper satisfaction is a function of carriers providing a selection variable mix that best serves shippers. Shippers are now "highly involved, critical, and discerning in their selection of a carrier" (MacLeod et al., 1999). To

evaluate the level of satisfaction provided shippers by carriers, an analysis of the importance of various carrier selection criteria is essential. Areas where statistically significant differences exist should be of major concern to carriers. Recognizing the existence of these differences and possible causes of each difference affords the carrier an opportunity to develop more effective strategies to better serve shippers. A comparison of both shipper and carrier rankings revealed that only six selection variables were ranked exactly the same by both groups. Statistically significant differences resulted between shipper and carrier mean ratings for nine of the thirty-six selection criteria. This was a marked improvement over the nineteen of thirty-five significant differences in the original study (Premeaux et al., 1992).

As may be seen in Table 2, five of the nine statistically significant selection variables were rated higher by shippers. Shippers rated carrier response in emergency or unexpected situations, carrier's leadership in offering more flexible rates, information provided by carriers, computerized billing and tracing and a Web-enhanced EDI higher than did carriers. These differences could have a negative impact on shipper profitability. Since carrier selection decisions are often made to maximize gains, an inappropriate mix could result in lost business for carriers who misinterpret the importance of these selection factors. These differences, and the resulting shipper dissatisfaction, could be overcome by offering a selection variable mix that focuses on the most important carrier services.

As may be seen in Table 3, carriers rated four statistically significant selection factors higher than did shippers. Carriers rated reputation for dependability, carrier cooperation, past carrier performance, and carrier representative's knowledge of shipper needs higher than did shippers. These differences may be caused by carriers placing too much emphasis on past relationships, rather than being responsive to current shipper needs. In the highly competitive motor carrier industry, this strategy may be disastrous.

**TABLE 2**  
**STATISTICALLY SIGNIFICANT VARIABLES RATED HIGHER THAN BY CARRIERS**

Carrier Selection Criteria	Shipper Mean Rating	Carrier Mean Rating	Shipper Ranking	Carrier Ranking
Carrier response in emergency or unexpected situations	4.57*	3.81	5	10
Web-Enhanced Electronic-Data-Interchange (EDI)	4.63*	4.09	6	9
Carrier's leadership in offering more flexible rates	4.33*	3.68	9	15
Computerized billing and tracing services	4.49*	4.07	10	16
Information provided to shippers by the carrier	4.48*	4.07	13	17

The variables marked with an asterisk were found to be statistically significant at the .05 level.

**TABLE 3**  
**STATISTICALLY SIGNIFICANT VARIABLES RATED HIGHER BY CARRIERS THAN BY SHIPPERS**

Carrier Selection Criteria	Shipper Mean Rating	Carrier Mean Rating	Shipper Ranking	Carrier Ranking
Carrier's reputation for dependability	4.09	4.63*	7	3
Carrier representative's knowledge of shipper's needs	3.71	4.62*	16	5
Carrier cooperation with shipper's personnel	3.91	4.52*	15	7
Past performance of the carrier	4.11	4.62*	12	11

The variables marked with an asterisk were found to be statistically significant at the .05 level.

Overemphasizing any or all of these selection factors is costly and probably does not significantly enhance shipper satisfaction. Even though these variables basically focus on important areas related to carrier performance, it may be that shippers are fairly satisfied with carrier performance in these areas, and therefore carriers may want to key on other more highly rated criteria. Quite possibly, carriers overemphasize these factors because some shippers are prone to select carriers based on their past performance record and long-established relationships. However, shippers may well change carriers if they are not responsive enough to their actual needs, especially those needs that are most important.

The basic method of overcoming these differences involves the development of a reformulated mix which focuses on offering shippers better response in emergency or unexpected situations, providing real leadership in offering more flexible rates, and providing information and services through a comprehensive Web-enhanced EDI. Fulfilling shipper information needs with a Web-enhanced EDI approach is expected to increase in importance in the future because shippers and carriers can use information technology to "help them act with the agility of a single entity" (Andel, 1996). Basically, the new mix should enhance the quality of service and profitability of shippers in the carriers' target markets.

## IMPLICATIONS

Carriers ranked their representative's knowledge of shipper needs as the fifth most important carrier selection variable, but apparently are not striving hard enough to really understand shipper needs. A lack of understanding could make it impossible to maximize shipper satisfaction. Carriers should strive to appreciate the importance of all selection criteria to their target markets, and develop marketing strategies to best satisfy these needs. A superior

carrier strategy emphasizes a mix of selection variables in line with the importance placed on them by shippers. Developing a service system that places too much emphasis on the less significant variables, and that de-emphasizes the more significant selection variables, may lead to shipper dissatisfaction and possibly even carrier losses.

For motor carriers aspiring to provide their customers with the highest possible level of satisfaction, an understanding of the most important criteria used by shippers in selecting and retaining carrier services is essential. Fortunately, carrier understanding of shipper needs has improved greatly since 1992. However, since there were still some significant differences between the perceptions of this group of carriers and shippers regarding the relative importance of various selection criteria, carriers may not be satisfying shippers to the greatest degree possible. To overcome these differences carriers should provide leadership and innovation in relation to their selection mixes rather than keying on past performance.

Carriers may well have been selected because of their past performances and long-standing relationships, but shippers may not continue to utilize their services if carriers are not more responsive to actual shipper needs. Specifically, carriers should identify and emphasize those elements of their selection mix that are perceived as most important by the decision makers in the shipping organization (Andel, 1996). Quite possibly, a reformulated mix keying on offering shippers better response in emergency or unexpected situations, providing real leadership in offering more flexible rates, and providing information and services through a comprehensive Web-enhanced EDI will enhance shipper satisfaction. Carriers who know which of the selection criteria are most important can develop a selection variable mix to more thoroughly satisfy shipper needs, thereby attracting new customers and maintaining existing clients.

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