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Motor Carriers' and Shippers' Perceptions of the Carrier Choice Decision

by Shane R. Premeaux

This study investigates the perceived importance of 36 carrier selection variables to both motor carriers and shippers. The ranking discrepancies identified indicate that shippers and carriers do not classify certain motor carrier selection variables similarly. Fortunately, motor carrier perceptions have improved since the Abshire and Premeaux (1991) study. To enhance shipper satisfaction, carriers must emphasize the more important selection variables. Specifically, carriers need to focus on offering more flexible rates, respond effectively to emergency or unexpected situations, and provide information and services through a comprehensive, Web-enhanced, electronic-data-interchange.

Motor carriers are an important link in the supply chain, and effective management strategies are necessary for motor carrier competitiveness (Snyman 2006). To develop effective management strategies, it is essential that carriers focus on better satisfying shipper preferences because shippers are now more “highly involved, critical, and discerning in their selection of a carrier” (MacLeod et al. 1999). In the new millennium, constant adaptations by carriers to an ever-changing marketplace are critical (McMullen 2000), therefore, keying on actual shipper needs is vital. Not enough has been done in the motor carrier industry to determine the nature of carrier understanding regarding the most significant selection variables as perceived by shippers. Given the aggressive competitiveness in the motor carrier industry since deregulation, it is essential that carriers adequately appreciate the importance of selection factors to shippers.

Unfortunately, previous research indicates that shippers and carriers have had very different notions regarding what constitutes satisfactory service by motor carriers. The purchase of transportation services, focusing on carrier selection criteria, has been the subject of some empirical investigation both before and after deregulation. However, few studies have sampled *both* shippers and carriers regarding the importance of motor carrier selection variables.

A study by Evans and Southard (1974) of manufacturers, wholesalers, retailers, and motor carriers in Oklahoma investigated how shippers and carriers perceived 28 factors thought to be important in the selection decision. Respondent evaluations were measured on a five-point scale and perceptions were compared by means of t-tests. Evans and Southard (1974) found that there were six perceptual differences between shippers and carriers. Prior to deregulation, only the Evans and Southard (1974) study sampled both shippers and carriers and specifically investigated the variables related to motor carrier selection. In the 1970s, other empirical investigations relating to 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 1980s, 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 Abshire and Premeaux (1991) study investigated the importance of certain motor carrier selection variables to both shippers and carriers. This research expands on the 1991 study by examining the factors that influence carrier selection and investigates how both carriers and shippers differ in relation to the importance they place on 36 motor carrier selection variables.

DATA BASE PROFILE AND RESEARCH METHODS

A 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. However, this is not a matched sample, so the sample of shippers is not necessarily a user group of the particular carriers in the carrier group. Subsequently, no judgment can be made as to whether carriers are responding to their shippers' priorities regarding specific variables. For both studies, the samples were randomly chosen in the same manner and the sample sizes and market segments were comparable.

A mail survey was chosen because of the time necessary to complete the questionnaire and the geographic dispersion of the respondents. Questionnaires were mailed to 2,000 shipper traffic managers and 2,000 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% and 32.5% of the survey population, which should provide a reasonably accurate representation of the actual population. In the pre-test, a small portion of the sample population were surveyed before the entire survey was conducted to help determine the appropriateness of the survey instrument. The pre-test results were quite similar to those of the sample population.

Only nationwide motor carriers were surveyed, and their demographic profiles differed only slightly from the 1991 carrier group. Of the carriers responding, 74% were truckload (TL) firms and 26% were less-than-truckload (LTL) firms. Supplemental analysis revealed that no significant differences exist in selection variables regarding TL and LTL firms. Of the shippers responding, 24% were producers of home products, 25% produced industrial goods destined for further processing, 22% were food producers, 11% produced electronics products, and 18% classified themselves as "other" types of producers. Of the shipper sampled, 78% stated that they normally ship in large lot sizes.

Abshire and Premeaux (1991) used 35 carrier selection criteria that were drawn from previous works. Most notably, 28 factors came from the pre-regulation study by Evans and Southard (1974). This research includes the 35 original motor carrier selection variables, plus Web-enhanced Electronic-Data-Interchange (EDI), which is mentioned frequently in the current literature. Advanced Web-enhanced EDI systems, with Internet interfaces, are being embraced because they offer many advantages, including electronic billing, rate charge calculations, pickup and delivery scheduling, and shipment tracing (McGovern 1998). McMullen (2004) found that EDI has a positive and significant impact on carrier efficiency. Crum, Johnson, and Allen (1998) discovered that the greatest perceived benefit of EDI is in providing better consumer service. 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 was most prevalent among the pre-test group. Many in the transportation industry are adopting advanced Web-enhanced EDI systems that work in conjunction with a Web site to improve customer service.

The 36 selection criteria listed in Table 1 are commonly used by shippers when making their motor carrier selection decisions. Each of the 36 variables included in the survey were briefly defined on the survey instrument to help ensure respondent understanding of each variable. Carriers were asked their perceptions of the importance shippers place on each selection variable. Shippers were also asked to rate the importance of each selection variable. The following scale was used by both shippers and carriers to rate the importance of each selection variable:

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 REGARDING MOTOR CARRIER SELECTION CRITERIA

Initially, descriptive statistics were utilized to get a “feel” for the data. Analysis of variance was used to compare the perceived importance assigned to each of the 36 motor carrier selection criteria by both shippers and carriers. Carrier and shipper mean scores were calculated and compared for each selection factor, and an F statistic was computed. In all cases, a significance level of .05 was used. Summary results are presented in Table 1, and asterisks are used to identify variables with a statistically significant difference between the perception of shippers and carriers.

There were statistically significant differences in the perceptions of shippers and carriers for nine of the 36 selection criteria. In the 1991 Abshire and Premeaux study, there were significant differences for 19 of the 35 selection variables. Of the nine differences, shippers rated five criteria higher than carriers, up from four in the Abshire and Premeaux (1991) study. However, one difference was a Web-enhanced electronic-data-interchange (EDI) that was not included in the 1991 investigation.

Carriers did not accurately perceive the level of importance of carrier leadership in offering more flexible rates, the significance of carrier response in emergency or unexpected situations, the importance of information provided to shippers by carriers, the significance of computerized billing and tracing services, and the importance of a Web-enhanced EDI.

In both the current and 1991 studies, shippers rated leadership in offering more flexible rates and carrier response in emergency or unexpected situations higher than did carriers. This is quite unfortunate since successful motor carriers must respond to actual shipper needs while reducing costs (Dobie 2005). Motor carriers are often selected on the basis of time/speed and cost, which further signifies the importance of carrier response and rate flexibility (Saleh and LaLonde 1972).

According to Evans and Southard (1974) the three most important selection criteria were dependability, transit time, and, to a lesser degree, costs. In a 1979 study, carriers and shippers agreed that the most important selection criteria were cooperation between carriers and shipper personnel, knowledge of shipper needs, and the ability to trace shipments; whereas, shippers were more concerned than carriers with transit time and carrier assistance in obtaining the best rates (Jerman, Anderson, and Constantin 1978). Even though high quality service has been more highly rated than price, Lambert, Lewis, and Stock (1993) found that competitive rates and accurate billing were very important to shippers.

Shippers also rated the significance of computerized billing and tracing services, the importance of information provided to shippers by carriers, and the importance of a Web-enhanced EDI higher than did carriers. Shippers expect realistic rates, on-time performance, the fulfillment of shipper-specific requirements, and real-time tracking, tracing, and communication. Further signifying the importance of a Web-enhanced EDI is the positive impact it can have on on-time pickup and delivery and shipment tracing capabilities. As the supply chain becomes even more time sensitive, real-time tracking, tracing, and communication will become even more important as will Web-enhanced EDI. The Web-enhanced EDI will help ensure on-time performance by improving communication and real-time tracking and tracing capabilities, thereby enhancing service.

Fulfilling shipper information and service needs with a comprehensive Web-enhanced EDI helps improve communication, which is considered by shippers to be a very important part of the service element. A Web-enhanced EDI also helps improve transit time, reliability, flexibility, and tracking. Kent, Parker, and Luke (2001) emphasized the need for Internet capabilities to better serve shippers, such as a Web-enhanced EDI. Whenever possible, carriers must develop better service packages based on existing and emerging technology to meet the changing needs of shippers (Chappuis, Frick, and Roche 2004).

Table 1: Summary of Findings: The Perceptions of Shippers and Motor Carriers Regarding Carrier Selection Variables

Carrier Selection Criteria	Shipper Mean Rating (N=762)	Carrier Mean Rating (N=651)	F	PR>F
Reliability of on time delivery	4.51	4.55	.87	.3857
Reliability of on time pick-up	4.46	4.49	.98	.3042
Financial stability of carrier	4.23	4.21	.49	.5783
Total transit time for the shipment	4.31	4.23	.35	.6157
Carrier response in emergency or unexpected situations	4.57*	3.81	17.24	.0004
Web-Enhanced Electronic-Data-Interchange(EDI)	4.63*	4.09	11.63	.0002
Carrier's reputation for dependability	4.09	4.63*	15.31	.0006
Handling expedited shipments	4.13	4.19	.42	.5891
Carrier's leadership in offering more flexible rates	4.33*	3.68	34.19	.0002
Computerized billing and tracing services	4.49*	4.07	12.72	.0001
Geographic coverage of carrier	4.05	4.01	2.63	.1941
Past performance of the carrier	4.11	4.62*	15.83	.0001
Information provided to shippers by the carrier	4.48*	4.07	18.29	.0003
Ease of claim settlement (loss or damage)	4.03	4.12	.49	.6018
Carrier cooperation with shipper's personnel	3.91	4.52*	26.35	.0002
Carrier representative's knowledge of shipper's needs	3.71	4.62*	42.33	.0001
Freight loss experience with the carrier	3.78	3.82	.53	.4936
Condition of equipment	4.08	4.11	.34	.6284
Discount programs offered by carrier	3.69	3.58	.19	.6978
Scheduling flexibility	3.92	3.89	.13	.9120
Freight damage experience with the carrier	4.29	4.31	.33	.5896
Carrier assistance in obtaining rate or classification changes	3.64	3.63	.87	.4318
Carrier attitude toward acceptance of small shipments	3.66	3.62	3.28	.1037
Carrier honors shipper's routing requests	3.46	3.41	2.97	.0894
Personal relations with the carrier	4.19	4.22	.37	.7129
Carrier transportation equipment designed to facilitate easy and fast loading and unloading	3.10	3.08	.09	.8687
Overcharge claims service	3.31	3.35	.11	.8074
Feedback from the consignee to the shipper about the quality of service given by specific carriers	3.79	3.77	.14	.8436
Courtesy of vehicle operators	3.94	4.01	.36	.6710
Carrier's ability to handle special products	3.06	3.09	.44	.4765
Diversion and reconsignment privileges	2.93	2.98	.09	.9672
Fabrication in transit privileges	2.58	2.55	2.43	.1306
Carrier willingness to participate in freight consolidation practices	2.43	2.47	.29	.8741
Regular calls by carrier sales representatives	3.68	3.73	.41	.5019

Table 1: continued

Carrier Selection Criteria	Shipper Mean Rating (N=762)	Carrier Mean Rating (N=651)	F	PR>F
Opinions or recommendations of employees of other firms	3.12	3.19	.07	.8942
Gifts/gratuities offered by carriers	1.39	1.46	.78	.5319

*denotes significance at the .05 level.

Motor carriers must deal with conflicting demands from shippers who want more services for less cost with greater technological advancements. Unfortunately, carriers overrated the importance of four selection criteria, which may indicate that they do not yet truly appreciate the overall nature of shipper needs. The evolution of the supply chain will place even greater demands on motor carriers, making it even more important that they better understand shipper needs.

Carrier cooperation with shipper personnel, past performance of the carrier, the carrier representative's knowledge of shipper needs, and the carrier's reputation for dependability were all rated higher by carriers than shippers. All four of the selection criteria rated higher by carriers in the current study were also rated higher by carriers in the original 1991 investigation (Abshire and Premeaux 1991). However, in the 1991 study, carriers overrated the importance of 15 selection variables rather than only four. Fortunately, carrier understanding of shipper needs has apparently improved significantly since the 1991 investigation.

It is quite unfortunate that carriers still focus so much on past performance, but it is encouraging that they realize the importance of cooperation, and, even more significant, that they realize the importance of understanding shipper needs. The Quinn (1987) survey found that the primary carrier selection consideration was service, but price discounts also played an important role in the final carrier selection decision.

Overemphasizing less important selection variables instead of providing leadership in offering more flexible rates, positively responding in emergency or unexpected situations, and providing information and services through a comprehensive Web-enhanced EDI could negatively impact the quality of service carriers provide to shippers. Basically, a service mix that emphasizes the less significant variables and de-emphasizes the more significant selection factors could result in shipper dissatisfaction and subsequent carrier losses. A more effective carrier marketing strategy would be to offer service mixes that emphasize variables more in line with the importance placed on them by shippers. However, it is very encouraging that overall carrier understanding of shipper needs has improved since the 1991 investigation.

IMPLICATIONS

Motor carriers must deal with an increasingly restrictive and demanding operating environment. As shippers strive to create an integrated, time-based supply chain, motor carriers are under increasing competitive pressure to provide specific service requirements at reasonable rates. To deal with these competitive pressures, the identification of shipper selection criteria is essential as is an understanding of their relative importance to shippers (Dobie 2005). A global trade study found that the lack of congruence between shipper and carrier perceptions regarding the importance of service factors resulted in an inefficient use of resources by carriers (Thuermer 1992). In such an aggressively competitive environment, carriers cannot afford such inefficiencies. Even as meeting shipper requirements became the focus for many carriers, shippers were demanding even higher service levels (Dobie 2005).

Since deregulation, shippers have been reducing the number of carriers they deal with to allow them to develop long-term relationships with fewer carriers, enhance service delivery, and gain pricing leverage (Marcus 1987, Baker 1984, Crum and Allen 1990). Holcomb and Manrodt (2000) reported that not only were shippers reducing the number of carriers they dealt with, but that they intended to continue doing so. The rationale was to gain negotiating leverage to obtain more value-added services and reduce costs through an increased volume of shipments to fewer carriers (Larson 1998, Richardson 2001). According to Poli and Scheraga (2003), carriers reported that as shipper volume increased so did the carriers' level of effort, thereby enhancing service to shippers.

However, carriers cannot respond to shipper service requirements at the expense of financial goals. That approach caused the demise of countless motor carriers since deregulation. But, carriers that do not respond to changing shipper needs will also become obsolete and cease to exist (Dobie 2005). Whenever possible, carriers must invest in the technology and people needed to respond to ever-evolving shipper needs. Finally, shippers should be regarded as customers, which does not mean that understanding the needs of shippers is less important.

SUMMARY

The motor carrier industry has undergone significant changes since deregulation in 1980. Even so, it is interesting to note that the 28 selection variables studied by Evans and Southard (1974) are still relevant long after deregulation. The Evans and Southard (1974) study found that six of 28 potential perceptual differences exist between shippers and carriers, while the current study found perceptual differences for nine of 36 variables (28 of which were from Evans and Southard). Increased competition, technological innovation, and globalization have made managing motor carrier firms much more difficult. Cost controls, productivity, safety improvements, and the use of sophisticated technology are required to succeed in the deregulated motor carrier industry (Stephenson and Stank 1994). Economic survival of motor carriers depends on meeting shipper needs, therefore, understanding shipper needs is essential.

Service ranking discrepancies indicate that shippers and carriers did not similarly classify nine selection variables. Subsequently, it is quite possible that carriers are not adequately emphasizing the more important selection variables as perceived by shippers. Fortunately, carrier understanding of shipper needs has improved significantly since the 1991 study. However, since shippers select carriers because they expect to gain by using the carrier's services, it is vitally important that service mixes focus on meeting real shipper expectations.

In this intensely competitive industry, shippers have a number of alternatives to choose from, therefore, are much less tolerant of anything less than satisfactory service. Carriers must realize that, to shippers, it is not service above cost, but rather required service levels at competitive rates. A better understanding of the importance placed on each selection variable by shippers may well result in marketing mixes that could more completely satisfy shipper needs, thereby, increase carrier market share. Basically, carriers need to focus on offering more flexible rates, while responding effectively to emergency or unexpected situations, and provide information and billing and tracing services through a comprehensive Web-enhanced EDI.

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