Perceptual differences between shippers and motor carriers regarding the importance of carrier selection criteria

Shane R. Premeaux  
McNeese State University  

Lonnie Phelps  
McNeese State University

Follow this and additional works at: https://digitalcommons.wayne.edu/jotm

Part of the Operations and Supply Chain Management Commons, and the Transportation Commons

Recommended Citation

Premeaux, Shane R. & Phelps, Lonnie.(2005). Perceptual differences between shippers and motor carriers regarding the importance of carrier selection criteria Journal of Transportation Management, 16(2), 38-47. doi: 10.22237/jotm/1125446700

This Article is brought to you for free and open access by the Open Access Journals at DigitalCommons@WayneState. It has been accepted for inclusion in Journal of Transportation Management by an authorized editor of DigitalCommons@WayneState.
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 be­
tween 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 representa­
tion 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 elec­
tronics products, and 18 percent classified
themselves as "other" types of producers.
Seyventy-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

<table>
<thead>
<tr>
<th>Carrier Selection Criteria</th>
<th>Shipping Mean Rating</th>
<th>Carrier Mean Rating</th>
<th>Shipper Ranking</th>
<th>Carrier Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability of on time delivery</td>
<td>4.51</td>
<td>4.55</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Reliability of on time pick-up</td>
<td>4.46</td>
<td>4.49</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Financial stability of carrier</td>
<td>4.23</td>
<td>4.21</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total transit time for the shipment</td>
<td>4.31</td>
<td>4.23</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Carrier response in emergency or unexpected situations</td>
<td>4.57*</td>
<td>3.81</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Web-Enhanced Electronic-Data-Interchange (EDI)</td>
<td>4.63*</td>
<td>4.09</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Carrier’s reputation for dependability</td>
<td>4.09</td>
<td>4.63*</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Handling expedited shipments</td>
<td>4.13</td>
<td>4.19</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Carrier’s leadership in offering more flexible rates</td>
<td>4.33*</td>
<td>3.68</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Computerized billing and tracing services</td>
<td>4.49*</td>
<td>4.07</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Geographic coverage of carrier</td>
<td>4.05</td>
<td>4.01</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Past performance of the carrier</td>
<td>4.11</td>
<td>4.62*</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Information provided to shippers by carriers</td>
<td>4.48*</td>
<td>4.07</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Ease of claim settlement (loss or damage)</td>
<td>4.03</td>
<td>4.12</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Carrier cooperation with shipper’s personnel</td>
<td>3.91</td>
<td>4.52*</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Carrier representative’s knowledge or shipper’s needs</td>
<td>3.71</td>
<td>4.62*</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>Freight loss experience with the carrier</td>
<td>3.78</td>
<td>3.82</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>Condition of equipment</td>
<td>4.08</td>
<td>4.11</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Discount programs offered by carriers</td>
<td>3.69</td>
<td>3.58</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>Carrier Selection Criteria</td>
<td>Shipping Mean Rating</td>
<td>Carrier Mean Rating</td>
<td>Shipper Ranking</td>
<td>Carrier Ranking</td>
</tr>
<tr>
<td>-------------------------------------------------------------------</td>
<td>----------------------</td>
<td>---------------------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Scheduling flexibility</td>
<td>3.92</td>
<td>3.89</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Freight damage experience with the carrier</td>
<td>4.29</td>
<td>4.31</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>Carrier assistance in obtaining rate or classification changes</td>
<td>3.64</td>
<td>3.63</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>Carrier attitude toward acceptance of small shipments</td>
<td>3.66</td>
<td>3.62</td>
<td>23</td>
<td>27</td>
</tr>
<tr>
<td>Carrier honors shipper's routing requests</td>
<td>3.46</td>
<td>3.41</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Personal relations with the carrier</td>
<td>4.19</td>
<td>4.22</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Carrier transportation equipment designed to facilitate easy and fast loading and unloading</td>
<td>3.10</td>
<td>3.08</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td>Overcharge claims service</td>
<td>3.31</td>
<td>3.35</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>Feedback from the consignee to the shipper about the quality of service given by specific carriers</td>
<td>3.79</td>
<td>3.77</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Courtesy of vehicle operators</td>
<td>3.94</td>
<td>4.01</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td>Carrier’s ability to handle special requests</td>
<td>3.06</td>
<td>3.09</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>Diversion and reconsignment privileges</td>
<td>2.93</td>
<td>2.98</td>
<td>31</td>
<td>33</td>
</tr>
<tr>
<td>Fabrication in transit privileges</td>
<td>2.58</td>
<td>2.55</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>Carrier willingness to participate in freight consolidation practices</td>
<td>2.43</td>
<td>2.47</td>
<td>33</td>
<td>34</td>
</tr>
<tr>
<td>Regular calls by carrier sales representatives</td>
<td>3.68</td>
<td>3.73</td>
<td>34</td>
<td>30</td>
</tr>
<tr>
<td>Opinions or recommendations of employees of other firms</td>
<td>3.12</td>
<td>3.19</td>
<td>35</td>
<td>32</td>
</tr>
<tr>
<td>Gifts/gratuities offered by carriers</td>
<td>1.39</td>
<td>1.46</td>
<td>36</td>
<td>35</td>
</tr>
</tbody>
</table>

*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

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

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

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

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.
REFERENCES


AUTHOR BIOGRAPHY

Shane R. Premeaux is the First National Bank Endowed Professor of Business at McNeese State University, Lake Charles, Louisiana. He is also a professor of marketing and the chief consultant for professional consulting services. Dr. Premeaux is an avid author with more than sixty-five articles appearing in such journals as the Journal of Transportation Management, Transportation Journal, the Logistics and Transportation Review, the Journal of Business Ethics, Personnel, Personnel Journal, Personnel Administrator, the Journal of Business and Industrial Marketing, the Journal of Computer Information Systems, the Journal of Property Management, and the Journal of Management in Practice. He has also co-authored books in various editions including: Human Resources Management, 4th/5th/6th/7th/8th editions; Human Resources Management—Canadian Version, 1st/2nd editions; Personnel Selling: Function, Theory, and Practice, 3rd/4th editions; Supervision, 2nd/3rd editions; Management and Organizational Behavior, 1st edition; and Management Concepts and Practices, 5th/6th/7th/8th editions.

AUTHOR BIOGRAPHY

Lonnie Phelps is the departmental chair for the Department of Management, Marketing, and General Business at McNeese State University, Lake Charles, Louisiana. He is also a professor of management. Dr. Phelps has authored several articles and is actively involved in the management profession.