INVESTIGATION OF METHODOLOGIES USED BY LESS-THAN-TRUCKLOAD (LTL) MOTOR CARRIERS TO DETERMINE FUEL SURCHARGES

John L. Kent
Missouri State University

Carlo D. Smith
Missouri State University

Keith B. Grant
Wal-Mart Stores, Inc.

ABSTRACT

The objective of this study was to discover how less-than-truckload (LTL) carriers develop and utilize fuel surcharge policies to recover their fuel expenses. Thirty-nine top LTL carriers were contacted to explain their perspectives and methodologies with regard to fuel surcharge policies. Part-to-whole qualitative analysis was conducted to summarize responses from a standardized interview protocol. In addition, twenty-five published fuel surcharge policies were analyzed. Findings show that, while carriers were reluctant to discuss their fuel surcharge development, in practice there were two primary methodologies that left all carriers with very similar fuel surcharge policies.

INTRODUCTION

The less-than-truckload (LTL) motor carrier industry serves the niche between parcel and truckload (TL) motor carrier transportation. In serving this market, LTL motor carriers exhibit characteristics of both parcel and TL carriers. Like parcel services, LTL firms maintain a work force of local drivers to collect shipments, which are taken to local terminals and consolidated into larger shipments according to their destinations (Belman 2005). Like TL carriers, LTL carriers make line haul moves consisting of these consolidated shipments and transport them long distances between the origin terminal and the destination terminal.

Since deregulation, competitive pressure on LTL carriers has emerged on two fronts. Parcel carriers have been aggressive in pursuing larger shipments thus eroding the market for smaller LTL shipment sizes, while TL carriers, in association with TL consolidators, have encroached on the higher end of LTL capacity. This increased competition has reduced the market for LTL shipments from their full capabilities down to a range from 300 to 2,800 lbs. (Belman 2005, Schulz 1991). In addition, the popularity of the core carrier concept has put pressure on LTL firms to compete on price and service in order to edge out competition for a space on shippers' short lists of core carriers (Hannon 2006, Rakowski 1994). The increased volatility of the LTL market has resulted in an environment where mergers and acquisitions have become a common strategy to achieve competitive advantage (S&P 2006, Hoovers 2006, Belman 2005, Reiskin 2006, Rakowski 1988).

In an effort to remain competitive, LTL carriers are paying particular attention to any costs that may further erode their profit margins. Increasingly, activities that had once been considered part of the service offering, such as helping to unload shipments or supplying lift-gate equipment, now constitute accessorial services and result in fees added to the base rate quoted for the shipment. These fees compensate the LTL carrier for the additional costs associated with scheduling special equipment and the extra time the driver might spend unloading the freight. In addition to accessorial fees, fuel surcharges have become a constant component on transportation invoices as fuel costs have continued to rise. For over 20 years, fuel surcharges have been periodically added to transportation invoices in an effort by the carrier to respond to erratic spikes in fuel prices in the industry.

Taken together, freight invoices received by shippers today likely include three components: (1) the net transportation cost for moving the freight from point A to point B along the LTL carrier's network, (2) charges for any accessorial services that were requested, and (3) a fuel surcharge that represents the additional fuel cost incurred by the carrier.

While fuel surcharges are designed to serve as a price-adjusting tool, they vary greatly among competitors in the market (Bohman 2005, Gallagher 2005a). Concern regarding such variability in implementation was expressed during an October 19, 2005 Surface Transportation Board (STB) hearing. At that time Vice Chairman Douglas Buttrey noted, "…there seems to be no feeling in the shipper community that [fuel surcharges] have any credibility" (Gallagher 2005b). This lack of credibility appears to be influenced by the absence of transparency in fuel surcharge assessments (Gallagher 2005a, 2005b).

The need for pricing policies that enable motor carriers to quickly respond to changes in fuel prices is apparent. Fuel surcharges have become a fixture in LTL pricing and the DOE average diesel fuel price index is one common link among motor carriers in their determination of surcharge amounts. The extent that other factors influence surcharge fees represents a gap in our understanding of the competitive structure of the LTL market. The purpose of this study is to better understand the methods used by carriers to determine fuel surcharge fees, and the extent that such methods are applied consistently across LTL motor carriers.

The next section reviews existing literature as a means to determine prevailing industry practices involving fuel surcharge policy development and implementation. The literature review is followed by a discussion of the implementation of a part-to-whole research methodology employed to investigate LTL carrier surcharge practices. A second method of investigation, a content analysis of published fuel surcharge policies is also discussed. Findings are presented along with a discussion of implications for research and practice.

LITERATURE REVIEW

The U.S. Department of Energy (DOE) publishes weekly on-highway average diesel fuel prices (Bohman 2005, Ginsburg 2005). The Energy Information Administration (EIA) is the subgroup within the DOE that collects and averages the on-highway diesel prices. The prices published are based on national, regional, and sub-regional averages calculated using data from "approximately 350 retail diesel outlets, including truck stops and service stations" (Data Collection Methodology 2007). The EIA weights each regional average price by the volume of fuel sold in that region to calculate the average national weekly retail on-highway diesel price (Data Collection Methodology 2007).

The majority of LTL carriers tie their fuel surcharge scales to the DOE weekly average that corresponds most directly to their market. For example, national and interregional carriers typically link their fuel surcharge polices to the national DOE average and some regional carriers use the national DOE average as well. Other regional carriers use their regional or sub-regional DOE average fuel prices to make fuel surcharge adjustments (Bohman 2005, Ginsburg 2005).

From an implementation standpoint, LTL motor carriers typically implement changes to their surcharge policies on the Wednesday following the release of the DOE pricing report (Bohman 2005). Individual carrier policies are published as a matrix that equates a given percentage of the base or net transportation rate to be paid based on the average price of diesel fuel on the shipment date. There are three characteristics that appear to differentiate most LTL fuel surcharge matrices: 1) the fuel surcharge base rate, 2) the sensitivity to changing fuel prices, and 3) the DOE value used to assess the fuel surcharge.

While implementation appears to follow a consistent pattern, methods used to determine surcharge rates are less uniform. A survey of LTL carriers identified a lack of standardization among the types and levels of fuel surcharges paid by shippers (Hannon 2006). Another review of fuel surcharge assessments in October 2005 revealed a spread of 6 percent among the top seven LTL carriers (Bohman 2005). Several factors serve to influence diversity with regard to fuel surcharge policies. The range of differences pose a challenge to managers of shipping organizations who are attempting to establish budgets. Many shippers would prefer that carriers drop surcharge practices and incorporate changes in fuel costs as part of their base transportation rates, a practice that they contend would help shippers and freight forwarders with their planning activities (Putzger 2004).

From a carrier perspective, fuel surcharges are viewed as critical to viability of the business. Vice president of a regional LTL carrier, James Latta suggested that fuel surcharges are "vital" for his firm noting that without fuel surcharges, "you would see a lot fewer trucks on the road" (Gilroy 2005b). From the shipper perspective, concerns regarding surcharge determination and implementation of fuel surcharge programs point to areas of contention involving transparency of rate determination and the potential for surcharges to serve as a profit center.

Surcharge Transparency

Fuel surcharges are viewed as temporary fees. As such, Michael Regan, CEO of Tranzact Technologies, feels that "carriers love surcharges" because "they can get them accepted with much less difficulty than an increase in rates." In addition, this flexibility "allows a carrier to respond to marketplace conditions much more aggressively" (Gilroy 2005a). Douglas Duncan, CEO of FedEx Freight, has noted,

> The trick to making a decent living in this business is giving the customers what they want, but understanding your costs well enough for it to remain profitable, and the fuel surcharge is just another piece to that formula, (Gilroy 2005b).

While published matrices are frequently employed by carriers to assign surcharges across shippers, many shipper/carrier relationships choose an alternative approach to address fuel costs, incorporating surcharges as part of contract negotiation. FedEx Freight indicates that over half of their customers relationships are governed by individual contracts which are tailored and negotiated with each shipper (Gilroy 2005b). However, fuel surcharges can pose a particularly difficult challenge when attempting to negotiate freight rates (Leach 2005). As diesel fuel and fuel surcharges continue to escalate, shippers must consider the base rate in concert with the fuel surcharge. Because each carrier will have its own base rate and because fuel surcharges vary, it can be difficult to compare prices between two carriers (Bohman 2005).

For some carriers, the distinctions between surcharges and pricing have blended enough that they no longer publish surcharge fees, choosing instead to establish a blended rate structure that includes surcharges (Reiskin 2006).

While surcharges may be viewed unfavorably by shippers, despite the transportation mode, the method of implementation appears to affect shipper perceptions of surcharge transparency. Distinct from the LTL practice of expressing fuel surcharges as a percentage of the net transportation, TL carriers typically express the fuel surcharge on a per-mile basis that takes a rate multiplied by a factor determined by the truck's fuel efficiency and the current cost of fuel. While neither method may be accompanied by disclosure of the specific formulae used in their determination, shippers like Owens Corning Inc. have indicated they prefer the TL method, viewing it as more transparent and, thus more valid (Gilroy, 2005a).

Profit Center

The issues surrounding transparency are accompanied by a general sense of distrust when it comes to anything fuel related (Ginsburg 2005). Having experienced rapid changes in surcharge fees, shippers have expressed concern that fuel surcharges simply serve as profit centers for those assessing them (Cassidy 2006). This view has not been lost on the carrier base which has referred to broader challenges to the industry from rapidly changing fuel costs. For example, in their third quarter financial report, Werner Enterprises noted that , "If the shipping and truckload industries do not work together to address this problem, they risk losing a substantial amount of truck capacity (Surcharge Change 2005)."

At the same time, some carrier actions appear to provide credence to shipper concerns about surcharges as a source of profit. Quarterly earnings reports from carriers including CNF and Arkansas Best Corp. have reported that their LTL fuel surcharge policies generate more than enough revenue to compensate for fuel costs (Gilroy 2005a). As further evidence, carriers have acknowledged a profit motive in surcharge pricing. A CNF Vice President has commented, "Every charge we make is aimed at having a margin on it…It is [a] normal part of free enterprise." He goes on to say that fuel surcharges are not a new source of revenue but "the percentage factor had gotten so high it was incumbent to [disclose it] to the stockholders" (Gilroy 2005b). A report from the first quarter of 2006 indicates that shippers are more likely to pay higher fuel surcharges than to see base rate increases in 2007 (Dunn 2006).

As tight capacity in the motor carrier industry reduces shipper reluctance to pay fuel surcharges (Cassidy 2006), and since a majority of shippers did not negotiate fuel surcharge terms in 2005 (Gilroy 2005b), LTL carriers are seeing more pressure to negotiate fuel surcharges and accessorial charges in addition to base rates (Cassidy 2006).

METHODOLOGY

This research was designed to address issues surrounding the determination of transportation fuel surcharges and, more specifically those implemented in the LTL motor carrier segment. The topic of fuel surcharges has received little attention in academic journals. For the present study, the ongoing discussion found in popular press trade journals served as a source of substantive justification necessary to extend the research stream beyond the literature review and industry observation (Mentzer 1995).

The intention of the present study was to understand those factors that influence carrier decision makers in determining the clarity and transparency with regard to fuel surcharge design and implementation. A qualitative research approach governed by the phenomenology paradigm was selected as guide to the investigation. Cues were taken from consumer behavior research and articles discussing qualitative analysis validity and results. A part-to-whole qualitative analysis methodology was adopted to convey the sentiment uncovered during the interview process. The focus of the study was centered on decisions made by carrier representatives in the implementation of fuel surcharge programs (Mangan et al. 2004, Goulding 2004).

Sample Selection

The sample was comprised of the largest transportation companies in the LTL segment of the motor carrier industry. Companies were identified in the 2005 and 2006 editions of the Transport Topics Top 100 For-Hire Carriers (TT 100) list. These lists are published each year to document the key players in the transportation industry (TT 100 2006). The TT 100 lists transportation companies by industry segment and provides revenues and percent change in revenues for each carrier.

The sample was adjusted to reflect mergers and acquisitions since the lists' publication and expanded to account for instances where the company listed on the Top 100 was a holding or parent company having multiple unique subsidiaries. The result was an initial sample of 39 LTL motor carriers. Hoover's Company Profiles was used to identify finance and pricing executives at similar levels in each company and to collect their contact information.

Interview Protocol Development

An interview protocol was designed to provide structure and to help clearly identify and address each facet of fuel surcharge implementation as interviews proceeded. The initial draft of the protocol was pretested during two preliminary interviews and revised for further clarity and structure. The result was a series of ten questions. Complete participant response to the instrument was not required to accept interview responses.

Method of Analysis

While the interview protocol provided structure for this research, the researchers bore responsibility to accurately convey the industry sample's sentiments from a carrier perspective. Part-to-whole analysis guided the review of interview transcripts as a means to arrive at a satisfactory interpretation of the carriers' voices (Thompson 1997).

Transcripts were initially read in full to gain a broad understanding of each participant's response to questions involving fuel surcharge design and implementation. After familiarity was attained with each of the transcripts, the collection of transcripts was reexamined to identify patterns and differences. This phase of the analysis, termed "intertextuality," serves to identify patterns and differences in responses and helps the researcher arrive at a holistic view of the phenomenon under study (Thompson 1997, Goulding 2004). One consideration regarding the method selection is the potential for interfusion of the researcher's frame of reference and the carrier responses captured by the interview transcripts (Thompson 1997).

To provide additional, and perhaps more objective input to the investigation, a content analysis of published fuel surcharge policies was conducted for 25 LTL carriers. The policies were collected from carrier websites and examined to identify variances among the policies. This additional analysis served to provide methodo-logical triangulation in the study of the fuel surcharge phenomenon from more than one perspective and investigation method (Mangan et al. 2004). The published policies were then compared across 53 weeks of historical DOE average fuel prices from April 2006 through April 2007. The DOE data were retrieved from the EIA's website. This analysis served as a benchmark to compare the relationship between DOE national average on-highway fuel prices and the fuel surcharge policies of the 25 LTL carriers.

FINDINGS AND RESULTS

Six carriers of the initial 39 LTL carrier sample responded partially or completely to the interviews, yielding a 15.4 percent response rate. The remaining companies declined to participate in the study or referred us to a parent or holding company that ultimately declined or never responded to voice and e-mail invitations. Accounting for this non-response bias is challenging. However, there is a statistic of particular relevance that serves to bolster the findings of the study. The six carriers who participated represent 35.5 percent of the 2005 freight revenue listed on the Transport Topics Top 100 for-hire LTL carrier segment (TT 100 2006).

Carrier Interview Results

The interview was divided into three sections. The first section addressed who was responsible for maintaining the fuel surcharge policy and how often revisions were made. The second section addressed the mechanics of the fuel surcharge as it relates to LTL pricing. Finally, the third section looked to the future and possible solutions to problems identified in the literature review.

Fuel surcharge maintenance. In each case, maintenance and revision was the responsibility of the lead pricing executive. Policies varied, but the process was generally consistent. When pricing or yield managers observe the need for change in the surcharge, they present a proposal to a finance and marketing committee to assess the ramifications of the change and to provide approval. The expectation of the researchers was that changes would have been made in the wake of the petroleum supply shortage in 2005 and the hurricane season following shortly thereafter. However, the responses of the carriers revealed that the majority—66 percent of the sample—had not adjusted fuel surcharge policies since 2004, with one carrier maintaining their policy since 2000. The policies were observed and deemed to function as designed, in recovery of escalated fuel expense as fuel prices spiked over $3.00 per gallon in October 2005.

As supported by a sample of published fuel surcharge policies, the DOE average diesel fuel price was utilized to trigger changes in fuel surcharge policies from week to week. Monday DOE prices were used to initiate a change in fuel surcharge pricing on the following Wednesday for most carriers. A $0.01 change in DOE relationship to the 0.10 percent change in fuel surcharge appeared to be the standard, with rare deviation, at DOE average fuel prices above $3.00 per gallon. For the most part, LTL fuel surcharges maintained this linear relationship without an upper bound. More significant than implementation is the method of development employed to arrive at the prevalent $0.01 DOE average to 0.10 percent fuel surcharge relationship.

Fuel surcharge development. Carriers revealed that the fuel surcharge relationship was determined through careful and detailed analysis of carrier costs and the revenues received from shippers on a per mile basis. This method was utilized to identify a break-even point where fuel expense is covered by the base transportation rate. This break-even point was commonly referred to as the fuel surcharge base rate. At this point there is no fuel surcharge because the fuel cost at that per gallon rate is covered. This fuel surcharge base rate was reported to be between a historical DOE fuel average of $1.10 to $1.15 per gallon, depending on the carrier. The DOE average fuel prices were confirmed by the published fuel surcharge policy comparison as the standards for LTL fuel surcharge policy base rates. For budgeting purposes, carriers utilized the DOE's EIA average on-highway retail diesel fuel price as a tool that one carrier said was "the single best indicator of [their] future fuel expenses."

Regarding sensitivity to rate change, the two prevalent relationships utilized for fuel surcharge adjustment are to change 0.10 percent for each $0.01 DOE average change or to change 0.5 percent for each $0.05 DOE average change. While the former is more precise in terms of reflecting a smaller change in fuel prices, the latter is viewed as adequate and thought to be preferred by shippers. One carrier felt that a fuel surcharge matrix with $0.05 increments was preferred "because the matrix itself is not as complex and doesn't require fuel surcharge adjustment as frequently." This simplifies shipper budgeting to some extent and reduces administration overhead for the shipper and the carrier. The 0.5 percent to $0.05 DOE average policies maintained a plateau or stepped fuel surcharges while the 0.1 percent to $0.01 DOE average policies offered a more frequent and fluid response.

Of the two methods of fuel surcharge development observed in the study, the method described above, in which carriers carefully examined the relationship between their excessive fuel cost and changes in the DOE fuel average over a range of customers, is a more involved process that only a minority of carriers have chosen to undertake. The second, and most popular, method of fuel surcharge development observed in this study was for some carriers to copy policies from those other carriers who invested the time and resources to work through the process of analyzing their fuel costs to develop their fuel surcharge policies.

When asked if his company's fuel surcharge policy was common among the industry, one carrier replied, "Of course it is, everyone copied our policy." This statement seemed pretentious until another carrier was asked how his company developed its fuel surcharge and he confessed that the company "reviewed fuel surcharge policies from carriers operating in [their] market and used those to establish [their] policy" in order to maintain competitive pricing.

Fuel surcharge and LTL pricing. When asked why fuel surcharges were becoming such a large percentage of the freight bill and if the fuel cost could be rolled into their base transportation rates, carriers said that it was in the shippers' favor to keep fuel separate from the base transportation cost. One carrier said, "It is in the best interest of the shipper to keep fuel as separate as possible due to its volatility." Carriers went on to explain how pricing works in the LTL segment of the transportation industry. An LTL freight bill consists of four major components: (1) the gross transportation base rate, (2) the net transportation rate, (3) the fuel surcharge, and (4) any applicable accessorial fees. This study focused on the first three components.

All carriers felt that fuel prices were too capricious to be included in the base rate and expressed concerns that were summarized by one carrier when he said that shippers would be "unfairly exposed to the possibility that fuel prices would drop below the new [fuel surcharge] base rate and [the shippers] wouldn't see an immediate reduction" in their total freight bill. Shippers would not see a reduction in their total freight bill because the revenues that would have been released automatically by the fuel surcharge policy would be locked into the adjusted transportation base rate by their contract. Carriers were very open to the fact that some of their customers have negotiated reduced fuel surcharge schedules. A carrier commented that "large volume shippers negotiate fuel surcharge matrices in their freight contracts." They were also quick to point out that if a shipper pulls so hard on a fuel surcharge policy during negotiations that it no longer covers the cost of fuel, then the additional revenue would be made up by higher prices on the net transportation rate. Essentially, it's a balance of the transportation revenue and fuel surcharge revenue that pricing analysts consider when providing LTL rates. One carrier said, "It is not unheard of for a shipment to move at such a highly discounted base rate that the fuel surcharge revenue is used to break even on the shipment."

Fuel surcharge profits. The response that spoke the loudest with regard to carrier interviews was from those who declined to participate. Company policies and time constraints restricted the majority of the sample from participation in this study. The average interview was 22 minutes and some carriers under the same holding company or in the same carrier family participated while sister companies were not permitted to participate due to policy restrictions.

This study speaks more fully to the LTL cost and pricing structures with regard to fuel surcharges. This transparency should enable shippers to understand that isolating the profit or loss resulting from a fuel surcharge policy is difficult and dependent upon the carriers' pricing intentions. It is the total rate that should be considered during negotiations.

Fuel surcharge standardization. Another consideration regarding surcharge development and implementation involved the potential to adopt an industry standard policy. Isolating a volatile cost, such as fuel, makes sense from an efficiency standpoint. If carriers are able to pass the burden to the shipper through a fuel surcharge, they are able to all but eliminate it from their standard pricing procedures, because the fuel cost is accounted for in the fuel surcharge policy. They can then focus strictly on lane volumes and equipment utilization. On the flip side of the coin, in order to help reduce the number of variables that shippers must consider when they compare rates, carriers were asked to comment on the usefulness of a single standard fuel surcharge matrix that might be utilized across the LTL motor carrier segment. Responses were varied and deserve attention.

One carrier in favor of the proposed fuel surcharge policy said it "would benefit smaller carriers more than it would larger carriers in terms of fuel expense recovery." Another carrier went on to say that in the end it would "benefit those carriers with the most efficient operations." The same carrier said, "Smaller carriers often bid deeper discounted pricing without taking into consideration what the fuel expense will do to them over the term of the contract." The larger carrier with a published fuel surcharge will lose the original bid for the freight only to find out six or nine months later that the winning carrier has bailed out and left the shipper to re-bid the freight.

Those opposed to the measure indicated that educated shippers—those with large volumes—understand fuel surcharges and know how to manage them. Detailed fuel surcharge policies are available from the vendors' websites or through a call to the sales department. Carriers also argued that, for the most part, LTL fuel surcharges were already consistent.

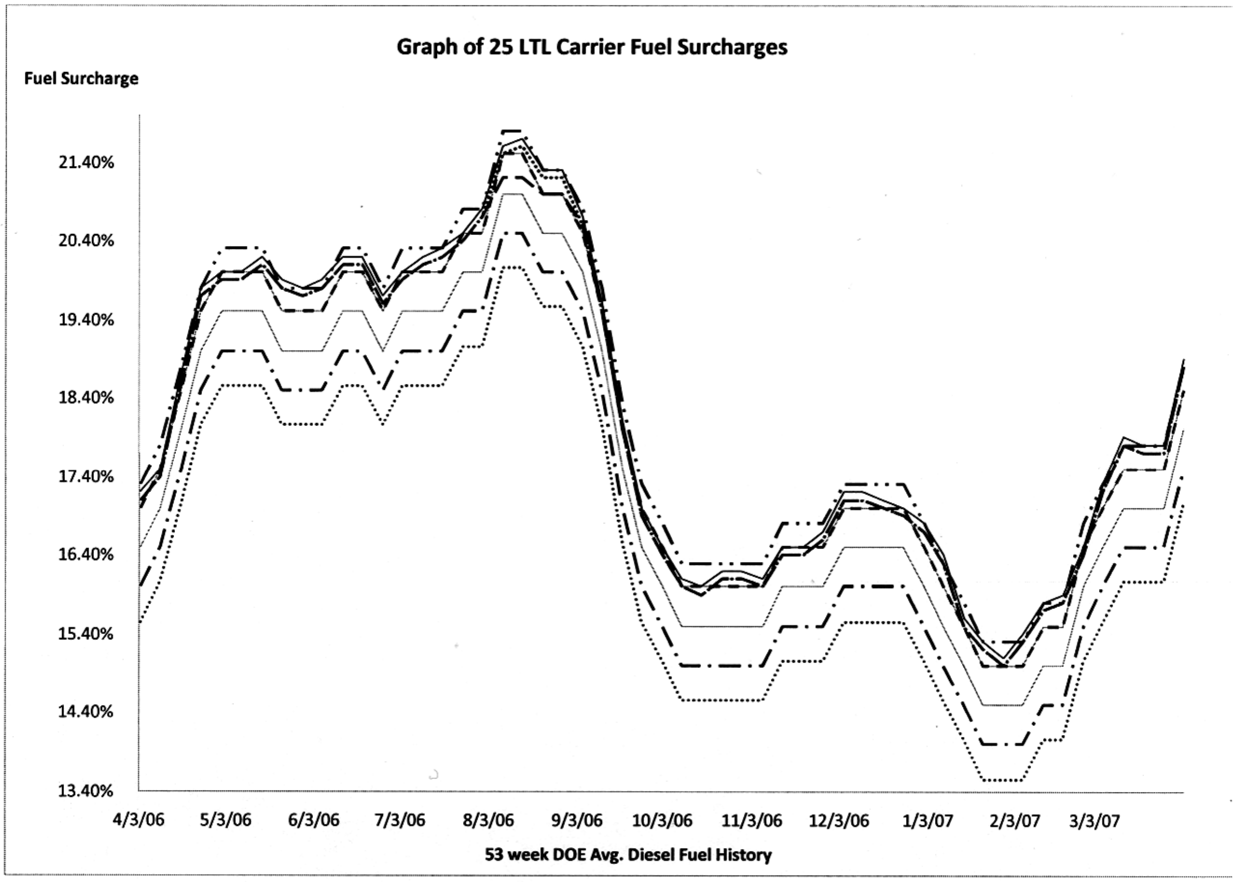
One carrier summarized the most prevalent concern, saying, "If an industry standard fuel surcharge were implemented, any changes that may be necessary would be slow in coming, due to the bureaucracy involved." The carriers feared that being unable to affect a change in such a vital piece of their pricing structure in a timely manner would cause more harm than good. Still, some carriers conceded that, with proper measures in place and considerable carrier participation, an industry-wide fuel surcharge could be accepted and could potentially benefit carrier-shipper relations.

Fuel Surcharge Policy Comparison

Internet websites serve as a key point of shipper contact for LTL carriers and specific company web addresses are published in the TT 100 report. Web site exploration revealed that nearly every LTL carrier on the TT 100 published their current fuel surcharge matrix on their website. This publication enabled the quantitative comparison of fuel surcharge policies for leading LTL motor carriers.

Figure 1 shows eight unique fuel surcharge lines split into three unique graph characteristics. While the fuel surcharge percentage across the market at a given DOE average will vary up to two percentage points among carriers, the base relationship between the DOE average and the majority of fuel surcharge policies remains the same, resulting in the same two-percentage point variance for most DOE averages.

FIGURE 1
COMPARISON OF 25 LTL FUEL SURCHARGES



The lines that exhibit plateaus in Figure 1 represent those carriers utilizing a fuel surcharge policy with \$0.05 DOE average price sensitivity. The five identical lines with various vertical shifts indicate the same relationship with the DOE average price. The other two groups of smoother-transitioning lines have slightly different fuel surcharge base rates; their more responsive nature indicates that these two lines represent carriers that utilize a \$0.01 DOE average price sensitivity.

Exceptions arise when carriers adjust their DOE-to-fuel surcharge relationship at higher DOE values. In Figure 1, there are seven lines for the majority of the graph. At the highest peak, in August 2006, eight lines are observed. The fourth line from the bottom during August 2006 is unique for a four-week period and then rejoins other carrier fuel surcharge policies. Figure 2 shows the DOE average fuel prices as reported by the EIA for July, August and September 2006.

The explanation for the unique carrier fuel surcharge in Figure 1 for the month of August and the DOE average history in Figure 2 is that the DOE average exceeded \$3.00 per gallon. At this point, the unique carrier reduced its fuel surcharge relationship to a 1 percent change in fuel surcharge for each \$0.02 change in the DOE average for DOE values above \$3.00 per gallon.

FIGURE 2
JULY 2006–SEPTEMBER 2006 DOE AVERAGE HISTORY

(Dollars per gallon, including all taxes)

Date	U.S. Average	East Coast	New England	Central Atlantic	Lower Atlantic	Midwest	Gulf Coast	Rocky Mtn	West Coast	CA
09/25/06	2.595	2.600	2.730	2.746	2.526	2.506	2.526	2.827	2.892	2.910
09/18/06	2.713	2.699	2.832	2.844	2.625	2.624	2.636	3.052	3.014	3.002
09/11/06	2.857	2.826	2.955	2.958	2.757	2.787	2.770	3.236	3.137	3.125
09/04/06	2.967	2.911	3.009	3.032	2.850	2.937	2.872	3.318	3.199	3.175
08/28/06	3.027	2.955	3.035	3.074	2.897	3.026	2.923	3.346	3.229	3.200
08/21/06	3.033	2.953	3.049	3.078	2.890	3.041	2.923	3.349	3.237	3.221
08/14/06	3.065	3.017	3.077	3.130	2.964	3.065	2.974	3.311	3.218	3.220
08/07/06	3.055	3.026	3.061	3.104	2.989	3.070	2.988	3.208	3.113	3.130
07/31/06	2.980	2.958	2.991	3.030	2.924	2.988	2.925	3.052	3.066	3.093
07/24/06	2.946	2.925	2.972	3.002	2.888	2.951	2.895	2.987	3.047	3.097
07/17/06	2.926	2.906	2.970	2.992	2.864	2.927	2.868	2.960	3.051	3.097
07/10/06	2.918	2.887	2.947	2.963	2.849	2.919	2.866	2.966	3.060	3.113
07/03/06	2.898	2.874	2.948	2.951	2.834	2.887	2.845	2.958	3.056	3.119

This carrier is unique and its fuel surcharge policy implies that a point exists where the LTL industry standard 1 percent change in fuel surcharge for each $0.01 change in DOE average value does not continue indefinitely, as published carrier fuel surcharges imply.

As noted earlier, there are three key components to transportation fuel surcharge policies that determine the fuel surcharge on a particular shipment: 1) fuel surcharge base rate, 2) the trigger, and 3) sensitivity to the trigger. Fuel surcharges are expressed as a percentage of the net transportation or line haul cost and are paid over and above the quoted freight price. Typically, LTL rates are expressed as a discount from a transportation base rate that is set by the individual carrier or a rating bureau.

Published fuel surcharge base rates observed in the sample were between $1.10 per gallon and $1.15 per gallon, with 68.0 percent of carriers setting their fuel surcharge base rate at $1.10 per gallon. This means that, when the DOE average price is $1.10 per gallon, there is no fuel surcharge. The reasoning behind this policy is that the base transportation cost is calculated to cover fuel expenses up to $1.10 per gallon; only when fuel exceeds this price is there an excessive cost to be recovered through implementation of a fuel surcharge policy.

As a trigger used to determine what fuel surcharge should be executed on a shipment, all of the LTL carriers in the sample utilized the DOE weekly national on-highway retail average diesel fuel price index to determine their fuel surcharges. Finally, regarding sensitivity to a rate adjustment trigger, there were two predominate factors observed in the sample. Sixty-four percent of the sample utilizes sensitivity where a 0.1 percent change (up or down) in fuel surcharge is executed for each $0.01 change in DOE average fuel price. The minority group utilizes a less sensitive fuel surcharge scale that only adjusts for every $0.05 change in the DOE average fuel price.

Summary of Findings

Fuel surcharge policies represent a significant portion of revenues received by LTL carriers because fuel expense represents a significant portion of their costs. Fuel surcharges and net transportation rates are primary components of a freight bill. It is impractical for carriers and shippers to revise contract rates each week due to a single volatile expense. Isolating fuel expense in a fuel surcharge policy reduces administrative overhead and keeps the shippers feeling content with their steeper discount.

To develop fuel surcharge policies, carriers appear to either conduct an elaborate analysis of their fuel costs to establish the basic components of the LTL fuel surcharge or they waited to determine which fuel surcharge policies would become dominant in their market and imitate those to maintain competitive pricing. The large percentage of LTL companies utilizing identical fuel surcharge policies indicates that imitation is the prevalent method of fuel surcharge development.

The disparities among the operations and cost structures of the carriers who established their own fuel surcharge policies and those who imitated their fuel surcharge policy, along with variance in fleet fuel economy from season to season in a given region, suggest that fuel surcharge policies could potentially over- or under-compensate carriers for the actual incurred cost of diesel fuel. While carriers who responded to the survey did not dispute this possibility, they were quick to point out that any profit derived from fuel surcharge revenues is unintentional.

The most substantial finding that carriers repeatedly contributed to this research was the notion that net transportation and fuel surcharge revenues are both considered when setting LTL transportation prices. Both components of the freight bill are negotiable. And as one carrier said, “Some shippers will present their own fuel surcharge. If the fuel surcharge is too low, that revenue will appear as a reduced discount.” This transparency enables a more complete understanding of the issues surrounding fuel surcharges and provides the opportunity to rebuild those relationships that may have been damaged through lack of information.

MANAGERIAL IMPLICATIONS

The academic literature firmly establishes the diversity of LTL motor carriers and their differences from parcel and truckload carriers. This diversity and the unique market conditions they face are likely the primary factors responsible for the lack of a single accepted standard for fuel surcharge policy development and implementation. The lack of standardized practices within an industry segment with similar market influences reflects a possible inefficiency and an opportunity to uncover and disseminate best practices found within that market.

By contrast, the popular press serve primarily to identify the heated points of contention with regard to fuel surcharges and tend to focus on the recent trend of escalating fuel surcharges. Many of these controversial issues with regard to fuel surcharge implementation warrant further study and provide an opportunity to communi-cate the non-financial implications that fuel surcharge policies may have on a firm.

Some popular press articles fail to identify the primary role of surcharges, instead focusing on rising fuel surcharges and ignoring the fact that surcharge policies are designed to respond to fuel prices. This means that fuel surcharges fall when fuel prices fall and rise when fuel prices rise, in accordance with the carrier’s fuel surcharge policy. This bias toward the negative aspect of fuel surcharges is likely to skew the shipper’s perception of fuel surcharges (because LTL carriers use fuel surcharges) and hinder the LTL carrier’s ability to maintain positive customer relationships.

Understanding the balance between the discount and the fuel surcharge enables the shipper to see the whole picture. The carrier takes into consideration both the fuel surcharge and net transportation revenues. Instead of feeling slighted by a fuel surcharge, shippers who move lower volumes of freight and are unable to negotiate their LTL rates should consider joining a consortium or partnering with a third party logistics firm to consolidate their low freight volumes with a group of shippers. The consolidated freight volumes provide leverage to negotiate with LTL carriers and positively impact their pricing because carriers can rely on more consistent, higher volume freight that enables them to maximize equipment utilization.

FUTURE RESEARCH

The academic body of knowledge regarding fuel surcharge policies and their implications is in its infancy. More limited still is the literature pertaining specifically to the LTL motor carrier segment. An opportunity for further research exists along two well-defined fronts. First, a comparison and publication of true fuel expense to fuel surcharge revenue, as published in annual reports and other financial publications by vendors, would serve to provide further transparency. The majority of carriers are publicly traded and, as such, information regarding their expenses and revenues are available to the public and may present an additional avenue of discovery for this complex issue.

Finally, further understanding and transparency with regard to LTL motor carrier fuel costs and the methods carriers use to recover those costs is clearly needed in order to explain these increasing costs to shippers. Investigation and publication of the non-financial implications of fuel surcharge utilization are likely to provide further trans-parency, leading to general understanding and acceptance of the necessity of fuel surcharges as well as regained trust between carriers and shippers.

REFERENCES

Abt, Neil. (2005). 'Trucking Companies Felt Sticker Shock As Diesel, Crude Oil Prices Skyrocketed.' *Transport Topics,* 19 Dec. 2005: p 11.

Belman, Dale and White III, Chelsea. (2005). 'Less-Than-Truckload Motor Carriers: A Story of Diversity and Change.' *Trucking in the Age of Information*, p43.

Bohman, Ray. (2005). 'LTL Fuel Surcharges Are Not All Alike.' *Logistics Management*, November 2005, p25.

Carey, Bill. (2005). 'Retooling Fuel Surcharges.' *Traffic World*, Vol. 269 Issue 40, p40.

Cassidy, William. (2006). 'Pushing Back on Surcharges.' *Traffic World*, Vol. 270 Issue 8, p14.

"Data Collection Methodology" (2007). 'Collection Methodology.' *Energy Information Administration Weekly Retail On-Highway Diesel Prices.*[On-line]. Available http://tonto.eia.doe.gov/oog/info/wohdp/data_collection_methodology.html, Accessed January 16, 2007

Dunn, Jill. (2006). 'Shippers Expect Higher Surcharges.' *Overdrive*, Vol. 46 Issue 2, p64.

Gallagher, John. (2005a). 'Recovering Fuel Costs.' *Traffic World*, 31 Oct. 2005, Vol. 269, Issue 44: p32.

Gallagher, John. (2005b). 'Fuel Feud.' *Journal of Commerce*, Vol. 6 Issue 44, p40.

Gilroy, Roger. (2005a) 'LTLs Make Money on Fuel Surcharges.' *Transport Topics*. 28 Nov. 2005: p1.

Gilroy, Roger. (2005b) 'Carriers Cite Fuel Surcharges As Essential to Making Profits.' *Transport Topics*. 12 Dec. 2005: p5.

Ginsburg, Janet. (2005). 'The Pain of Fuel Surcharge Shock.' *Businessweek*, April 28, 2005, p23.

Goulding, Christina. (2004). 'Grounded Theory, Ethnography and Phenomenology.' *European Journal of Marketing*, Vol. 39 No. ¾, p294.

Hannon, David. (2006). 'LTL Buyers Face an Uphill Battle.' *Purchasing,* April 6, 2006, p42.

Hoovers (2006). *Industry Snapshots*. May 9, 2006. Hoovers Inc.

Leach, Peter T. (2005). 'Negotiating a Freight Rate.' *Journal of Commerce*, Vol. 6 Issue 33, p18.

Logan, Jr., Harold R. (2001). 'Controlling the Uncontrollable.' *Strategic Finance*, Vol. 82 Issue 10, p56.

Mangan, John, Lalwani, Chandra and Gardner, Bernard (2004). 'Combining Quantitative and Qualitative Methodologies in Logistics Research.' *International Journal of Physical Distribution & Logistics Management,* Vol. 34 No. 7, p565.

Mentzer, John and Kahn, Kenneth. (1995). 'A Framework of Logistics Research.' *Journal of Business Logistics*, Vol. 16, No. 1, p231.

Putzger, Ian. (2004). 'Surcharge Surprises.' *Journal of Commerce*, Vol. 4 Issue 51, p28.

Rakowski, James P. (1994). 'The Continuing Structural Transformation of the U.S. Less-Than Truckload Motor Carrier Industry.' *Transportation Journal*,Vol. 34 Issue 1, p5.

Rakowski, James P. (1988). 'Marketing Economies and the Results of Trucking Deregulation in the Less-Than-Truckload Sector.' *Transportation Journal*, Vol. 27 Issue 3, p11.

Reiskin, Jonathan. (2006) 'LTL Companies See Acquisitions, Mergers Affecting Their Sector.' *Transport Topics*. 31 May 2006: p 5+.

S&P (2006). *Industry Surveys*. Feb. 9, 2006. Standard and Poors.

Schulz, J.D. (1991). 'Continued Change and Innovation Only Transport Certainty in 1990s.' *Traffic World*, 228 (November 18), p33.

"Surcharge Change" (2005). 'Werner Seeks Surcharge Change.' *Traffic World*, Vol. 269 Issue 43, p30.

"TT 100" (2006), '2006 Transportation Topics Top 100 For-Hire Carriers.' *Transportation Topics*, July 24, 2006, p24.

Thompson, C.J. (1997), 'Interpreting consumers: a hermeneutic framework for deriving marketing insights from the texts of consumers' consumption stories', *Journal of Marketing Research*, Vol. XXXIV, November, p438.

AUTHOR BIOGRAPHY

John L. Kent (Ph.D, University of Tennessee) is a professor of logistics and supply chain management at Missouri State University. His research interests include motor carrier and other modes of transportation, logistics, and supply chain management. In addition to the *Journal of Transportation Management*, he has published in the *International Journal of Physical Distribution and Logistics Management*, *Journal of Business Logistics*, *Journal of Marketing Management*, and conference proceedings at the Academy of Marketing Science, and Council of Supply Chain Management Professionals.

AUTHOR BIOGRAPHY

Carlo D. Smith (Ph.D, University of Tennessee) is an Assistant professor of logistics and transportation at Missouri State University. His research focuses on logistics in the supply chain, inventory management, and forecasting management. His articles have appeared in the *Journal of Business Logistics*, *International Journal of Forecasting Journal of Business Forecasting*, *Journal of Transportation Management*, *Business Horizons*, and the *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*. Dr. Smith received his undergraduate and masters degrees in business logistics from the Pennsylvania State University and his Ph.D. in marketing and logistics management at the University of Tennessee. Dr. Smith has over 12 years of industry experience as a logistics consultant and executive educator.

AUTHOR BIOGRAPHY

Keith B. Grant is strategy project manager for Wal-Mart Stores, Inc., Corporate Transportation in Bentonville, AR. He earned an MBA with an emphasis in logistics and supply chain management from Missouri State University in 2007.