

9-1-2002

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Recommended Citation

Min, Hokey. (2002). Examining sources of driver turnover from a managerial perspective. *Journal of Transportation Management*, 13(2), 59-68. doi: 10.22237/jotm/1030838760

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EXAMINING SOURCES OF DRIVER TURNOVER FROM A MANAGERIAL PERSPECTIVE

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ABSTRACT

There is growing concern about the declining profitability of the U. S. trucking industry. Such concerns often stem from the increased difficulty of recruiting and retaining qualified drivers. In fact, the trucking industry has been hit hard by shortages of qualified truck drivers over the last two decades. To cope with this chronic problem, trucking firms have attempted to formulate various driver recruitment and retention strategies that include pay raises, bonuses, equipment improvement, and adjustments in working hours. This article provides trucking firms with the means to implement a more effective driver recruitment and retention strategy by examining sources of the driver shortage problem.

INTRODUCTION

Despite the recent downturn of the U.S. economy, many trucking firms are still experiencing difficulty in recruiting and retaining qualified drivers. Over the past two decades, the trucking industry has been hit hard by a shortage of truck drivers. For instance, between 1992 and 1999, employment within the trucking industry grew much faster (31.10%) than the total employment growth (18.75%) of the United States (Bureau of Labor Statistics 1999). However, despite faster job growth, the trucking industry experienced unusually high turnover rates. In 1992, for-hire truckload carriers often had 100 to 200% annual driver turnover rates, whereas the median employee turnover in the U.S. was 8.4% (Overdrive 1997).

Driver turnover has already undermined the profitability of the trucking industry by causing increases in training cost, equipment idle time, and service disruptions. Pressured with chronic driver turnover and mounting fuel costs, some trucking firms such as *J. B. Hunt*, *Schneider National*, *Yellow Freight Systems*, *Consolidated Freightways*, *Roadway Express*, and *Swift Transportation* have raised their freight rates by 5 to 10% or more (Machalaba 1999). Indeed, freight rates are rising as evidenced by a 10% increase in intercity trucking costs and an 8% increase in local trucking costs (Minahan 1998).

While the industry increases its efforts to control trucking costs, there is little sign of improvement. The key to substantial productivity gains in the trucking industry is maintaining a steady

workforce. According to the *Trucking Economic Review* (Costello 1999), truckload (TL) carriers reported an average of 103% driver turnover rate in late 1999, while smaller carriers reported an average driver turnover rate of 92%. Such a high turnover may be due to an unprecedented demand for trucking services, slow growth in the qualified labor force, tougher federal safety regulations, and poor human resource management. Considering the significance of trucking to logistics productivity, a high driver turnover rate and driver shortage could cripple the U.S. economy. In 1998, trucking accounted for 86% of the total freight bill in the U.S. and the trucking industry grew by more than \$24 billion (Schulz 1998). By 1999, the trucking industry employed more than 3.1 million truck drivers, an increase of 66% over the 1980 driver employment figure (Wilson 2001). By 2006, the trucking industry is projected to generate \$446.2 billion in revenues (ATA Logistics Council 1998). Therefore, there is a growing need to formulate viable driver recruitment and retention strategies to alleviate the ongoing driver shortage problem.

Various attempts have been made to address the driver shortage problem. Many trucking firms such as *J. B. Hunt*, *Boyd Brothers*, *Contract Freighters Inc. (CFI)*, and *O & S Trucking* boosted driver pay to reduce driver turnover. Between 1997 and 1998, 80% of the top 100 carriers increased driver wages by an average of 10% (Moore 1999). On the other hand, *Celadon Trucking* and *Cargo Transporters* began to reward drivers for their longevity. *U.S. Xpress Enterprises*, *Interstate Worldwide Relocation*, and *Consolidated Freightways* introduced bonus programs for drivers with safe driving records. Reflecting a driver's desire for new and more comfortable equipment, *Boyd Brothers* reduced its equipment replacement cycles from 42-48 months to 36-40 months (Moore 1997). *C. R. England & Sons* beefed up its driver training program by investing \$6 million in a state-of-the-art driver training center (Kahaner 1998). Other driver recruitment and retention strategies include a sign-on bonus, profit sharing, flexible

driving schedules, driver recognition, career advancement opportunities, and a reduction in non-driving activities. Although all of these have potential merits, the effectiveness of these strategies is not necessarily verified by the existing literature. This article moves beyond the scope of the existing literature by identifying the primary causes of driver turnover and suggests viable driver recruitment and retention strategies.

RESEARCH METHODOLOGY

To examine the causes of high driver turnover, a four-page questionnaire was mailed in November of 1999 to approximately 3,000 randomly selected trucking firms listed in the *National Motor Carrier Directory* (1999) and located in the Midwest (Ohio, Indiana, Illinois, Missouri) and South (Kentucky, Tennessee, Georgia). To increase variability in the data and generality of the survey results, various sectors of the trucking industry were represented in the sample. These industries include regional truckload (TL) carriers (33.5% of the responding firms), national TL carriers (21.8%), both national less-than-truckload (LTL) and TL carriers (11.4%), both regional LTL and TL carriers (8.7%), regional LTL carriers (6.1%), national LTL carriers (1.9%), and others (16.5%).

Of the 3,000 questionnaires, 422 valid responses were received and 16 were returned as undeliverable. This produced a response rate of 14.14%. A response rate below 20% for a mail survey is not uncommon in the logistics literature (e.g., Mentzer et al. 1992; Murphy and Daley 1994; Pedersen and Gray 1998; Sum et al. 2001). To avoid potential non-response errors, a series of tests for non-response bias were conducted by comparing early responses with late responses in terms of item response. Results of the comparison of early and late responses indicated that there were no statistically significant differences in group mean scores for the two waves of samples at $\alpha = 0.05$ on any of the item responses. Therefore, non-response bias was not a concern.

The questionnaire contained various questions related to the size and sales volume of the responding firms, annual driver turnover rate, driver profiles, the relative importance of driver incentives to driver recruitment and retention, and the potential causes of driver shortages. The *Statistical Package for the Social Sciences (SPSS) for Windows* (2000) was used to analyze the data collected from the sample.

The annual sales volume of the majority of responding firms (95.8%) does not exceed \$50 million. Most of the responding firms (76.7%) had less than 50 full-time drivers; 97.6 percent had less than 500. Ninety-one percent said that their part-time drivers comprise less than 10% of total drivers. A vast majority of these drivers are non-unionized (93.1%), more than 30 years old (92%), and have more than five years of driving experience (86.7%). However, almost two-thirds of the responding firms (65.2%) said that their drivers have been with their firms for fewer than five years. In other words, many firms are lacking tenured drivers. This pattern also implies the common occurrence of driver "churning" (moving from one firm to another). A majority of respondents (61.6%) reported an annual voluntary driver turnover rate greater than 10% in 1998. Four percent of the responding firms experienced severe driver turnover exceeding 100%.

HYPOTHESES DEVELOPMENT

The Effects of Organizational Characteristics on Driver Turnover

Gooley (1997) indicated that TL carriers, which offer long-haul, irregular route services, would experience a greater difficulty in recruiting and retaining drivers than LTL carriers. The rationale was that TL carrier drivers were more likely to be on the road longer and have less predictable job assignments than drivers of the LTL carriers. In fact, driver turnover rates in the TL segment have been reported as high as 300%, far exceeding the industry average of about 100% (Bearth 1999). Therefore, it was assumed that drivers of TL carriers are less

likely to stay with their jobs than drivers of LTL carriers.

H₁: A significant correlation exists between driver turnover and the type of carrier for which a driver works.

In general, organizational size is positively correlated with group stability (Caplow 1957). The rationale is that a large firm tends to have greater financial resources and stronger market position, providing a greater degree of stability than a small firm. Indeed, Chapin (1935) discovered that employee turnover decreased sharply with increasing firm size. On the other hand, LeMay et al. (1993) found in their survey of TL irregular route carriers, that larger firms had a higher percentage of driver turnover than smaller firms, because the latter might pay more personal attention to drivers and create a more open dialogue than the former. These facts lead to the following hypothesis.

H₂: A significant positive relationship exists between driver turnover and the size of the trucking firm for which a driver works.

The Effects of Driver Profiles on Driver Turnover

Beilock and Capelle (1990) discovered that drivers of certain age groups (in their 50's or 20's) were more likely to quit driving than those in their 30's and 40's. Younger drivers tend to have smaller opportunity costs for changing their jobs or careers due to having a greater number of career alternatives than their older counterparts. On the other hand, older drivers may leave their professions to retire.

H₃: A significant negative relationship exists between driver turnover and driver age.

More experienced drivers are expected to earn more than less experienced drivers due to their increased skill level. Thus, those with longer years of driving experience are less likely to leave their current jobs than those with fewer

years of driving experience. Considering the risk aversion nature of human behavior, a driver's years of experience are presumed to influence driver turnover.

H₄: A significant negative relationship exists between driver turnover and a driver's experience.

The "Driver Survey" conducted by Gallup (1997) demonstrated that the steadiness of the driver's work is the most important indicator of driver satisfaction. The greater the driver satisfaction, the less likely a driver is to leave his/her current position. Keller (2002) also observed that the longer a driver was with the firm, the more familiar he/she may be with the dispatcher, operation, service requirement, and customers. Thus, the longer a driver is with a firm, the more likely he/she will stay with the firm.

H₅: A significant negative relationship exists between driver turnover and a driver's tenure with the trucking firm.

Beilock and Capelle (1990) found a strong relationship between a driver's income and his/her occupational change intention. Similarly, Keller (2002) discovered that increased driver pay is significantly associated with reduced driver turnover. Drivers with lower monetary compensation are more likely to leave their jobs than those with higher monetary compensation. Higher driver salary should provide a significant incentive for job stability and reduce driver turnover.

H₆: A significant negative relationship exists between driver turnover and a driver's starting salary.

The Effect of the Trucking Firm's Incentives on Driver Turnover

In general, an increase in driver satisfaction leads to less driver turnover. Brandt (1997) indicated that the steadiness of the work was one of the most important predictors of driver job

satisfaction and turnover. Steadiness of the work, in turn, often correlates with job security. In fact, Ashford et al. (1989) suggested that the lack of job security will diminish the employee's sense of attachment and responsibility to the organization and increase turnover. Thus, the trucking firm which emphasizes the importance of job security to its driver retention program is likely to experience low driver turnover.

H₇: The firm that tends to stress job security sustains low driver turnover.

Drivers will be more satisfied with their jobs when there are greater advancement opportunities (Wiggins 1990). Similarly, Barnes (1999) reported that a diverse career path with advancement opportunities would improve driver retention. Therefore, the trucking firm that provides advancement opportunities should have lower driver turnover.

H₈: The firm that tends to stress advancement opportunity sustains low driver turnover.

Fringe benefits, such as healthcare benefits, are tangible inducements that are found to positively influence an employee's decision to stay with his/her current job (Buchko 1992; Shaw et al. 1998). In other words, fringe benefits increase a driver's financial reward and make his/her current job more attractive. The projection that healthcare costs, such as hospital and doctor fees, will go up by 35% to 40% in 2002 could make fringe benefits a determining factor in retaining a driver (Bearth 2001). Thus, the trucking firm that recognizes the importance of fringe benefits to driver retention is likely to experience low driver turnover.

H₉: The firm that tends to stress fringe benefits sustains low driver turnover.

One thing that drivers wanted more than anything else was to be home for important family events (Kahaner 1997). Dobie et al. (1998) also indicated that the driver's time spent

on the road represented one of the most important incentives for driver satisfaction. This leads to the following hypothesis.

H₁₀: The firm that attempts to minimize the driver's time spent on the road sustains low driver turnover.

Many firms believe that by improving working conditions of drivers, satisfaction and loyalty can be increased. According to a driver survey conducted by the Upper Great Lakes Transportation Institute, one of four reasons why the surveyed drivers chose a particular trucking firm was better fleet equipment (Fleet Equipment 1999). Since poor equipment can translate into less comfort, operational difficulty, frequent breakdown, and reduced safety, the condition of the equipment influences the level of driver satisfaction and subsequent turnover. Indeed, some earlier studies (Deierlein 1996; Taylor and Cosenza 1998) discovered that driver satisfaction is affected by the newness and comfort of the truck. Reflecting drivers' concerns over the condition of the equipment, some firms such as *U.S. Xpress*, *Trucks for You*, and *Mary B. Turner Trucking* have begun to select new trucks based upon drivers' input (Fleet Equipment 1999). Such an effort may have contributed to the reduced life cycle of trucks and the growing popularity of aerodynamic long-nose trucks equipped with built-in satellite communication systems. Thus, we posit that the trucking firm, which recognizes the importance of the condition of trucking equipment to driver retention, is likely to sustain low driver turnover.

H₁₁: The firm that provides better equipment sustains low driver turnover.

HYPOTHESIS TESTING AND RESULTS

To examine whether there is a significant relationship between the type of carrier (LTL regional carrier; TL regional carrier; LTL national carrier; TL national carrier; both regional LTL and TL carrier; both national LTL and TL carrier) and four different categories of

driver turnover (1-10%; 11-50%; 51-100%; 100% or higher), the Chi-square test was used. The Pearson chi-square value of 24.938 (p-value = .127) does not support H₁ at $\alpha = .05$. Thus, it is concluded that driver turnover does not vary significantly by type of carrier.

Two separate tests were performed to examine the correlation between the size of the trucking firm (both in terms of annual sales volume and number of drivers) and its driver turnover. Test results strongly support H₂. A significant relationship was found between the size of the trucking firm with respect to its sales volume and driver turnover at $\alpha = .05$ (Pearson Chi-square value = 33.017, p-value = .001). A significant relationship was also found between the size of the trucking firm with respect to its number of drivers and driver turnover (Pearson Chi-square value = 52.629, p-value = .000). In particular, a cross-tabulation between the firm size and the turnover rate indicates that small trucking firms, with less than a \$25 million annual sales volume, are likely to maintain relatively low driver turnover rates (less than 50%). Similarly, small trucking firms, with less than 50 drivers, tend to maintain relatively low driver turnover rates of less than 10%.

The result of a Chi-square test does not support H₃ (Pearson Chi-square value = 19.525, p-value = .191), indicating that there is no correlation between driver age and turnover. On the other hand, the test result (Chi-square value = 38.648, p-value = .000) reveals that a driver's experience significantly influences driver turnover. In particular, a cross-tabulation between the driver's experience and driver turnover shows that drivers who have less than five years of driving experience will be more likely to experience turnover, while drivers with more than ten years of driving experience will be more likely to remain with the same trucking firm.

By the same token, the test result (Chi-square value = 59.764, p-value = .000) supports H₅ at $\alpha = .05$. A significant relationship was found between a driver's length of tenure and driver

turnover. More specifically, drivers who stayed with the same firm more than five years are less likely to change jobs.

Surprisingly, the test result (Chi-square value = 6.884, p-value = .649) does not support H_6 at $\alpha = .05$. No correlation appears to exist between a driver's starting salary and driver turnover. This test implied that a monetary incentive was not an effective inducement for driver recruitment and retention. Although this finding defies the common belief that high monetary compensation increases driver satisfaction and thereby reduces turnover, it is somewhat consistent with the study result of Richard et al. (1995) which evidenced that low pay was not necessarily a primary cause of driver turnover.

A simple t-test was performed to determine if the low turnover firm (less than 50% annual turnover rate) stressed the importance of job security to driver retention more than the high turnover firm (greater than 50% annual turnover rate). The test result (p-value = .000) supports H_7 at $\alpha = .05$. This suggests that a trucking firm's ability to sustain a low turnover rate can be increased by placing emphasis on job security. On the other hand, a similar t-test result (p-value = .761) rejects H_8 at $\alpha = .05$. The data do not support the notion that the low turnover firm recognized the importance of advancement opportunity to driver retention more than the high turnover firm.

Furthermore, H_9 (p-value = .092), H_{10} (p-value = .089) and H_{11} (p-value = .066) were rejected at $\alpha = .05$. There was no significant difference between low turnover and high turnover firms with respect to perceived importance of fringe benefits, amount of time on the road, and condition of equipment to driver retention. In this sample, advancement opportunity, fringe benefits, time spent on the road, and condition of the equipment did not prevent drivers from leaving their current jobs.

FINDINGS AND IMPLICATIONS

First, the surveyed firms do not regard competitive pay scales as a critical attribute for driver recruitment and retention. In other words, they tend to believe that monetary incentives are not necessarily an integral part of building a good relationship with their drivers. This finding contradicts the report of *J. B. Hunt*, which indicated that substantial pay raises reduced turnover rates significantly and attracted more experienced drivers (Schulz 1997). A study by the Gallup Organization (1997) reported that the majority (about 80%) of the driver shortage problem is the result of driver churning (moving from one company to another with the same pay). This implies that pay hikes alone cannot make drivers happy. Instead, job security has been found to influence drivers to stay with the same firm. This finding is congruent with a recent report indicating that today's drivers are putting more emphasis on job security than salary as a result of the slow economy and the subsequent increase in layoffs (Armour 2002).

Second, a driver's experience and tenure with the same trucking firm have been found to influence driver turnover, whereas driver age has no bearing on turnover. This finding makes sense, in that the more experienced a driver is and/or the longer the driver stays with the same firm, the greater sacrifice he/she is likely to take. In other words, a driver with more experience or longer tenure tends to think that the expected utility of his/her current job is greater than that of the alternatives. In particular, drivers with more than ten years of driving experience or who have worked for the same firm for more than five years have a greater tendency to stay with the same firm and profession than their counterparts. This implies that recruitment and retention strategies should be designed in accordance with its driver profiles. Perhaps the best strategy to cope with driver shortages is to

place a greater emphasis on job stability rather than providing drivers with short-term monetary rewards, fringe benefits, and better equipment.

Finally, defying common sense, the size of the trucking firm adversely affected driver turnover. Larger trucking firms tended to have higher driver turnover rates than their smaller counterparts, despite the fact that the former may be better positioned to provide drivers with greater financial stability than smaller firms. The rationale is that smaller firms may pay more personalized attention to drivers and be better positioned to maintain a solid driver-dispatcher relationship than larger firms. Thus, trucking firms should treat drivers as "internal customers" who need constant personal care.

ACKNOWLEDGMENTS

The author would like to express sincere gratitude to the *UPS Foundation* for financial sponsorship of this research. The author also thanks the motor carriers who kindly responded to the questionnaire and provided valuable data for this research. Last, but not least, the author owes a debt of gratitude to Mr. Jerry Sample of *Tyme-It Transportation*, Mr. Ned Sheehy of the *Kentucky Motor Transport Association (KMTA)*, Mr. Charles Harrett of *Northern Continental Logistics*, and the *Derby Chapter 112 of Delta Nu Alpha Transportation Fraternity* for their insightful comments on the earlier draft of the questionnaire and continuous encouragement throughout this research.

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APPENDIX A SUMMARY OF HYPOTHESES TESTING

Hypothesis	Result
Organizational Characteristics	
H ₁ : A significant correlation exists between driver turnover and the type of carrier with which a driver works.	Not Supported
H ₂ : A significant positive relationship exists between driver turnover and the size of the trucking firm for which a driver works.	Supported
Driver Profiles	
H ₃ : A significant negative relationship exists between driver turnover and driver age.	Not Supported
H ₄ : A significant negative relationship exists between driver turnover and a driver's experience.	Supported
H ₅ : A significant negative relationship exists between driver turnover and a driver's tenure with the same trucking firm.	Supported
H ₆ : A significant negative relationship exists between driver turnover and a driver's starting salary.	Not Supported
Incentives	
H ₇ : The firm that tends to stress job security sustains low driver turnover.	Supported
H ₈ : The firm that tends to stress advancement opportunity sustains low driver turnover.	Not Supported
H ₉ : The firm that tends to stress fringe benefits sustains low driver turnover.	Not Supported
H ₁₀ : The firm that attempts to minimize the driver's time spent on the road sustains low driver turnover.	Not Supported
H ₁₁ : The firm that provides better equipment sustains low driver turnover.	Not Supported

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