

Chapter 16

Truck Driver Turnover: A Logistic Regression Approach

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ABSTRACT

The purpose of this chapter is to identify those constructs that lead to driver turnover and to develop a logistic regression model to assist in predicting driver turnover. Interviews with drivers were conducted with 154 drivers at large truck stops. The theory of reasoned action (TRA), originating in the social psychology literature, is the theoretical approach in this study. This chapter makes contributions in two areas. From a managerial perspective, the study results indicate that companies can use a technique such as logistic regression as part of their driver-retention efforts in order to create competitive advantage by increasing efficiency and cutting costs. The resulting logistic regression model provides a concrete tool for analyzing driver turnover. Based on four factors, the model accounts for 84% of the variance and accurately predicts which drivers or driver classes are most at risk of turning over.

INTRODUCTION

Currently driver turnover exceeds 70 percent and is expected to rise in the near future (McNally, 2017). One of the most important and complex problems facing both motor carriers and supply chains is the high rate of driver turnover (Costello and Suarez, 2015; Patton, 2011). The Advanced Center for Transportation Technologies at Clark

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College (2006) estimated that driver shortages and turnover costs the U.S. economy between \$1.8 and \$3 billion annually. Min and Lambert (2002) put these numbers in perspective and estimated that it costs between \$3000 to \$12,000 to replace a driver depending on the amount of time and money that the company must invest in the hiring, orientation, and training. During the course of this study it was found that this figure now ranges from \$7,000 to \$10,000 to hire an experienced driver with no orientation or training costs to between \$20,000 and \$27,000 if these services are provided. This updated finding is generally supported by an industry report which placed the cost of replacing a driver at \$25,000 (*Refrigerated Transporter*, 2007). High driver turnover rates have been found to increase carriers' operating costs, reduce driver productivity and result in reductions in service quality and highway safety (Corsi & Fanara, 1988; Curtis & Wright, 2001; Suzuki, 2007; Faulkiner, 2016). High driver turnover rates have also been found to impact shippers when carriers are unable to meet pick-up and delivery schedules due to a lack of drivers or when frustrated or overworked drivers simply walk away and leave their trucks sitting on the side of the road (Keller & Ozment, 1999a; LeMay et al., 2009).

Consequently, driver turnover and retention has been studied from many perspectives. These perspectives include but are not limited to driver recruitment and retention practices (LeMay et al., 1993; Gupta, et al., 1996; Stephenson & Fox, 1996; Keller & Ozment, 1999b; Keller, 2002; Min & Lambert, 2002; Suzuki, et al., 2009), driver training (Mejza & Corsi, 1999; Mejza et al., 2003), work conditions (Rodriguez & Griffen, 1990; LeMay et al. 1993; Richard et al., 1995; Stephenson & Fox, 1996; Keller & Ozment, 1999a; Keller, 2002; Min & Lambert, 2002; Suzuki et al. 2009), equipment (Garver et al., 2008), compensation (Rodriguez & Griffen, 1990; LeMay et al., 1993; Richard et al., 1995; Gupta et al., 1996; Shaw et al., 1998; Stephenson & Fox, 1996; Keller & Ozment, 1999b; Keller, 2002; Min & Lambert, 2002; Suzuki et al., 2009), demographic characteristics (Beilock & Capelle, 1990; Shaw et al. 1998; Min & Lambert, 2002; Suzuki et al. 2009), employment stability and past safety behavior (Cantor et al., 2010; Faulkiner, 2016), driver needs (Williams, et al., 2011), the role of dispatchers or driver managers (Richard et al., 1995; Gupta et al., 1996; Stephenson & Fox, 1996; Keller & Ozment, 1999ab; Keller, 2002; Suzuki et al. 2009), dispatching procedures (Taylor & Whicker, 2010), drivers' relationship with top management (LeMay & Taylor, 1988), justice in the workplace (Cantor et al., 2011), and driver satisfaction and frustration (Keller & Ozment, 1999b; Johnson et al., 2010; LeMay et al., 2009; Schulz et al., 2014). Other research in this area has looked at predicting which drivers are most at risk of turning over (Richard et al., 1995; Min & Emam, 2003; Garver et al., 2008; Suzuki et al., 2009; Lemay et al., 2013). Readers may also gain useful insights from Crum & Morrow (2002).

From an industry perspective carriers have employed a variety of approaches to reduce driver turnover. Some of these approaches have included increased pay per

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