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Occupational vehicular accident claims: A workers' compensation analysis of Oregon truck drivers 1990–1997

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Abstract

This study used workers' compensation data from Oregon from 1990 to 1997 to examine workers' compensation claims from vehicular accidents by truck drivers, and to calculate claim rate estimates using baseline data derived from the US Bureau of Census' Current Population Surveys. During this period, 1168 valid injury claims due to vehicular accidents were filed representing an accident claim rate of 50.3 (95% CI: 45.1–55.5) per 10,000 truck drivers annually. There were 19 work-related vehicular accident fatalities recorded in the data over the 8-year period. Of all claimants, males constituted the majority (80.7%), most were 35 years of age or younger (51.4%) and had less than 1 year of job tenure (51.0%). Truck driver claim rates due to vehicular accidents were lowest during the 6 a.m. to 12 p.m. period. The average amount of compensable lost work days per injury claim was 57.8 days (S.D. = 124.7) and the median claim time was 16.0 days with the inter-quartile range being 53.5 days. The amount of lost work reported increased with the claimant's age. A total of US$ 11,642,635 was paid in claims for vehicular accidents of truck drivers in Oregon over the time examined, which averaged US$ 9966 per claim, with a median claim amount of US$ 2590 and inter-quartile range of US$ 7670. Claims citing sprains were the most frequently recorded injury experienced from vehicular accidents.

Keywords: Vehicular accidents; Driving; Truck drivers; Workers' compensation; Public health; Workplace safety

1. Introduction

Occupational vehicular accidents involving truck drivers represent a serious threat to both work safety and public health. Research has indicated that truck driving is among the most risky occupations for fatal injuries (Leigh, 1995; Cone et al., 1991). Many of the studies which have broadly examined occupational vehicular accidents have usually confined their analyses to fatality assessment (Karlson and Baker, 1978; Loomis, 1991; Jenkins et al., 1993). Other research that has examined the specific job conditions affecting truck drivers have proven valuable because they allowed for the assessment of various factors that impact driving safety. For example, researchers have used work time data from truck drivers to investigate the relationship between amount of hours of worked and fatigue (Arnold et al., 1997), as well differences due to varying ranges of operation between short and long-haul drivers (Hanowski et al., 1998, 2003). However, the methods of these previous studies on truck drivers have been confined to surveys, focus groups, and on-board instrumentation, and not conducted on large populations of truck drivers as a whole.

This study extends the literature on occupational vehicular accidents by analyzing all workers' compensation injury claims due to vehicular accidents filed by truck drivers in Oregon during the years 1990 through 1997. The use of claim data has several advantages. First, important demographic information which is of significant interest to researchers of vehicular accidents, such as age (Jonah, 1986; Massie et al., 1994; Zhang et al., 1998; Claret et al., 2003) and gender (Massie et al., 1994; Li et al., 1998) can be analyzed. Second, additional data of interest such as time of accident (Lenne et al., 1997), day of week of accident (Doherty et al., 1998) and event

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causing accident are recorded and can be examined. Third, other relevant facts, such as nature of injury, part of body injured, disability time and medical costs can be assessed. Importantly, as understanding the risks and costs associated with workers' compensation claims is essential for employers and occupational health researchers to establish effective interventions and safety policies for workers, this investigation provides the basis for such action by analyzing the claim data in ways which can be pragmatically applied in the future.

2. Methods

This study used workers' compensation claim data that were provided by the Oregon Department of Consumer and Business Information and Management Division for the period 1990–1997. Records by the state are required from employers when an injury requires 3 or more days of indemnification, although in some instances claims are filed and reported when injury does not actually result in disability. Oregon records workers compensation data for residents of Oregon for accidents that occur at work, and thus, some of the accidents in the data that report accident injury may not have actually occurred in the State of Oregon. For this study only accepted vehicular accident claims from individuals working as truck drivers (1990 US Census Occupation Code 804) were analyzed.

The data set included information on claimant occupation and industry, claimant demographics (e.g. age, gender), claimant work schedules, nature of reported injury, body part affected, compensated days of lost work by claimant and claimant cost. Claim costs were tracked through 1999 and the cost data reflect accumulated claim costs through this time. By the end of the observation period 95.0% of all accepted injury claims of truck drivers due to vehicular accidents were closed and for these claims the cost data was complete.

Data from the US Bureau of the Census' Current Population Survey (CPS) was used to estimate Oregon employment levels for different demographic categories and time periods. The CPS is a monthly survey of approximately 50,000 households that is used by the United States government to assess, among other things, monthly unemployment rates. The CPS is a rotating survey with households first surveyed for 4 months, not surveyed for the next 8 months, and then surveyed for an additional 4 months before permanently leaving the survey. Most of the employment estimates were based on the monthly outgoing rotation group (CPS-MORG) files for 1990 through 1997. These files contain data for all individuals participating in their fourth or eighth monthly survey. For individuals in CPS-MORG, additional questions pertaining to an individual's employment are asked. We further restricted this sample to those individuals who reported residing in Oregon and employed as a truck driver at the time of the interview. As injuries of self-employed individuals are not recorded by Oregon, the denominators were adjusted to exclude self-employed workers.

The claim rate due to a vehicular accident for a particular category of truck driver was calculated by dividing the reported number of injuries from vehicular accident by the number of employed trucker drivers in the particular category. Data for the numerator was obtained from the Oregon workers' compensation administrative data while the denominator was estimated using CPS sample data for Oregon truckers. Since estimates were employed in calculating injury rates, 95% confidence interval estimates are presented.

In some cases, claim rates are reported in relation to a baseline employment category. The relative rates are computed by forming the ratio of the injury rate of the particular employment category and the injury rate of the baseline employment category. A ratio greater than one indicates that the particular employment category has a higher injury claim rate than the baseline category. Since both the numerator and denominator of this ratio are based on estimates 95% confidence intervals were calculated using the delta method (Shervish, 1995). In no case, for the relative rate estimates reported below, was the lower confidence interval bound found to be less than one. All calculations reported in this paper were made using Stata Release 7 software (Stata Corp., College Station, TX).

To estimate the fraction of Oregon truck drivers that work at particular times of day and days of week, data from the May 1991 and May 1997 CPS Work Schedule Supplement Surveys (CPS-WSS) was used. These surveys contained supplemental questions pertaining to an individuals work schedule in addition to the usual monthly survey questions. Only individuals in these work schedule supplements who reported working as truck drivers were included in the analysis. Since only 32 of the 2084 of these truck drivers reported residing in Oregon, in order to increase the precision of our estimates, we used the entire sample of truck drivers when estimating shift work, time of day, and day of week employment fractions. Such estimates are valid when the characteristics of Oregon trucker drivers and US truck drivers do not differ. We found no statistically significant differences in the age, gender and industry of employment distributions between Oregon truck drivers and truck drivers residing in other states.

3. Results

Between 1990 and 1997, there were 1210 claims filed by truck drivers in Oregon in which some form of vehicular accident was cited as cause of injury. Of these claims, 1168 (96.5%) were accepted as valid and compensable through the workers' compensation process. The average annual accepted number of claims was 146, which ranged from a low of 122 claims in 1992 to a high of 157 in 1994. Applying the CPS to obtain baselines for the number of truck drivers in Oregon by year, it was estimated that the average rate of vehicular accidents experienced by these workers was 50.3 per 10,000 annually (95% CI: 45.1–55.5). The number of accidents by year for Oregon truck drivers, as well as estimates of the