Log Truck Accidents in the United States

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Study Rationale

- Log trucking is a critical link to the forest products supply chain!

- A shortage of available and reliable transportation from landing to mill could be a threat to the forest products supply chain.

- Currently only 5 national insurance companies cover log trucks in their policies (FRA 2017).

- Better understanding of log truck accidents can help improve safety training programs.
Previous studies

• Mechanical failure rates in log trucks are lower today than before 1991 when trucks became subject to random roadside inspections (Greene et al 2007)

• Accidents per million tons of wood in Georgia increased from 11 in 1991 to 19 in 2003 (Greene et al 2007)

• 8% of all logging accidents from 1986 to 1998 were transportation related (Lefort et al 2008)

• Focus group of logging supervisors and crew members identified log truck related incidents as primary source of risk for injury and death on logging work sites (Conway et al 2016)
Objectives

• Characterize log truck accidents in the US.
• Determine differences between log truck accidents as compared to other trucks.
• Use the results of this study to guide future research and training programs.
Methods

• Acquire publicly available accident datasets and query out all accidents involving log truck

• Perform descriptive statistics and assess trends over time

• Statistical analysis where possible
  • Season/month
  • Time of day
Collaboration: TEAM Safe Trucking

- We are working in cooperation with TEAM safe trucking to better understand log truck accidents.

TEAM was:
- Formed in 2015
- Non-profit volunteer group seeking to elevate the standard and performance of the American forest industry’s log trucking sector.
- Cooperative effort between: Timber producers, timber consumers, insurance companies and associations.

Mission Statement: To reduce accidents through enhanced driver training and effective fleet management and to recruit new, safety-focused drivers to deliver a sustainable and profitable supply chain.”
Data Sources

• 2 federally maintained accident databases

• Fatality Analysis Reporting System (FARS) maintained by Federal Motor Carrier Management Safety Administration (FMCSA)

• Motor Carrier Management Information System (MCMIS) maintained by National Highway Traffic Safety Administration
Crash Databases

FARS (Fatality Analysis Reporting System)
- Census of fatal crashes involving motor vehicles traveling on public roadways.
- FARS is recognized as the most reliable national crash database, but it contains information only on fatal crashes.
- Information on: accident, vehicle, all persons involved.
Crash Databases continued

MCMIS (Motor Carrier Management Information System)

• Contains data on trucks and buses in crashes that involve a truck, used for commercial purposes, with a GVWR >10,000 pounds, or carrying hazardous material

• The crash must result in at least:
  ◦ one fatality
  ◦ one injury involving immediate medical attention away from the crash scene,
  ◦ one vehicle disabled as a result of the crash and transported away from the crash scene (towaway)

• Intended census of trucks and buses involved in fatal, injury, and towaway crashes; however, some states do not report, and reporting may not be consistent in some states
Crash databases continued

• TOTAL:
  ◦ 2007-2015: 576 Fatal Log truck accidents (FARS database)
  ◦ 2007-2016: 11,014 Injury causing or property damage crashes (MCMIS database)
  ◦ Total Records: 11,590 records spanning years 9-10 years

The following are preliminary results based on initial evaluation of the databases.
Fatal Truck Accidents in the United States

- Log Trucks
- All Large Trucks

Years: 2011 to 2015

Log Truck Accidents

All Truck Accidents

Graph shows the trend of fatal truck accidents in the United States from 2011 to 2015, comparing log trucks and all large trucks.
<table>
<thead>
<tr>
<th>Cargo Body Type</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>All Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log</td>
<td>12.3</td>
<td>13.5</td>
<td>13.2</td>
<td>13.8</td>
<td>13.0</td>
<td>13.2</td>
</tr>
<tr>
<td>Dump</td>
<td>11.7</td>
<td>12.2</td>
<td>13.2</td>
<td>13.9</td>
<td>12.5</td>
<td>12.7</td>
</tr>
<tr>
<td>Pole-Trailer</td>
<td>10.6</td>
<td>10.8</td>
<td>10.5</td>
<td>11.9</td>
<td>10.7</td>
<td>10.9</td>
</tr>
<tr>
<td>Concrete Mixer</td>
<td>9.8</td>
<td>10.6</td>
<td>11.2</td>
<td>11.4</td>
<td>10.5</td>
<td>10.7</td>
</tr>
<tr>
<td>Grain, Chips, Gravel</td>
<td>9.7</td>
<td>9.0</td>
<td>10.5</td>
<td>11.8</td>
<td>12.0</td>
<td>10.6</td>
</tr>
<tr>
<td>Flatbed</td>
<td>8.8</td>
<td>8.9</td>
<td>9.1</td>
<td>10.1</td>
<td>10.2</td>
<td>9.4</td>
</tr>
<tr>
<td>Vehicle Towing Another Vehicle</td>
<td>6.7</td>
<td>8.5</td>
<td>6.8</td>
<td>12.1</td>
<td>7.2</td>
<td>8.3</td>
</tr>
<tr>
<td>Auto Transporter</td>
<td>7.0</td>
<td>8.1</td>
<td>9.1</td>
<td>9.3</td>
<td>6.7</td>
<td>8.0</td>
</tr>
<tr>
<td>Bus</td>
<td>7.2</td>
<td>8.0</td>
<td>8.4</td>
<td>9.2</td>
<td>7.7</td>
<td>8.1</td>
</tr>
<tr>
<td>Garbage</td>
<td>7.6</td>
<td>8.2</td>
<td>7.8</td>
<td>8.2</td>
<td>8.7</td>
<td>8.1</td>
</tr>
<tr>
<td>Intermodal Container Chassis</td>
<td>8.8</td>
<td>7.1</td>
<td>7.7</td>
<td>8.0</td>
<td>9.7</td>
<td>8.3</td>
</tr>
<tr>
<td>Cargo Tank</td>
<td>7.1</td>
<td>6.6</td>
<td>6.9</td>
<td>8.0</td>
<td>6.4</td>
<td>7.0</td>
</tr>
<tr>
<td>Van/Enclosed Box</td>
<td>6.6</td>
<td>6.6</td>
<td>6.3</td>
<td>7.2</td>
<td>6.2</td>
<td>6.6</td>
</tr>
<tr>
<td>AVERAGE FOR ALL TYPES</td>
<td>8.8</td>
<td>9.1</td>
<td>9.3</td>
<td>10.4</td>
<td>9.3</td>
<td>9.4</td>
</tr>
</tbody>
</table>
Average Age of Log Trucks Compared to All Trucks

Average Age of Log Trucks and All Trucks from 2011 to 2015.
<table>
<thead>
<tr>
<th>First Harmful Crash Event</th>
<th>FATALITIES</th>
<th>INJURIES</th>
<th>TOWAWAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collision w/ motor vehicle in transport</td>
<td>78%</td>
<td>64%</td>
<td>51%</td>
</tr>
<tr>
<td>Ran off road</td>
<td>7%</td>
<td>14%</td>
<td>21%</td>
</tr>
<tr>
<td>Cross median/centerline</td>
<td>7%</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>Collision w/ pedalcycle</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Collision w/ Fixed Object</td>
<td>2%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Other (collision)</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Collision w/ pedestrian</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Collision w/ parked vehicle</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Jackknife</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Rollover</td>
<td>0%</td>
<td>5%</td>
<td>8%</td>
</tr>
<tr>
<td>Downhill runaway</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Cargo loss or shift</td>
<td>0%</td>
<td>2%</td>
<td>3%</td>
</tr>
</tbody>
</table>
Proportion of Vehicles that Experienced a Rollover During Fatal Accident (2011-2015)

- Other Large Trucks: 12.8%
- Log Truck: 25.3%
FATAL LOG TRUCK ACCIDENTS BY TIME OF DAY 2011-2015
Weather Condition at Time of Log Truck Accident (2011-2015)

- No Adverse Condition: 85%
- Rain: 7%
- Sleet/Hail: 5%
- Snow: 7%
- Fog: 5%
- Blowing sand/dirt/snow: 5%
- Other: 5%
- Unknown: 5%
Light Condition During Log Truck Accidents (2011-2015)
Summary

1. Federal databases can be used to show the general characteristics and number of log truck accidents reported.

2. Determining an accident rate is difficult:
   - Better reporting?
   - More industry activity?
   - Or is the log truck accident rate actually going up?
Summary continued

3. Data do show some differences
   • Log trucks appear to have higher rollover occurrences
   • Log trucks have the highest average age of all trucks on the road

4. Using data from these databases can help identify areas where further research can be focused.
Questions?