Louisiana Traffic Records Data Report 2019

CARTS.lsu.edu

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Overview

• Trends in Crashes, Fatalities & Injuries
• Explanation of trends
• Driving Under the Influence of Alcohol: Crashes and DWI Arrests
• Occupant Protection
• Crash Costs
Some Notes about Interpretation of Data

• Regression to the mean

• Explaining versus predicting
  • Predicting: Does it continue to happen?
  • Explaining: Why did it happen?

• Causation versus correlation
  • Drunk driving is associated with fatal crashes. (Correlation)
  • Does an increase in drunk driving result in an increase of fatal crashes? (Causation)
  • Drugged driving is associated with fatal crashes. (Correlation)
  • Does an increase in drugged driving result in an increase of fatal crashes? (Causation)

• Confounding
  • Confounding of factors make it difficult to interpret which factor caused the crashes to go up or down.
Trends

- What are the trends in crashes, fatalities and injuries?
- What are the trend in rates?
- What are one-year changes?
- What are changes from 2010 to 2019?
- Highlights:
  - Interstates
  - Bicycles
  - Pedestrians
  - Motorcycles
  - Young drivers
  - Crash costs
While the fatalities have been on the rise again since 2012, there was no change from 2017 to 2018, but a decline of 44 fatalities from 2018 to 2019 or 5.7%.

Fatalities per 100 million miles traveled declined by 8.4% from 2018 to 2019.

What is the cause for this “Z” curve?
Crashes, Vehicles, Occupants (1,000)

Number of:
- # of crashes
- # Occupants in Crashes
- # Vehicles in crashes
Over the past 15 years the serious & moderate injury rate has dropped on average 2 injuries per year per 100 million miles traveled.
If we still had the same fatality rate per occupant as in 2006 (1.81) we would have had 287 more fatalities in 2019.

The fatality rate per occupant seems to have shifted to a lower level starting in 2008.
Moderate and Severe Injury (Cars, Light Trucks, SUVs, and Vans)

**Moderate-to-Severe Injuries:**
Decreased from 13,997 in 2005 to 10,556 in 2019

**The Moderate-to-Severe-Injury Rate:**
(per 1,000 Occupants)
Has been flat between 26.71 (2017), 26.51 (2018)
And 26.67 (2019).

If we had the same injury rate as in 2005,
we would have had 3,528 more moderate to severe injuries in 2019.
Conclusion from the Trend Data

A comparison between 2005 and 2019 crash data for LA show:

• about the same number of **crashes**
• about the same number of **vehicles** in crashes
• about the same number of **occupants** in crashes

However, LA had

• 35.9% fewer fatalities in (Cars, Light Trucks, SUVs, and Vans)
• 24.6% fewer serious and moderate injuries in (Cars, Light Trucks, SUVs, and Vans)
Explaining Injury & Fatality Trends

• 1984 (FMVSS 208) to require cars produced after 1 April 1989 to be equipped with a passive restraint for the driver.

• September 1998 Federal legislation makes front airbags on both sides mandatory.

• 2009 NHTSA mandate that all automakers must phase in additional side-impact protection as a standard feature for their cars, trucks and SUVs goes in effect.
Fatality and Injury Rates by Vehicle Model Year (Per 100,000 Occupants in crashes)

The rate of serious to fatal injuries declined by 78.4% from 1988 model vehicle to a 2000 model vehicle.
The rate of fatalities declined by 90.5% from 1988 model vehicle to a 2000 model vehicle.
Explaining Injury & Fatality Trends versus Seat Belt Use

**Fatality Trends (Cars, Light Trucks, SUVs, and Vans)**

- **Fatal**
- **Fatal Rate (per 1,000 OCC)**

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- **2005**: 713, 1.81
- **2006**: 697, 1.72
- **2007**: 681, 1.62
- **2008**: 661, 1.58
- **2009**: 642, 1.56
- **2010**: 624, 1.53
- **2011**: 607, 1.50
- **2012**: 590, 1.47
- **2013**: 572, 1.44
- **2014**: 555, 1.41
- **2015**: 538, 1.38
- **2016**: 521, 1.35
- **2017**: 504, 1.32
- **2018**: 488, 1.29
- **2019**: 472, 1.26

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- **2005** to **2019**: 2.5 percentage points
- **2005** to **2019**: 10 percentage points

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**Fatality Rate (per 1,000 OCC)**

- **2005**: 1.81
- **2019**: 1.26
Conclusion

• Safer cars beginning with the 1999 models (airbags)
  • Resulting in a permanent lower injury and fatality rate per vehicle in a crash

• 2007-2011 three things where happening
  • Older less safe cars (<1999) where phased out
  • The economy had a downturn, fewer vehicles in crashes
  • Seat belt use increased by 2.5 percentage points

• 2011-2019 experienced an increase in vehicles in crashes due to increased economic activities. But
  • at much lower injury rates of safer cars, and
  • A 10 percentage point increase in seat belt use

• The result is more like a “Z” curve rather than a “V” curve
Other Trends
Interstate Fatalities

From 2018 to 2019
• Fatalities down 15.8%
• Fatality rate down 15.2%
• 2017-2019 number of crashes trending downwards on state roads, US HWY & Interstates while number of crashes on local roads have not changed much.
• Single vehicle crashes on state routes US HWY & Interstates have declined by one percentage point over the past 10 years.
• 2018-2019
  • Bicyclist fatalities down 26.7%
  • Alcohol involved bicyclist's death unchanged
• All injuries went up 9.7%.
• Over the past 15 years on average Louisiana had 19.8 bicyclist fatalities per year.
Motorcyclist Fatalities

2018-2019 Change

- Motorcyclist fatalities up 10.1%.
- Alcohol involved motorcyclist's death up 14.3%.
- Injuries down 4.3%.
- Injuries have been trending downward for the past decade.
Pedestrian Fatalities & Injuries

2018-2019 change
- 26.1% decrease in pedestrian fatalities
- 6.6% decrease in pedestrian injuries
- Injuries have trended upwards since 2006.

Bar chart showing the number of pedestrian fatalities and injuries from 2005 to 2019, with a significant decrease from 2017 to 2018.
2019 Pedestrian Injured or Killed
N.O. accounted for 28.6% of injuries & 9% of fatalities
The 7 other urban centers accounted for 42.4% of injuries and 42.6% of fatalities.
Center for Analytics & Research in Transportation Safety

Young Drivers in Fatal Crashes

Crash Rates Per 100,000 Licensed Drivers

- 15-17
- 18-20
- 21-24
- Poly. (18-20)
The 5-year average is 78% of fatal crashes involves one of the four factors.
Distractions
Aggressive Driving is defined as either

- Exceeding stated speed limit
- Exceeding safe speed limit
- Failure to Yield
- Following too closely
- Improper passing
- Disregarded traffic control
- Careless operation
Aggressive driving violations in fatal crashes have been flat between 403 and 429 over the past 8 years.
Drinking and Driving
The odds of the surviving driver having NO alcohol are about 9 to 1.
The odds of the killed driver having NO alcohol are about 2 to 1.
The odds of the fatal driver to have BAC>0 are about 5 times the odds of the surviving driver.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>BAC 0 DRIVERS</th>
<th>%</th>
<th>PENDING &amp; UNK DRIVERS</th>
<th>%</th>
<th>NOT TESTED DRIVERS</th>
<th>%</th>
<th>BAC &gt; 0 DRIVERS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>206</td>
<td>42%</td>
<td>43</td>
<td>8.8%</td>
<td>73</td>
<td>15%</td>
<td>166</td>
<td>34%</td>
</tr>
<tr>
<td>2015</td>
<td>245</td>
<td>47%</td>
<td>22</td>
<td>4.2%</td>
<td>72</td>
<td>14%</td>
<td>184</td>
<td>35%</td>
</tr>
<tr>
<td>2016</td>
<td>248</td>
<td>50%</td>
<td>3</td>
<td>0.6%</td>
<td>74</td>
<td>15%</td>
<td>167</td>
<td>34%</td>
</tr>
<tr>
<td>2017</td>
<td>277</td>
<td>54%</td>
<td>0</td>
<td>0.0%</td>
<td>67</td>
<td>13%</td>
<td>173</td>
<td>34%</td>
</tr>
<tr>
<td>2018</td>
<td>251</td>
<td>51%</td>
<td>0</td>
<td>0.0%</td>
<td>92</td>
<td>19%</td>
<td>150</td>
<td>30%</td>
</tr>
<tr>
<td>2019</td>
<td>257</td>
<td>54%</td>
<td>0</td>
<td>0.0%</td>
<td>53</td>
<td>11%</td>
<td>167</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>25%</td>
<td>12%</td>
<td></td>
<td>-27%</td>
<td>-4%</td>
<td>1%</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>
Fatalities in Crashes with BAC >= 0.08

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatalities</th>
<th>% Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>152</td>
<td>27%</td>
</tr>
<tr>
<td>2006</td>
<td>219</td>
<td>36%</td>
</tr>
<tr>
<td>2007</td>
<td>253</td>
<td>35%</td>
</tr>
<tr>
<td>2008</td>
<td>246</td>
<td>35%</td>
</tr>
<tr>
<td>2009</td>
<td>225</td>
<td>34%</td>
</tr>
<tr>
<td>2010</td>
<td>166</td>
<td>29%</td>
</tr>
<tr>
<td>2011</td>
<td>181</td>
<td>34%</td>
</tr>
<tr>
<td>2012</td>
<td>199</td>
<td>32%</td>
</tr>
<tr>
<td>2013</td>
<td>194</td>
<td>31%</td>
</tr>
<tr>
<td>2014</td>
<td>201</td>
<td>31%</td>
</tr>
<tr>
<td>2015</td>
<td>223</td>
<td>32%</td>
</tr>
<tr>
<td>2016</td>
<td>204</td>
<td>29%</td>
</tr>
<tr>
<td>2017</td>
<td>188</td>
<td>27%</td>
</tr>
<tr>
<td>2018</td>
<td>186</td>
<td>27%</td>
</tr>
<tr>
<td>2019</td>
<td>188</td>
<td>28%</td>
</tr>
</tbody>
</table>
Rate (per 100,000 lic. Drivers) Youth Drivers and Alcohol Involvement in Fatal Crashes

Youth Drivers with Predicted Alcohol Involved in Fatal Crashes

- 15-17
- 18-20
- 21-24
Center for Analytics & Research in Transportation Safety

DWI Fatalities and % DWI Fatalities Involving of BAC>=0.08 by Troop Area

Size of bubble represents total number of fatalities.
DWI Arrests from COBRA

Rule of Thumb:

For every 1,000 hours Saturation Patrol 4 fewer fatalities.

For every SFST conducted 3 fewer fatalities.

COBRA: Refused Tests

Graph showing the number of refused tests and the percentage refused from 2004 to 2019.

- Number of refused tests: 8,579 in 2006, 3,822 in 2019
- Percentage refused: 33.2% in 2006, 22.4% in 2019

Data ranges from 0 to 10,000 on the y-axis and 2004 to 2019 on the x-axis.
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Youth (17-20) DWI Arrests

The graph shows the number of tests positive and the average BAC for youth (17-20) DWI arrests from 2009 to 2019. The number of tests positive has decreased over the years, from 2,750 in 2009 to 817 in 2019. The average BAC has also decreased, from 0.096 in 2009 to 0.089 in 2019.
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Average Age in DWI Arrests

![Graph showing the average age in DWI arrests from 2009 to 2019. The average age has increased from 35 in 2009 to 38 in 2019.](image-url)
Center for Analytics & Research in Transportation Safety

Drugs in Fatal Crashes (Crime Lab Data)
What progress has Louisiana made over the past 20 years?
### Seat Belt Use by Region 2016-2019

<table>
<thead>
<tr>
<th>Region</th>
<th>Estimate</th>
<th>STD Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-New Orleans</td>
<td>87.0%</td>
<td>0.2%</td>
</tr>
<tr>
<td>2-Baton Rouge</td>
<td>84.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>3-Houma</td>
<td>91.3%</td>
<td>0.2%</td>
</tr>
<tr>
<td>4-Lafayette</td>
<td>86.6%</td>
<td>0.2%</td>
</tr>
<tr>
<td>5-Lake Charles</td>
<td>91.1%</td>
<td>0.3%</td>
</tr>
<tr>
<td>6-Alexandria</td>
<td>81.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td>7-Shreveport</td>
<td>90.1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>8-Monroe</td>
<td>84.9%</td>
<td>0.3%</td>
</tr>
</tbody>
</table>
| LA total        | 87.7%    | 0.1%      

**2019**
- Louisiana: 87.5%
- Texas: 90.9%
- Arkansas: 81.9%
- Mississippi: 80.5%
- Alabama: 92.3%
## Seat Belt Use by Troop 2016-2019

<table>
<thead>
<tr>
<th>Troop</th>
<th>Estimate</th>
<th>STD Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-Baton Rouge</td>
<td>84.8%</td>
<td>0.2%</td>
</tr>
<tr>
<td>B-New Orleans</td>
<td>86.1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>C-Houma</td>
<td>93.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>D-Calcasieu</td>
<td>91.1%</td>
<td>0.3%</td>
</tr>
<tr>
<td>E-Natchitoches</td>
<td>81.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td>F-Monroe</td>
<td>85.1%</td>
<td>0.3%</td>
</tr>
<tr>
<td>G-Shreveport</td>
<td>90.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>I-Lafayette</td>
<td>86.6%</td>
<td>0.2%</td>
</tr>
<tr>
<td>L-Hammond</td>
<td>88.3%</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

LA 87.7%
Seat Belt Use of Fatalities versus Seat Belt Use Survey by Troop

\[ y = 1.0x - 40 \]

\[ R^2 = 0.65 \]
Seat Belt Tickets by Age Group per 100,000 licensed Drivers
Set Belt Tickets by Age Group, Gender and Race per 100,000 licensed drivers
Multiple Tickets
Table 5: Ratio of Estimated Percentage of Driver Receiving Seat Belt Tickets over Percentage of Drivers not Wearing a Seat Belt

<table>
<thead>
<tr>
<th>Seat Belt Tickets</th>
<th>FEMALE</th>
<th></th>
<th></th>
<th>MALE</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BLACK</td>
<td>OTHER</td>
<td>WHITE</td>
<td>BLACK</td>
<td>OTHER</td>
<td>WHITE</td>
</tr>
<tr>
<td>1</td>
<td>0.91</td>
<td>0.85</td>
<td>1.18</td>
<td>0.86</td>
<td>1.15</td>
<td>1.01</td>
</tr>
<tr>
<td>2</td>
<td>0.84</td>
<td>0.47</td>
<td>0.84</td>
<td>1.13</td>
<td>1.21</td>
<td>1.10</td>
</tr>
<tr>
<td>3</td>
<td>0.73</td>
<td>0.47</td>
<td>0.65</td>
<td>1.31</td>
<td>1.33</td>
<td>1.15</td>
</tr>
<tr>
<td>4</td>
<td>0.65</td>
<td>0.28</td>
<td>0.58</td>
<td>1.40</td>
<td>1.27</td>
<td>1.18</td>
</tr>
<tr>
<td>5+</td>
<td>0.53</td>
<td>0.19</td>
<td>0.47</td>
<td>1.54</td>
<td>1.15</td>
<td>1.23</td>
</tr>
</tbody>
</table>
### Cost of Crashes

The Economic and Societal Impact Of Motor Vehicle Crashes, 2010, page 12, unit cost are adjusted by CPI.

<table>
<thead>
<tr>
<th>Type</th>
<th>Average Cost per Person</th>
<th>Injuries</th>
<th>Total Cost by Injury Category in Billion Dollars</th>
<th>Total Cost by Injury Category in Billions Including Loss of Quality of Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal Injuries</td>
<td>$1,650,721</td>
<td>727</td>
<td>$1.20</td>
<td>$7.85</td>
</tr>
<tr>
<td>Severe Injuries</td>
<td>$422,227</td>
<td>1,348</td>
<td>$0.57</td>
<td>$2.44</td>
</tr>
<tr>
<td>Moderate Injuries</td>
<td>$123,869</td>
<td>11,536</td>
<td>$1.43</td>
<td>$6.07</td>
</tr>
<tr>
<td>Complaint Injuries</td>
<td>$26,879</td>
<td>59,629</td>
<td>$1.60</td>
<td>$3.24</td>
</tr>
<tr>
<td>Occupants with No Injury</td>
<td>$5,168</td>
<td>360,402</td>
<td>$1.86</td>
<td>$1.86</td>
</tr>
<tr>
<td>Property Damage</td>
<td>$7,170</td>
<td>307,202</td>
<td>$2.20</td>
<td>$2.20</td>
</tr>
<tr>
<td>Grand Total Cost</td>
<td></td>
<td>740,844</td>
<td>$8.87</td>
<td>$23.66</td>
</tr>
<tr>
<td>Cost per licensed Driver</td>
<td></td>
<td></td>
<td>$2,993</td>
<td>$7,989</td>
</tr>
<tr>
<td>Percent change from past year</td>
<td></td>
<td></td>
<td>-0.4%</td>
<td>-0.9%</td>
</tr>
</tbody>
</table>

For comparison Louisiana’s fiscal year 2019 [executive budget](#) was $9.74 Billion.

Moderate, sever & fatality make up only 36% of the economic costs but 89% of quality of life costs.
Summary

• While the number of crashes and number of people involved in crashes are about the same as in 2005, fatalities are about 25% lower than in 2005.

• Factors contributing to this are:
  • Safer vehicles.
  • Higher seat belt use, (+10%) over past 10 years
  • Alcohol impaired fatalities (BAC>0.08) slightly down over the past three years

• Cost of crashes decreased slightly from 2018 to 2019.
COVID-19 Year Outlook

**Crashes**

- Crashes: 2015-2019
- Crashes: 2020

**Fatalities**

- Killed-2015-2019
- Killed-2020