Influence of Driver Age and Road Class on German Type of Accident

Walter Niewöhner

IRTAD Conference
Lyon 27./28. Sept. 2022
Agenda

Introduction

VSR + VSS
- DEKRA Road Safety Report
- Road Safety Screening Tool of BW

Result of Analysis

Summary + Conclusion
DEKRA Road Safety Reports since 2008

Passenger Car
Truck
Motorcycle
Pedestrians + Bicyclists
Rural Roads
Urban Mobility

www.dekra-roadsafety.com
Mobility of young people

currently available: German + English

under preparation: French, Italian, Portuguese, Spanish
Road Safety Screening Tool

System created by
Road Traffic Ministry of Baden-Württemberg (BW)

• Accident data from Federal Statistical Office BW
• Road data from local maintenance area
• Traffic data from Road Traffic Ministry
• Data available for 8 types of road users

Combined on the developed platform
to spend the money for road safety measures
at the most important locations
Used Data and Filtering

Road Safety Screening Tool of Baden-Württemberg

Data of 2016 – 2020
n = 205,311 accidents

Limitation to “free road” (no urban area)
n = 102,142

Caused by passenger car
n = 71,167

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Type of Accident (Unfalltyp)

The **Type of accident** describes the first conflict situation which leads at the end to a collision.

Example:
A pedestrian is crossing a road. The car driver realizes without any action there will be a collision with the pedestrian and tries to avoid the collision by steering to the left lane. On the left lane there is a collision with an oncoming vehicle.

⇒ **Type 4** (accident caused by crossing the road)
Type of Accident (Unfalltyp)

**Type 1**
Driving accident (Fahrunfall).

**Type 2**
Accident caused by turning off the road (Abbiege-Unfall)

**Type 3**
Accident caused by turning into a road or by crossing it (Einbiegen-/Kreuzen-Unfall)

**Type 4**
Accident caused by crossing the road (Überschreiten-Unfall)

**Type 5**
Accident involving stationary vehicles (Unfall durch ruhenden Verkehr)

**Type 6**
Accident between vehicles moving along in carriageway (Unfall im Längsverkehr)

**Type 7**
Other accidents
## Types of Accident

### all roads, parameter driver age

<table>
<thead>
<tr>
<th>Type of Accident</th>
<th>Age class of driver</th>
<th>Young 18 - 24</th>
<th>Middle aged 25 - 64</th>
<th>Senior 1 65 - 74</th>
<th>Senior 2 75 - ...</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>n = 15,354</td>
<td>n = 40,849</td>
<td>n = 4,606</td>
<td>n = 5,354</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Type 1</td>
<td>Driving Accident</td>
<td>n = 6,147</td>
<td>n = 9,077</td>
<td>n = 535</td>
<td>n = 526</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40.0%</td>
<td>22.2%</td>
<td>11.6%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Type 3</td>
<td>Turning into Accident</td>
<td>n = 2,669</td>
<td>n = 10,462</td>
<td>n = 1,922</td>
<td>n = 2,466</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17.4%</td>
<td>25.6%</td>
<td>41.7%</td>
<td>46.1%</td>
</tr>
<tr>
<td>Type 6</td>
<td>Moving along carriageway</td>
<td>n = 4,302</td>
<td>n = 13,709</td>
<td>n = 1,297</td>
<td>n = 1,446</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28.0%</td>
<td>33.6%</td>
<td>28.2%</td>
<td>27.0%</td>
</tr>
</tbody>
</table>
## Types of Accident

Parameter: driver age + road class

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Type 1</th>
<th>Type 3</th>
<th>Type 6</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 24 young</td>
<td>6.147</td>
<td>2.669</td>
<td>4.302</td>
<td>15.354</td>
</tr>
<tr>
<td>25 - 64 middle aged</td>
<td>9.077</td>
<td>10.462</td>
<td>13.998</td>
<td>40.849</td>
</tr>
<tr>
<td>65 - 74 Senior 1</td>
<td>535</td>
<td>1.922</td>
<td>1.297</td>
<td>4.606</td>
</tr>
<tr>
<td>75 plus Senior 2</td>
<td>526</td>
<td>2.466</td>
<td>1.446</td>
<td>5.354</td>
</tr>
</tbody>
</table>

**"Bundesstraße" high level road**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Type 1</th>
<th>Type 3</th>
<th>Type 6</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 24 young</td>
<td>1.901</td>
<td>967</td>
<td>1.949</td>
<td>5.623</td>
</tr>
<tr>
<td>25 - 64 middle aged</td>
<td>3.234</td>
<td>3.871</td>
<td>6.431</td>
<td>16.239</td>
</tr>
<tr>
<td>65 - 74 Senior 1</td>
<td>209</td>
<td>639</td>
<td>562</td>
<td>1.745</td>
</tr>
<tr>
<td>75 plus Senior 2</td>
<td>181</td>
<td>877</td>
<td>635</td>
<td>1.977</td>
</tr>
</tbody>
</table>

**"Landesstr + Kreisstr"**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Type 1</th>
<th>Type 3</th>
<th>Type 6</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 24 young</td>
<td>4.246</td>
<td>1.702</td>
<td>2.353</td>
<td>9.731</td>
</tr>
<tr>
<td>25 - 64 middle aged</td>
<td>5.843</td>
<td>6.591</td>
<td>7.567</td>
<td>24.610</td>
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<tr>
<td>65 - 74 Senior 1</td>
<td>326</td>
<td>1.283</td>
<td>735</td>
<td>2.861</td>
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<tr>
<td>75 plus Senior 2</td>
<td>345</td>
<td>1.589</td>
<td>811</td>
<td>3.377</td>
</tr>
</tbody>
</table>

**Difference**

-20%
## Types of Accident

Parameter: driver age + road class

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Young (18-24)</th>
<th>Middle Aged (25-64)</th>
<th>Senior 1 (65-74)</th>
<th>Senior 2 (75+)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Types</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type 1</td>
<td>6.147 40,0%</td>
<td>9.077 22,2%</td>
<td>535 9,8%</td>
<td>526 9,8%</td>
</tr>
<tr>
<td>Type 3</td>
<td>2.669 17,4%</td>
<td>10.462 25,6%</td>
<td>1.922 41,7%</td>
<td>2.466 46,1%</td>
</tr>
<tr>
<td>Type 6</td>
<td>4.302 28,0%</td>
<td>13.998 34,3%</td>
<td>1.297 28,2%</td>
<td>1.446 27,0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15.354 100,0%</td>
<td>40.849 100,0%</td>
<td>16.239 100,0%</td>
<td>20.479 100,0%</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Road Class</th>
<th>Total</th>
<th>&quot;Bundesstraße&quot; high level road</th>
<th>&quot;Landesstr + Kreisstr&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>15.354 100,0%</td>
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<tr>
<td>Type 1</td>
<td>6.147 40,0%</td>
<td>1.901 33,8%</td>
<td>4.246 43,6%</td>
</tr>
<tr>
<td>Type 3</td>
<td>2.669 17,4%</td>
<td>967 17,2%</td>
<td>1.702 17,5%</td>
</tr>
<tr>
<td>Type 6</td>
<td>4.302 28,0%</td>
<td>1.949 34,7%</td>
<td>2.353 24,2%</td>
</tr>
</tbody>
</table>

"Bundesstraße" high level road
"Landesstr + Kreisstr"
Width of Rural Roads in BW

Published figures from 2014

- Kumulated Frequency
- Road width [m]
- Width of rural roads in BW
- Bundesstr
- Landes-+Kreisstr
Accident circumstances (1)

Comparison of not perfect circumstances (night or wet/icy/dirty road) between young drivers and middle aged driver. 7 … 8% difference no differences between road classes.
The accident causes related to speed are
- unadopted speed (v situation)
- speed higher as allowed (v > vmax)

A chosen speed which is not adopted to the situation is mentioned more often. A speed higher as allowed is more seldom.
Summary

• Accidents on smaller roads include more often a “loss of control”

• Younger drivers do have a very high share of loss of control especially on smaller roads

• Senior drivers show more often problems with “Giving the right of way”
Conclusion

• Younger drivers have to be trained especially on smaller roads
• Improve the safety features for smaller roads
• Improve safety equipment of vehicles

Results from federal state of Germany, but to be transferable to other countries

Problematic: Young driver + old vehicle + small road
Thank you for your attention
Merci beaucoup pour votre attention

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