

THE SURVEY OF DRIVING STANDARDS IN ROAD CARGO TRANSPORT

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Summary: The paper presents survey among more than 150 Czech truck-drivers regarding the habits influencing road transport safety. Among others, the focus is on meeting driving-times regulations, tiredness, exceeding maximum allowed speeds, talking on the radio, using hands-free, and watching movies during driving. The paper describes the outcomes of the survey and analysis the influence of individual criteria on transport safety.

Key words: road cargo transport, truck driver, road transport safety, survey.

INTRODUCTION

Today's situation within road transport is accompanied with many risk factors that may have a negative impact on road safety. These can include: technical condition of a vehicle, bad weather, unexpected obstructions on roads and so on. **However, the main factor that determines the level of safety on the roads, is the behavior of drivers themselves.** Drivers should always be able to foresee other risk factors on the road and react appropriately, when these factors arise.

Despite all the recent initiatives to make supply chains more autonomous, people are still the ones, who have to make most decisions within road traffic. If a driver of a vehicle makes a wrong decision, they can jeopardize the safety of others and potentially cause loss of property and in worst cases losses of lives.

Traffic safety is especially relevant in the field of road cargo transport, thanks to the fact that today's vehicle-combinations can weigh tens of tons (usual maximum is 40 tons in international transport in the EU). If a driver of such combination fails to react correctly in a critical situation, he can potentially cause more damage, than a driver of a passenger car.

Concerning this situation, a questionnaire survey in relation to attitudes of Czech truck drivers towards bad habits when driving and tiredness has been done. The aim of this survey was to provide an insight into the daily job of a truck driver and uncover the riskiest factors that can endanger the safety of traffic.

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1. SURVEY OVERVIEW

The survey was conducted last year using an online survey platform. In total, **152 professional truck drivers from Czech Republic shared information** about how often they do various bad habits while driving and how often they experience various forms of tiredness while driving.

The survey examined following bad habits:

- talking on a radio,
- driving without a fastened seatbelt,
- speaking on a phone without a hands-free kit,
- speeding,
- texting on a phone,
- exceeding maximal allowed driving time,
- conducting other activities while driving (such as watching TV, or reading a newspaper).

Furthermore, the survey also examined the **following habits related to tiredness:**

- driving when feeling very tired,
- driving on the verge of falling asleep,
- microsleep,
- accidentally going over the edge of road because of tiredness,
- shortening mandatory safety breaks.

The research was used as a topic of a diploma thesis of the first author of this paper. Individual questions used in the survey drew inspiration from other surveys in the field of road transport. Main inspiration for this research came from the “*European responsible driving barometer survey*” conducted every year by the French foundation **VINCI Autoroutes**. Currently, the newest report available is from the year 2018 and contains results from 11 European Union countries; the Czech Republic excluded, but e.g. Slovakia included. (1)

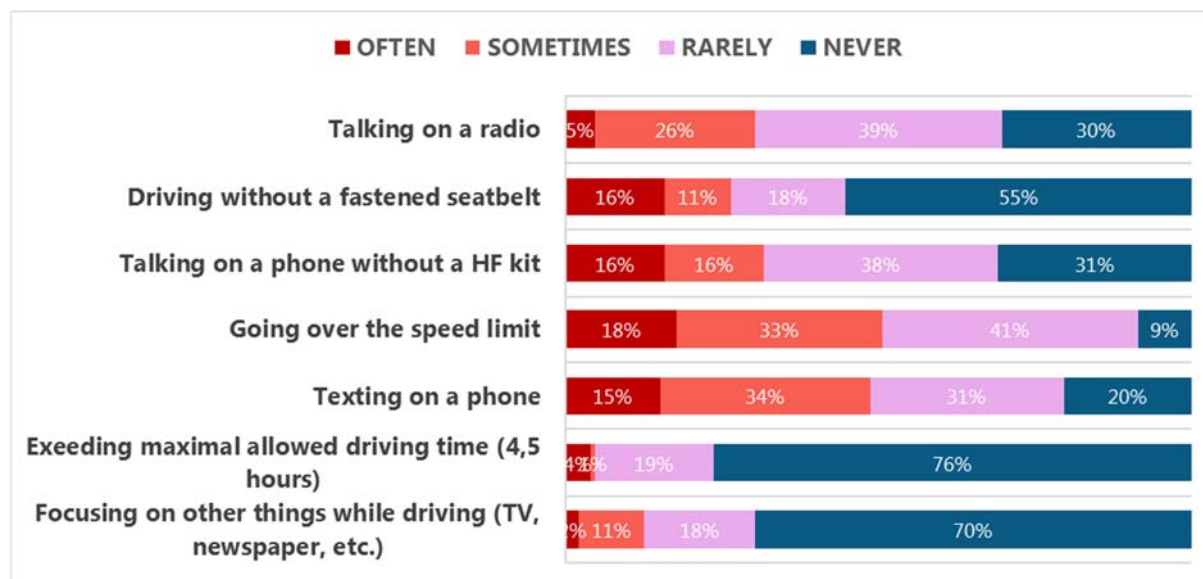
Although the VINCI Autoroutes research focuses primarily on passenger-car drivers, for our research we have used a similar concept to examine the behavior of truck-drivers.

Nearly 80% (78.3%) of drivers in our sample drive a semi-trailer combination. Other 11.2% drive a trailer combination. The rest of the drivers in the sample use trucks without trailers (“solos”) or vans. In total, 96.1% of drivers in our sample drive a vehicle or a vehicle combination **weighing over 3.5 tons** and therefore they have to use *tachograph*, a device which – among others – monitors drivers’ compliance with driving times, breaks and rest times.

2. BAD HABITS WHEN DRIVING

In order to discover the most frequent phenomena, that can endanger the safety of traffic, we will focus on Czech drivers’ bad habits when driving, at first. These habits can hinder

drivers' ability to react appropriately to a critical situation or they may even cause such a situation in the first place.



Source: own survey

Fig. 1 – Relative counts of bad habits

Figure 1 shows a prevalence of bad habits in our sample, based on the relative counts of each habit. Using this data, we can rank these habits in order of their prevalence and **determine, which habits could potentially present the biggest danger** to traffic safety. Ranking the most prevalent habits was done by adding together counts from the values “often”, “sometimes” and “rarely”. In other words, we excluded drivers who never committed each bad habit.

Using this method, it was determined that **the most prevalent bad habits within our sample are: going over the speed limit, texting on a phone, talking on a radio and talking on a phone without a hands-free kit**. In total: 91% of drivers in our sample have gone over the speed limit sometime in the past, 80% have texted while driving and 69% have talked on the phone (without hands-free) while driving. On the other hand, drivers respect their working hours and most of them (76%) have never exceeded the maximal allowed driving time of 4.5 hours – given by (2).

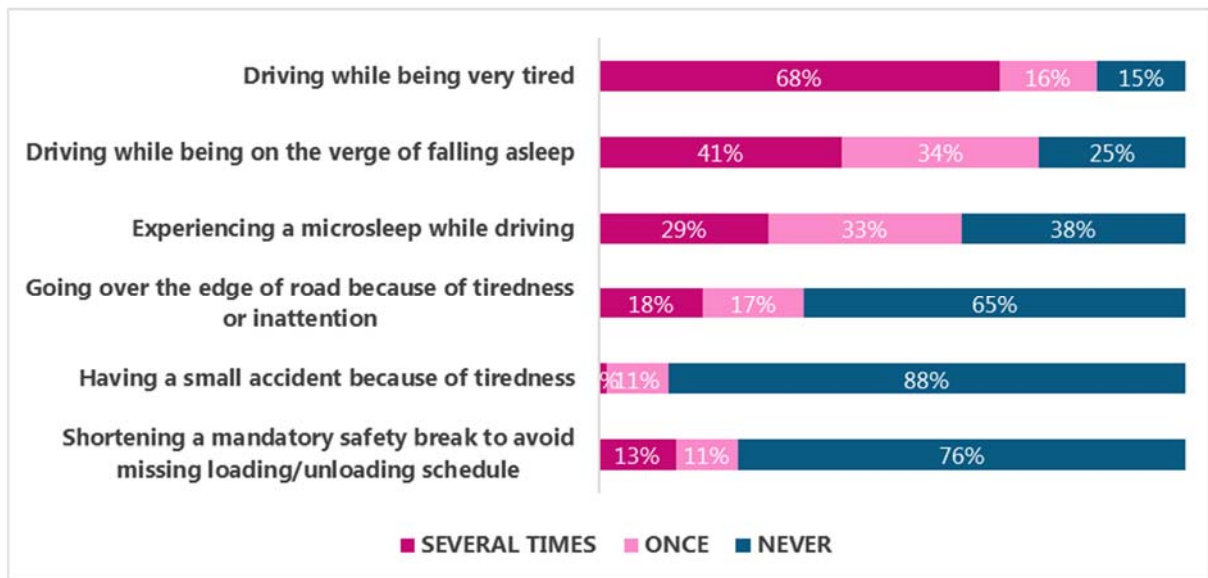
It is clear, that some of these habits present a bigger danger than others. For example, speeding and talking on the radio can be considered as a part of daily practice of truck drivers to a certain extent. **Although these two habits are prevalent in our sample, they do not always pose a threat to traffic safety, unless they are taken to extreme**. Furthermore, **in some areas of road cargo transport the drivers must use radio while driving – e.g. in over-size transport** for communication with other truck-drivers (when driving in convoys) and with “pilots” in passenger-cars accompanying a truck/convoy.

On the other hand, habits such as texting and talking on the phone pose a much bigger threat to the traffic safety, due to the fact that they distract the driver and constrain their ability to react in time. Distraction and inattention caused by these habits could potentially cause a traffic accident and endanger other people in traffic.

From the *VINCI survey*, it is obvious that **inattentiveness at the wheel** (setting navigation device, making phone calls without hands-free, writing SMS etc.) is very frequent among drivers from Greece, Italy and Poland. On the other hand, drivers from Great Britain and Spain are more cautious. (3)

3. TIREDNESS AT THE WHEEL

Tiredness is another factor, that have a considerable impact on driver’s ability to drive safely and therefore it impacts the traffic safety. **Managing tiredness and rest times is extremely important in truck transport, especially on long-distance routes.** Driving for prolonged periods of time without sufficient rest can lead to various forms of tiredness that can potentially endanger the level of safety on roads.



Source: own survey

Fig. 2 – Relative counts of tiredness related phenomena

Figure 2 shows the prevalence of habits and phenomena related to tiredness on the job, based on the relative counts of each phenomena. It is apparent that tiredness presents a significant occurrence in the job of a truck driver. **Based on the data, we can say that driving while being very tired or on the verge of falling asleep is very common among truck drivers.** Even the more serious and dangerous forms of tiredness such as microsleep or going over the edge of the road are fairly common within our sample.

Using the data from the survey, we can again rank these phenomena in order of their prevalence using the same method as before. By adding together counts from the values “*several times*” and “*once*”, we can determine, which of these phenomena are the most prevalent.

The most prevalent forms of tiredness are: driving while being very tired, driving while being on the verge of falling asleep and experiencing a microsleep while driving. In

our numbers: 85% of drivers admitted to continuing to drive despite feeling very tired, 75% of drivers have driven on the verge of falling asleep and 62% have experienced microsleep while driving. It is also crucial to understand that **even if a driver meets all driving-time limits perfectly, the influence of continuous driving of ca. 4 hours significantly imply to driver's reaction time.**

The 2017 *VINCI* survey specify several rules for drivers – nevertheless, not all of them are useable by truck-drivers (e.g. avoid driving at night). But two rules worth mentioning and consideration in trucking: **take break every 2 hours on long-distance routes when driving at night** (10 p.m. – 6 a.m.), and **swap drivers on long-distance trips.** (4)

Further analysis of the data based on paired correlation using Spearman's coefficient (5) revealed, that there is a significant correlation between individual forms of tiredness. Strongest correlation was recorded between the first three forms of tiredness:

- driving on the verge of falling asleep; microsleep ($\rho = 0,597$),
- driving while being very tired; driving on the verge of falling asleep ($\rho = 0,516$),
- driving while being very tired; microsleep ($\rho = 0,399$).

Analysis of the data based on Spearman's correlation coefficient therefore suggests, that the issue of microsleep might be caused by the early forms of tiredness, which drivers often ignore.

CONCLUSION

The undertaken survey has shown that among potentially dangerous issues in road cargo transport belong mainly **speeding** and **usage/setting of electronic devices during driving** (navigation device, mobile-phone, notebook, radio). Also the truck-drivers face **problems with fatigue and following consequences** representing serious threat for road transport safety. On the other hand, **it is very positive that majority of the truck-drivers strictly meet social-legislation** – i.e. Regulation 561/2006 (AETR Agreement outside EU-states) regarding requirements for duration of driving, breaks and rest. This is – naturally – a contribution for **higher safety of road transportation**. Better system of professional drivers' education obviously plays a good role in this field.

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