

WORKING TIME OF A POLISH PROFESSIONAL DRIVER

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Abstract:

According to the Central Statistical Office in Poland, for the last 10 years (2009 - 2018), the number of trucks has increased by as much as 25%. More than 6 million trucks drive in the European Union, and Poland, followed by Italy, boasts of the largest fleet (over one million trucks). For some time, freight transportation companies have been signaling the problem of lack of staff. The Polish Road Transport Inspectorate and the National Labor Inspectorate supervise the transportation sector. All issues related to drivers' working time are law-regulated. The main objective of introducing regulations on drivers' working time is to improve road safety and drivers' working conditions. The top-down imposition of break and rest periods prevents drivers' fatigue and serves to regenerate forces. Fatigue reduces psychomotor skills, and the speed of reaction is particularly important in this profession. The practical goal of this article is to show how drivers perceive these problems, this scientific problem but in a different approach was also presented in the works. The analyzed results come from research conducted by the authors of the article. The research was conducted in the form of a multidirectional survey, 100 people (professional trucks drivers) answered each question. Each of them declared that they are a driver and work in Poland. The study was conducted in December 2018.

Keywords: vehicle transportation, drivers' working time, road traffic safety.

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1. Introduction

1.1. Regulations

In Poland, issues related to drivers' working time are regulated by legal acts compliant with the EU regulations. These regulations are primarily aimed at increasing road traffic safety. The fundamental acts include:

- Regulation (EC) No 561/2006 concerning the harmonization of certain social legislation relating to road transport (EC, 2006).
- Regulation 165/2014 on the use of recording equipment in road transport (EC, 2014).
- Directive 2002/15/EC of the European Parliament and of the Council concerning the organization of the working time of persons performing mobile road transport activities (EC, 2002).
- Act of 16 April 2004 on working time of drivers (Sejm RP, 2004).
- Act of 6 September 2001 on road transport (Sejm RP, 2001).
- The Polish Labor Code (Świątkowski, 2006).

Drivers, but also transportation operators are often hampered by more or less changing regulations. In addition, a large number of road transportation standards do indeed much complicate lawful transportation (KRD, 2018; Muslim et al., 2018; Afanasieva and Galkin, 2018; Gil et al., 2018). It should be mentioned here that there is also a large group of vehicles in spite of their gross vehicle mass above 3.5 t to which driver's working time standards do not apply. Generally, these vehicles, e.g. municipal or waste removal vehicles, are directly dedicated to provide people with living services (Bezprawnik, 2019).

1.2. Key terms

One of the key mistakes made by transportation companies and their drivers is a misinterpretation of the concepts and rules on driving time and drivers' working time. Drivers' working time is the period from the beginning to the end of drivers' work, during which drivers remain at a given workplace at the full disposal of their employer or are on standby. Drivers' working time includes: driving a vehicle, freight activities, handling administrative formalities, activities related to the operation of a vehicle and a semi-trailer, etc. Remaining on standby means the time when the driver is at the workplace and is ready to continue or take up work. Particularly, it is a kind of waiting period for loading or unloading

usually unknown to the driver. However, drivers' driving time is the time of doing activities related to driving recorded with automatic or semi-automatic measuring and control devices, and in special cases manually recorded if a tachograph fails or malfunctions. This period is counted from when the driver starts driving, immediately after his/her daily rest or break before another rest or break. Driving times may be continuous or discontinuous (Gil et al., 2017; Przystupa, 2017).

1.3. Working hours and rest

If drivers' working time is examined, the following issues mentioned in the regulations should be considered (EC, 2002; Sejm RP, 2004; Świątkowski, 2006):

- daily working and driving time,
- weekly working and driving time.
- If drivers' rest time is examined, the following issues should be mentioned (EC, 2002; Sejm RP, 2004; Świątkowski, 2006):
- the length of a break in continuous driving,
- a daily continuous rest,
- a weekly continuous rest.

The following principles should be discussed (Gil et al., 2017 and 2018; Bezprawnik, 2019):

- regular working time,
- equivalent working time,
- discontinuous working time,
- task-related working time,
- and the principles of a mixed working time system.

Without going into detail, the issue of working time and a long enough rest is a difficult and multi-faceted matter. Surely, making an unaware or intentional mistake is still frequently possible (GITD, 2013; Chen et al., 2018; Przystupa, 2019).

2. Drivers' working time – an analysis of the research results

The research material was obtained from a representative group of 100 respondents (sample size), declaring themselves as professional drivers. The survey mainly focuses on whether and how the legal acts regulating drivers' working time are respected and the problem of drivers' working time manipulation. 97 men and 3 women were surveyed here. Such a predominance of men is not surprising because working as a professional driver is not that easy and effortless. Frequently, drivers have to protect their

cargo on their own and solve various problems while driving. This is a very stressful, risky and responsible job. However, the number of women in this profession has increased recently. In the past, this profession was regarded as a typically "male" profession. It is already common that women drive on their own as well as together with their husbands (Scheller et al., 2013; Ambroźkiewicz et al., 2018).

Figure 1a shows the survey results on the age of the respondents. For the approximate (visual) assessment of the compatibility of the empirical distribution with the theoretical distribution (Plucińska and Pluciński, 2000), a red curve rotating the density function of the normal distribution was applied to the graph of Fig. 1a. The number of active drivers decreases with age.

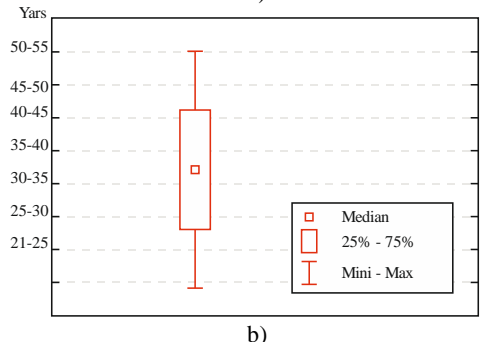
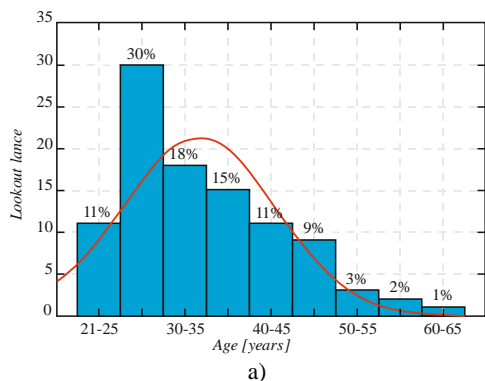


Fig. 1. Respondents' age a) histogram b) average age

It seems that the main reasons for quitting this profession are family matters, unsatisfactory working conditions and a deteriorating state of health. The work of a professional driver is affected by harmful

and disturbing factors that worsen drivers' mental and physical health (Przystupa, 2015). The professional driver not only drives his/her vehicle, but also handles his/her cargo and vehicle. In the survey, there are 41% of young drivers aged between 21 and 30 who have just started their career as professional drivers. In Poland, one must be at least 21 years old to use the CE category driving license. Undoubtedly, satisfactory remunerations for young people and a lack of family commitments are decisive factors behind their decision to take up such a career. The age range between 30 and 40 is declared by 33% of the surveyed. Drivers aged between 40 and 50 years account for 20% of the respondents and only 6% of them were from 50 to 65 years old. The average age of the respondents is between 30 and 40. (Fig. 1b.). Few drivers over 50 years may be due to medical contraindications which prevent them from continuing their careers as professionals. Interestingly, drivers over 60 should have periodic medical check-ups every 2.5 years, while others every 5 years. More frequent medical check-ups of drivers over 60 seem to be the most reasonable, but it does not seem right that professional drivers are forced to work as long as 65 years old. This fact does not seem to contribute to road traffic safety so their early retirement should be the best solution. At present, drivers who can prove their 25-year employment history completed before 1 January 1999 with 15 years of work under special conditions are entitled to early retirement.

Fig. 2. presents the survey results on employment history as a professional driver. Only 11% of the surveyed drivers declare less than a year of professional experience. More than half of them are already much more experienced with their employment history of more than 5 years. The most experienced drivers who can be proud of more than ten years of work experience are 31%. The average employment history of the surveyed drivers as professional drivers is nearly 5-10 years (Fig. 2b.).

The survey results in Fig. 3. show the reasons behind the respondents' decisions of becoming professional drivers. The great majority of them, i.e. as much as 46% decided to choose this profession because of remuneration. Remunerations in this profession certainly depend on professional experience, the type of transportation or the size and location of a transportation company.

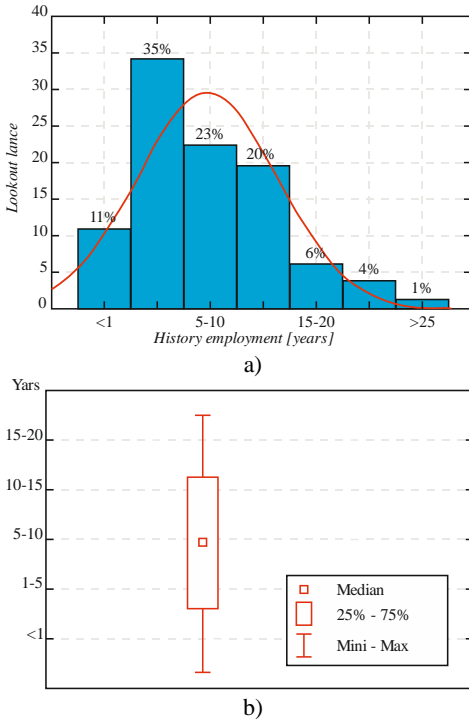


Fig. 2. History employment as a professional driver a) histogram, b) average history employment

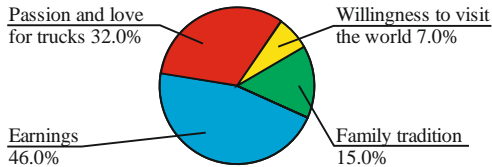


Fig. 3. Reasons behind the decision of becoming a professional driver

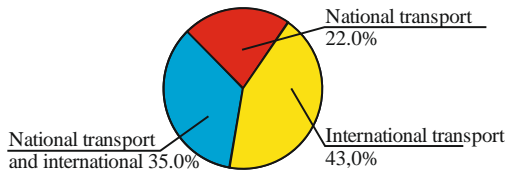


Fig. 4. Type of transportation done by drivers

Drivers who work in the international transportation sector or transport dangerous goods belong to the group that earns the most money. The survey shows that drivers' remuneration is on average PLN 5,000.

Passion and love for trucks encouraged 32% of the respondents to choose this profession, and 7% of them declared that this kind of work is an opportunity for them to travel around the world. 15% of the surveyed drivers declared that they had chosen this profession because of their family traditions passed down for generations.

The survey results on the type of transportation they do are given in Fig. 4. Most of the respondents, i.e. 43%, are international transportation drivers. According to the survey, 22% of the drivers do national transportation, while 35% of them national and international ones. Working in the domestic transportation sector allows drivers to spend more time at home with their families, but the international transportation sector is more financially attractive (Varela-Mato et al., 2016). Drivers who extend their working time and somehow manipulate in their working time count against all road users as they become a significant risk on the road. The surveyed were asked about deliberate manipulation in their working time, see Fig. 5. 63 respondents answered this question in the affirmative.

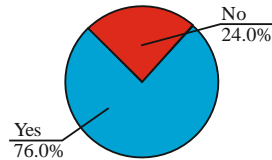


Fig. 5. Manipulation of working time

A conscious manipulation of drivers' working time is declared by 76% of the respondents, 24% of them claim that they do it completely unconsciously. In case, a large margin of error should be taken into account, since there may be people among the respondents who concealed their behavior. Intentional manipulation is affected by accidental causes that force drivers to violate working time regulations. An important issue influencing this declared unconsciousness, as it follows from the correlations, is work experience in the profession (Fig. 6). Drivers' working time is completely unconsciously manipulated by:

- 13% of the surveyed with up to 5-year work experience,
- 9% of the surveyed with from 5 to 15 years of work experience,
- 2% of the surveyed with more than 15 years of work experience.

The analysis of the correlation shows that the longer work experience as a professional driver is, there are less drivers who consciously manipulate their working times. Numerous, relatively difficult regulations on drivers' working time cause many problems for young drivers who just begin their careers. Insufficient familiarity with binding regulations and their misinterpretations may result in an unintentional manipulation of working time.

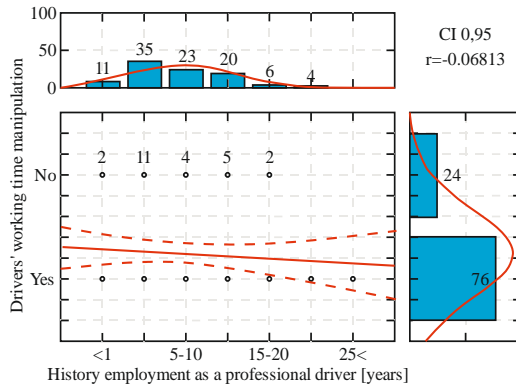


Fig. 6. Correlation of history employment and manipulation of working time (CI - confidence intervals, r - correlation)

The method of reaching conclusions and an accurate statistical description of regression models such as in Fig. 6 can be found in (McCullagh and Nelder, 1989; Yeromenko and Kochan, 2013; Agresti,

1996). The survey results given in Fig. 7 show the frequent professional drivers' violations of the law.

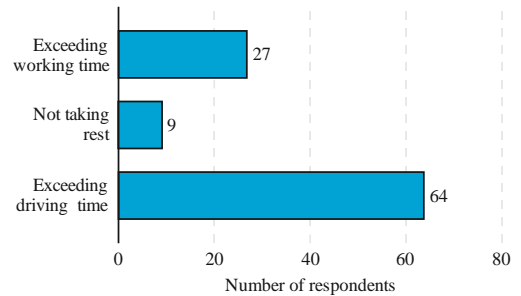


Fig. 7. Violations of the law committed by drivers

The most frequent violations of the law among the surveyed is exceeding a driving time, specified by the law, i.e. 64% of the surveyed admitted to an incident of extending their regulatory driving times. "Exceeding working time" - is declared by 27% of the drivers, while 9% of them violate obligatory rest periods.

To prove which of these violations were most frequently deliberate (Fig. 8.), a correlation analysis was performed. It turns out that 45% of the drivers deliberately extend their driving times, of whom 22 exceed their working times and 9 take no obligatory rest.

The surveyed claim that they violate the regulations under the influence of various external factors. The reasons for a violation of working time regulations are given in Fig. 9.

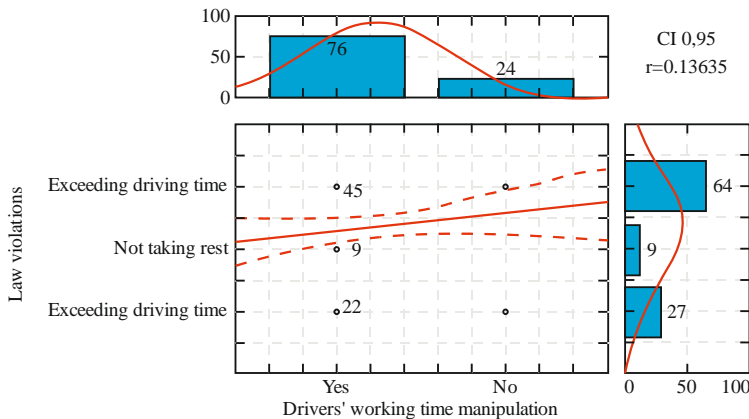


Fig. 8. Deliberate violations of the law (CI - confidence intervals, r - correlation)

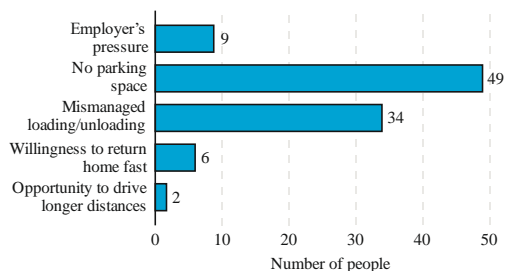


Fig. 9. Reasons behind violations of the law

49% of the surveyed claim that the main reason for a violation of working time regulations is a lack of parking lots. According to the respondents' answers, not enough parking lots is becoming a significant difficulty. Drivers face difficulties in finding a temporal parking lot for their trucks, and if they park them in a forbidden place, they also risk fines. The surveyed drivers claim that parking a truck is the most difficult task to do in the evening and at night, as well as at weekends. Due to not large enough parking spaces, drivers, for reasons beyond their control, are forced to extend their driving time and thus violate the regulations. The number of heavy duty vehicles is increasing every year and the parking infrastructure in the European Union countries is not large enough (Przystupa, 2017).

34% respondents claim that poorly organized loading and unloading is the main reason for breaking the regulations. This is a very important issue and is also independent of the driver. Transportation is

planned in a company by an employer or a freight forwarder. The correct process of planning all transportation tasks is a part of the mission of transportation companies. The analysis of the responses given shows that a specified time of unloading and loading significantly interferes with drivers' time capabilities (Przystupa, 2015). Being under pressure of the employer-employee relationship, 9% of the surveyed drivers violate the regulations. Increasing competition and short delivery times make drivers manipulate their working times to satisfy employer's demands. 6 respondents claim that the regulations are chiefly broken as drivers want to return home and relatives more quickly.

On the other hand, 2% of the respondents break the law because they want to earn extra money if they drive more kilometers in a much shorter time. To determine the main reasons for the law breaches among the respondents, the correlations were analyzed (Fig. 10.). The analysis shows that the main reason behind exceeding drivers' working time and not taking the rest due is poorly organized unloading or loading (9 and 6 percent, respectively), and the most frequent reason for extending the driving time is no parking space (40 percent).

Another relatively significant issue touched in the survey was interference with devices that record drivers' working time. The results showing the percentage of falsification of tachograph records are given in Figure 11.

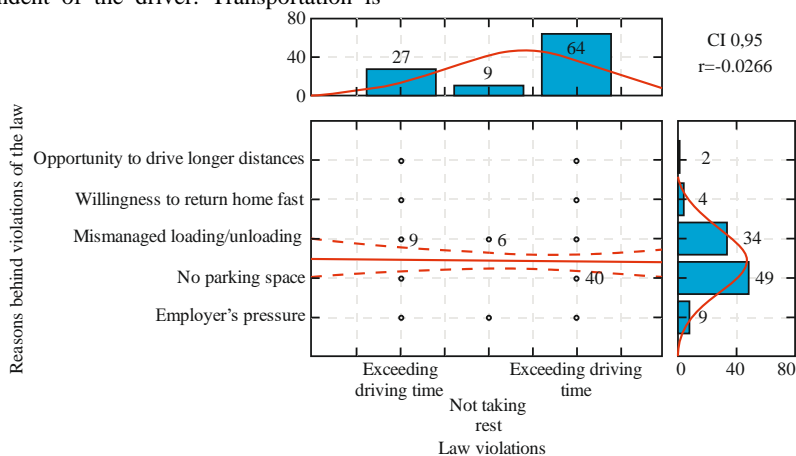


Fig. 10. Main reasons behind the violations of the law - correlation analysis (CI - confidence intervals, r - correlation)

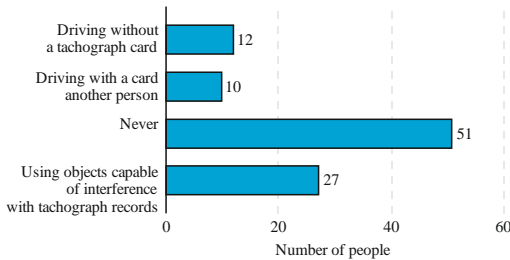


Fig. 11. Falsification of tachograph records

51% surveyed drivers declare no incidents of their interference with tachograph recordings. Objects or devices capable of interfering with operation of tachographs are used by 27% of the respondents. The use of relatively popular tachograph circuit breakers and magnets is intended to record false data and make the most of drivers' capabilities, which in turn brings a number of benefits to the transportation company and, above all, increases its competitiveness and revenues. Driving without a tachograph card was declared by 12% of the respondents, while 10% of them declared using someone else's card. These methods contribute to saving employer's money. Nowadays, drivers can be chiefly fined in European Union countries if caught using someone else's cards. To check whether age affects the manipulation of tachograph records, these two variables were correlated (Fig. 12).

The most cases of falsified tachograph records were reported among young drivers (21 - 30 years old - 21

percent) and the least ones among drivers over 50 years old (50 - 65 years old - 3 percent). The surveyed young drivers most often falsify tachograph records with devices or objects that interfere with tachograph correct operation. With age, the number of drivers who declare that they do not interfere with the tachograph increases. It should be pointed out that some of the respondents could give false responses. To examine the impact of the type of transportation on the falsification of tachograph records, the correlation between these two variables was examined (Fig. 13.).

It turns out that drivers specializing in both the national and international transportation sector (22 percent), unlike those in the domestic one (10 percent), are the most likely to manipulate the tachograph. Drivers specializing in international transportation declared most frequently that they do not interfere with tachograph operation (26 percent). The operation of the tachograph may be interfered for various reasons that additionally limit the driver's work at night, which is in accordance with Art. 2(6a) of the Act on Driving Time and Rest Periods (EC, 2016). Exceeding driving times may also result from the driver's obligation to complete his/her transportation task even if unexpected situations occur on the road. To avoid irregularities in driving time as serious violation may result in the withdrawal of the driver's license, the driver may attempt to circumvent an automatic registration of his/her driving time and rest periods (Gil et al., 2018; Paluchm 2013).

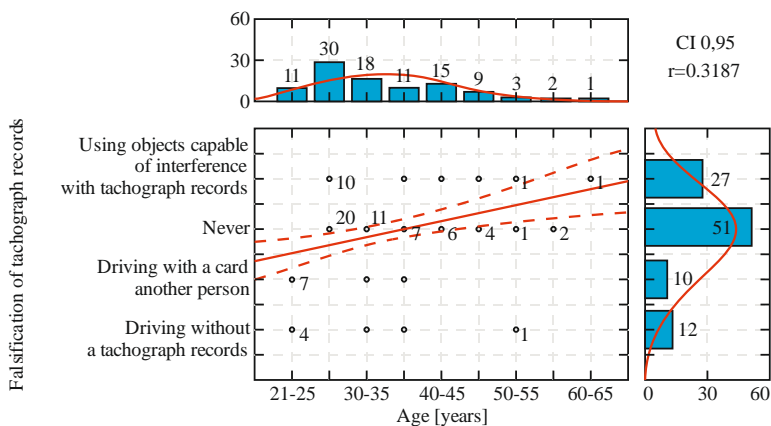


Fig. 12. Falsification of tachograph records vs. age (CI - confidence intervals, r – correlation)

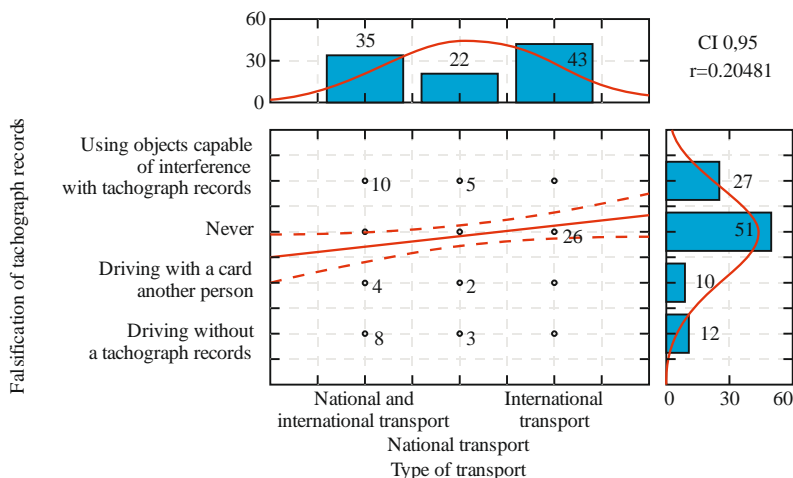


Fig. 13. Falsification of tachograph records in transportation (CI - confidence intervals, r - correlation)

To prevent any kind of manipulation in driving time and rest periods, the European Commission has been introducing intelligent tachographs since 15 June 2019 (EC, 2014; Sejm RP, 2004; Paluch, 2013; Matejczyk, 2016). The main difference between intelligent tachographs and the currently used ones is that intelligent tachographs are connected with GPS, which means that the driver will not be able to drive if he/she records a break in driving. It is to be the first generation of intelligent tachographs and the following generations of these devices can also automatically detect a real break in driving according to various input parameters to limit any kind of falsification of tachograph records. It is worth noting that the driver is not only the person driving the vehicle, but also the person who is a passenger for some time. And only later does he accept the driver's duties (Sejm RP, 2004; Bezprawnik, 2019).

3. Conclusions

Our analysis seems to indicate that truck drivers routinely manipulate their working times and interfere with the operation of recording devices. Many relatively complex regulations considerably complicate transportation to be done in a legal manner. Perhaps, a simplification of the existing regulations and the introduction of obligatory scheduled training for all participants of the transportation process could be good solutions. Currently, only drivers who drive vehicles with a gross vehicle mass above 3.5 t. take part in periodic driving training courses. Legislators

have long been assuring that all vehicles with a gross vehicle mass above 2.4 t will be equipped with devices to record driving time so a larger group of drivers would be trained. Also, all transportation process managers should be trained. Many unclear rules due to a poor training of managers make freight transportation planning full of mistakes and forces drivers not to comply with the rules in force (Scheller et al., 2013; Frith, 1994; Blagoev et al., 2018; Muha and Sever, 2009).

The correlations analysis has showed certain inaccuracies in the obtained results (Fig. 8, 12, 13). It should be remembered that the obtained values of correlation coefficient (r) larger than 0.05 mean that the hypotheses proposed need to be rejected, but they may indicate the need to survey in de-tail a larger group of respondents.

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