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The Effects of Financial and Non-financial Rewards on Truck Drivers' Satisfaction

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ABSTRACT
The transport sector is facing a system-wide shortage of labour and a high turnover rate among truck drivers. The objective of this study is to determine the effects of financial and non-financial rewards on fatigue and, consequently, on the satisfaction of truck drivers. For this purpose, a survey was conducted on a sample of 218 truck drivers within the EU. The hypotheses were tested using structural modelling. The results of the structural equation model showed that higher rewards are associated with increased fatigue among truck drivers; however, there is a positive correlation between driver fatigue and job satisfaction. The truck drivers are not considering employment in a different industry and are satisfied with their choice of profession. The study builds on previous research and contributes to the understanding of factors that influence the work of truck drivers. The results contribute to improvements in the area of financial and non-financial rewards in transport companies. They are also valuable for policy-makers in establishing new legislative frameworks in the transport sector, both in terms of safety and employment of truck drivers.

KEYWORDS
transportation; financial rewards; non-financial rewards; truck drivers; satisfaction.

1. INTRODUCTION

Truck drivers face a variety of working conditions that can negatively affect their well-being. This is influenced by irregular working hours, stress due to strict delivery schedules in unpredictable traffic, physical stress during loading and unloading cargo and insufficient rest due to long driving hours [1]. Prolonged driving directly or indirectly causes three main conditions resulting from driver fatigue: circadian rhythm effects, sleep deprivation and cumulative fatigue effects, and industrial or "time-on-task" fatigue. In the long term, this impairs driver performance and can potentially contribute to accidents [2]. Heavy truck drivers in particular, who drive long distances and are away from home for several days, may also suffer from loneliness and loss of family life [3]. All these factors also affect the attractiveness of the profession and reflect the current labour shortage in the labour market in all major economies around the world [4, 5]. In addition to the current shortage of drivers, the International Road Transport Union [6] highlights a concerning demographic trend. The average age of truck drivers in the European Union is around 47, which is higher than the average in other industries. In addition to the occupation's lack of appeal among the younger population, it is expected that approximately 17% of current truck drivers in Europe will be retired by 2029, which will cause major problems.

Problems with turnover and the attractiveness of the profession in the transport sector are also often linked to financial rewards. In most parts of the world, truck drivers are paid based on productivity, which is either based on pay per kilometre driven or a percentage of revenue generated [7]. The problem is that studies have shown that employees who are paid on the basis of financial rewards based on their productivity report poorer

health [8, 9], have higher rates of sick leave [10], and are more exposed to the risk of various work-related injuries [11]. However, despite the concerns surrounding productivity-based pay, Belzer and Sedo [12] point out in their research that higher financial rewards are important for solving systemic problems in the transport industry. They highlight the importance of target earnings, where higher pay per mile means higher revenue for drivers. When drivers reach their target earnings, they drive fewer miles, spend fewer hours on the road and have no reason to violate traffic rules. As a result, they are less tired, which leads to greater safety on the roads. Other authors also emphasise that effective wages will attract higher-quality workers and reduce turnover, because workers who are testing the labour market cannot find better job alternatives. Offering better pay also attracts high-quality employees because higher wages are an indicator of high-quality jobs [12-14]. However, despite the authors' clearly stated stance on the importance of financial rewards, we may well question how truck drivers can possibly be able to regulate their target earnings. Especially in an industry characterised by pressure from employers to complete as many trips as possible and pressure to deliver goods faster [15-17]?

In addition to the above, we may also question whether they are even satisfied with their job despite higher financial compensation. Do financial rewards encourage them to stay in the transportation industry longer?

Several years ago, various authors concluded that higher financial rewards cannot buy job satisfaction, but they can increase an employer's attractiveness to truck drivers. The authors emphasise that work time allocation, as agreed, a pleasant work environment, the management team and style and career development opportunities have a significant impact on truck driver satisfaction [18, 19]. Job satisfaction, however, has a causal effect on job performance [20, 21]. This means that organisations that keep their employees happy will have more productive employees [21, 22]. However, due to the conflicting findings of various researchers, we may raise the question of which type of reward is the key solution for attracting and retaining staff. What motivates truck drivers to achieve better results and, at the same time, ensures greater satisfaction?

In order to answer these research questions, a survey was conducted on a sample of 218 truck drivers involved in international road transport in the EU. Due to the diversity of views on the issue of rewards and the regulation of working conditions in the transport sector, the aim of the study is to examine the effects of financial and non-financial rewards on truck driver satisfaction. During the initial phase, a structural equation model will be developed to determine the impact of financial and non-financial rewards on truck driver fatigue. In the final phase, the impact of each type of reward on truck driver satisfaction will be determined based on several factors related to the choice of profession. This is a key consideration when establishing future rewards practices in the transport sector with the aim of increasing the attractiveness of the profession and reducing employee turnover.

In recent years, many researchers, particularly in the US [7, 12-14], have focused on the issue of financial rewards for truck drivers, but less so on the specific impact of these rewards on their satisfaction. Furthermore, research into the impact of non-financial rewards in the transport sector is often neglected. Even in the EU, the only study that specifically addressed the impact of financial and non-financial job characteristics on truck driver satisfaction was conducted in late 2017 [19]. Thus, the present study builds on previous results and contributes to the understanding of factors affecting truck driver satisfaction in an industry that faces concrete and systemic challenges in recruiting and retaining staff. The results also represent a novel contribution to other labour-intensive industries, where employees are often treated as an expense. Employees are financially rewarded only to the extent that it is considered sufficient to prevent them from leaving their employer, while non-financial rewards are completely overlooked. The relevance of the results is also significant on a global scale, despite the fact that labour legislation in the transport sectors varies from country to country around the world. One common theme is a focus on the issue of financial rewards for truck drivers, with less attention paid to the non-financial aspects of the job that are linked to job satisfaction, commitment, independence, growth and learning opportunities for employees. This makes the study valuable for government policy-makers when establishing new legislative frameworks in the transport sector. The results also have a significant impact on transport companies, as they provide HR managers with insight into which reward factors they should focus on in order to retain employees and thus reduce turnover. This will also reduce costs in the long term, as the opportunity costs of changing jobs are low for truck drivers, while the costs for employers are usually high [23, 24].

2. LITERATURE REVIEW AND THE DEVELOPMENT OF A STRUCTURAL RESEARCH MODEL

Reward systems within companies play an important role, as they are one of the main tools for attracting and retaining quality employees and motivating them to achieve better results [25, 26]. Several researchers [27-29] point out that reward systems in companies should be part of a comprehensive system that takes into account two fundamental aspects of rewards, namely:

— Financial rewards. This aspect includes salaries, various incentives, bonuses, commissions and indirect remuneration, which we refer to as benefits in kind, that organisations offer their employees. Financial reward is therefore any payment that an employee receives for work performed [30].
— Non-financial rewards. This aspect includes rewards and recognition without any economic impact and is primarily related to the work and working environment in which the employee is working. Non-financial rewards are related to job satisfaction, commitment, independence, growth and learning opportunities for employees, etc. [31].

2.1 Reward systems in the transport sector

Although each individual has their own expectations, financial factors, such as salary and various monetary incentives, are not necessarily viewed as they once were. Employees are driven by a wider range of factors when making decisions related to their role within an organisation. The typical elements of financial rewards are still regarded as important, but organisations are increasingly opting to boost non-financial rewards and, in certain cases, prioritise them over financial rewards [31]. Non-financial rewards in particular help employees strengthen and develop their self-confidence and interest in achieving organisational goals [30]. Employers are also aware of the importance of non-financial rewards, as a salary above or at the market level in a given industry will not be enough to encourage, motivate and retain employees. In fact, increasing monetary compensation may only improve employee motivation and satisfaction in the short term. The effects of non-financial rewards are believed to be more effective, as they improve employee motivation, strengthen a positive culture, and encourage loyalty and commitment to the organisation [31, 32]. These are the trends observed in organisations that primarily look for individuals with high intellectual capital. It is important to not only attract such individuals, but also to retain them for a longer period of time, which is why non-financial rewards play an important role in every company's reward package.

But what about labour-intensive industries such as the transport industry, where the key criterion is maximum work efficiency? Ju & Belzer [14] emphasise that financial rewards are even more important in the transport industry than in other industries. They highlight the efficiency wage theory, which states that employers are more likely to attract and retain truck drivers with financial rewards that are above the market rate. This is to prevent workers from moving to other companies and to encourage greater productivity. They emphasise that this is particularly important in the transport industry, which typically has above-average employee turnover. They point out that, from an employer's perspective, effective wages will attract higher-quality workers and reduce turnover because workers who are testing the labour market cannot find better job alternatives. Other authors also highlight the importance of financial rewards in the transport industry. They point out that offering better pay also attracts high-quality employees, as higher wages are an indicator of high-quality jobs [12, 13]. However, the question remains whether employees are actually satisfied with their jobs despite higher monetary compensation and, more importantly, to what extent financial rewards encourage them to remain in the industry over the long term.

The core problem is that the transport sector is too systemically focused on financial rewards as the key solution for attracting and retaining quality personnel and motivating them to achieve better results. There is less focus on improving specific working conditions, as the results of a study on the subjective well-being of employees in the transport sector are well below average in terms of life satisfaction and job satisfaction [33]. Additionally, Stewart et al. (34) have found that low levels of well-being among workers can have a variety of detrimental effects, including reduced work productivity.

These findings are also confirmed by long-term reviews of employment in the transport industry. Prockl et al. [19] pointed out nearly a decade ago that many countries would face a severe shortage of truck drivers in the future and, as a result, the profession would become less attractive. An analysis of the current situation in the industry by the International Road Transport Union [6] confirms these earlier predictions. In addition to the current shortage of drivers in the labour market, the IRU highlights a concerning demographic trend, as the average age of truck drivers in the European Union is around 47, which is higher than the average in other

industries. In addition to the occupation's lack of appeal among the younger population, it is expected that approximately 17% of current truck drivers in Europe will be retired by 2029, which will cause major problems.

2.2 Structural research model and hypothesis development

These facts raise the question of whether financial rewards in this industry even serve any long-term purpose and whether the solution to greater retention of truck drivers lies in a greater focus on non-financial rewards. To answer this question, a structural equation model (*Figure 1*) will be developed. In the initial phase, the impact of financial and non-financial rewards on truck driver fatigue will be investigated, followed by an investigation of the impact of each type of reward on truck driver satisfaction in the final phase. This is a key consideration when establishing future remuneration practices in the transport sector with the aim of increasing the attractiveness of the profession and reducing employee turnover.

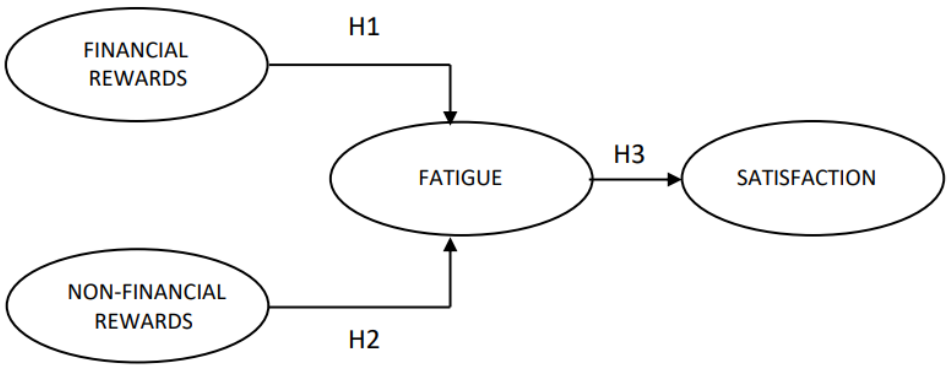

Figure 1 – Structural equation model

The structural equation model is based on the following assumptions and developed hypotheses.

In most countries around the world, truck drivers are paid on the basis of productivity. That is, based on how many kilometres they drive or on a certain percentage of the revenue generated [7, 14]. In the EU, Article 10 of Regulation (EC) No. 561/2006 [35] prohibits productivity-based pay, but in practice, it has been shown that transport companies adhere to these measures in very few business environments [36]. The findings of the National Routier Committee-CNR [37] also showed that a large part of truck drivers' wages is stimulated by variable financial rewards based on productivity. Such financial rewards encourage drivers to take greater risks in traffic and to be more overloaded with work. Studies have shown that employees who are paid on the basis of financial rewards based on their productivity report poorer health [8, 9], have higher rates of sick leave [10] and are more exposed to the risk of various work-related injuries [11]. All of these problems are a result of driver fatigue, as financial rewards in the transport sector motivate truck drivers to drive longer hours. The first hypothesis is therefore as follows.

H1: Financial rewards are correlated with truck driver fatigue

Financial rewards are the easiest and most straightforward way to reward employees, which is why organisations are constantly seeking new ways to differentiate themselves from the competition [31]. An increasing number of studies are therefore highlighting that non-financial rewards are an important part of human resource management, affecting both job attractiveness and employee growth opportunities [28, 29]. This trend is slowly making its way into the transport sector, as Prockl et al. [19] highlight the importance of non-financial rewards for truck driver satisfaction. The authors emphasise that work time allocation, as agreed, a pleasant work environment, the management team and style, and career development opportunities have a significant impact on truck driver satisfaction. Job satisfaction, however, has a causal effect on job performance [20, 21]. This means that organisations that keep their employees happy will have more productive employees [21, 22]. As truck drivers will be more satisfied with the working conditions that non-financial rewards are targeted at, they will be more committed, more loyal [19], and therefore willing to drive more kilometres for their employers. However, this will lead to them experiencing greater fatigue, as they will be subconsciously motivated to drive for longer hours. In this respect, non-financial rewards have exactly the same effect on truck drivers as financial rewards, so the second hypothesis is as follows.

H2: Non-financial rewards are correlated with truck driver fatigue

Fatigue is a common biological condition experienced by every human being [38]. Many researchers point out that driver fatigue is widespread among truck drivers [39-42]. Prolonged driving directly or indirectly causes three main conditions resulting from driver fatigue: circadian rhythm effects, sleep deprivation and cumulative fatigue effects, and industrial or "time-on-task" fatigue. In the long term, this impairs driver performance and can potentially contribute to accidents [2]. The risk factors for fatigue are related to the nature of the work of truck drivers, as they also work at night, in longer shifts (even up to 12 hours), and may not have enough time to rest between work periods [38]. However, the fact that truck drivers experience fatigue due to the nature of their work does not necessarily imply that they are dissatisfied with their occupation. Nonetheless, truck driving is associated with freedom and adventure, and the job is appreciated for the autonomy that it gives [43]. High job satisfaction is linked to subjective well-being [20, 21], so truck drivers accept fatigue as part of their job and the lifestyle they love and find fulfilling. Thus, our next hypothesis is as follows.

H3: Fatigue is correlated with truck driver satisfaction.

3. METHODS

764 truck drivers engaged in international freight transport were invited to participate in the study. 313 drivers agreed to participate, with 218 answering all questions. The response rate is therefore 28.5%. A questionnaire was created using the open-source application 1ka [44], which provides an online survey service. The questionnaire was sent via a link to the smartphones of truck drivers who had verbally agreed to participate in the study. Most of the drivers received requests to participate at truck stops on motorways across Slovenia, which is an important hub for international freight transport in the EU, particularly to Italy, Austria, Hungary and other countries in Central and Eastern Europe. The survey was international, so it allowed for responses in multiple languages. Before the questionnaire was officially submitted for completion, it was reviewed by three truck drivers and two executives of transport companies operating internationally. The questionnaire was divided into two parts. In the first part, truck drivers answered standard demographic questions, while in the second part, they answered questions about financial and non-financial rewards, fatigue and job satisfaction. The questionnaire was developed using items from current studies in the transport sector [12, 13, 45] for standard demographic data. The grouping into financial and non-financial rewards was based on the definitions used in the studies by Prockl et al. [19] and Skerlic & Erculj [46].

3.1 Participants

The characteristics of the sample are shown in *Table 1*. The final sample included n = 218 truck drivers. Seven women (4.6%) participated in the study, while the remaining participants were men. The median age (SD) of the participants was 41.4 (9.9) years. The average (SD) number of years of employment as truck drivers was 17.3 (9.4) years. On average (SD), the participants have been employed by their current employer for 8.1 (8.4) years.

Table 1 – Sample characteristics

	n = 218
Male (f (%); n = 215)	208 (95.4)
Mean (SD) age	41.4 (9.9)
Education (f (%); n = 216)	
Less than IV degree	13 (6)
IV degree	101 (46.8)
V degree	93 (43.1)
More than V degree	9 (4.2)
Mean (SD) no. of yrs as a truck driver	17.3 (9.4)
Mean (IQR) no. of years at current employer	8.1 (8.4)

3.2 Measures

Financial rewards (Cronbach's α = 0.74) were measured by three indicators: "Working on a free weekend outside home results in additional financial rewards," "Working on holidays results in additional financial rewards" and "Spending less fuel than normative results in additional financial rewards."

Non-financial rewards (Cronbach's α = 0.90) were measured by six items: "The communication with my superior is correct," "Drivers in the company help each other," "In the company they praise me when I deserve it," "When I started working, the company helped me with inclusion into working process," "In the company they are ready to help me if I need something," "The company superiors respect me" and "The coworkers respect me." Cronbach's α equals 0.90.

Fatigue (Cronbach's α = 0.73) was measured by two items: "When I start the workweek on Mondays, I feel rested" and "When I finish the workweek on Fridays, I feel rested."

Job satisfaction (Cronbach's α = 0.65) was measured by three items: "The profession of a truck driver was my first choice," "I am satisfied with my career choice," and reverse-coded "I often think about changing my job as a truck driver."

All measurement items were selected based on prior empirical studies in the transport and logistics sector to ensure content validity. The use of constructs measured with two or three indicators is common in applied transportation research, particularly when constructs are conceptually focused, and indicators show adequate reliability [47].

3.3 Statistical analysis

The numerical variables were described by means and standard deviations, while frequencies and percentages were used to describe the categorical variables. Structural equation modelling was applied to test the hypotheses.

The two-step approach as suggested by Anderson and Gerbing [48] was followed with first evaluating the measurement model via exploratory and confirmatory factor analysis, and second, building a structural equation model. The robust maximum likelihood method of parameter estimation, as proposed by Boomsma & Hoogland [49] for data not following a multivariate normal distribution, was used for the evaluation of the measurement and structural model.

The analytical approach followed current best practices in SEM applications in transportation research, where a two-step procedure separating measurement and structural model evaluation is recommended to ensure construct validity prior to hypothesis testing [48, 52]. Robust maximum likelihood estimation was employed to account for deviations from multivariate normality, which are common in survey-based transport studies. Measurement quality was evaluated using a combination of standardised factor loadings, composite reliability, AVE and Cronbach's alpha, consistent with recent SEM applications in mobility and transport behaviour research.

The sign of convergent validity was indicated by statistically significant and substantial factor loadings (> 0.50) of the items on their respective constructs [48, 51] as well as by a good overall model fit [52].

Composite reliability above 0.60 was considered an indicator of good reliability, and average variance extracted (AVE) above 0.50 was an indicator of good construct validity [53]. Reliability was also assessed by Cronbach's α. The values above 0.70 were considered to indicate adequate reliability as proposed by Nunnally [54], and the values above 0.60 were considered to indicate a still acceptable level of reliability [55].

After establishing good measurement validity, a structural equation model was built. The fit of the model was evaluated using the Sattora-Bentler scaled chi-square, which is suitable for evaluating models with non-normal data [49]. In addition, the comparative fit index (CFI), incremental fit index (IFI), non-normed fit index (NNFI), the root mean square error of approximation (RMSEA) and the standardised root mean square residual (SRMR) were used. Values of 0.95 or above or 0.90 or above for CFI, NNFI and IFI, and values of 0.08 and below for RMSEA and SRMR indicate a good fit of the model [56].

Partial mediation was tested by comparing the model with only an indirect path between independent and dependent variables with the model including direct and indirect paths. Sattora-Bentler (SB) scaled chi-square difference test was used to compare the two models [57]. LISREL 12.0 was used for model calibration and hypothesis testing. SPSS, v. 29, was used to calculate Cronbach's alpha and descriptive statistics.

4. RESULTS

Confirmatory factor analysis resulted in a good overall fit of the measurement model (SB $\chi 2 = 144.9$; df = 84; $p < 0.001$; SB $\chi 2$/ df = 1.7; RMSEA = 0.05; NFI = 0.92; NNFI = 0.95; CFI = 0.96; IFI = 0.96; SRMR = 0.05). Standardised loadings, AVE and composite reliability measures for multi-item factors are summarised in *Table 2*. Factor loadings are above 0.50 for all items, but one, "I am satisfied with my career choice", for which the loading is close to the cut-off value of 0.5. Although one job satisfaction item exhibited a standardised loading slightly below the commonly cited threshold ($\lambda = 0.47$), it was retained to preserve the conceptual breadth of the construct. Job satisfaction represents a broad attitudinal construct encompassing both affective and cognitive evaluations of one's career choice. Removing this indicator would reduce the construct to two items and narrow its content validity. Nevertheless, the relatively lower loading and AVE value are acknowledged as a limitation of the measurement. All loadings are statistically significant. The good overall fit of the model supports construct validity, which is further supported by AVE above 0.50 for the majority of constructs. Composite reliability for all constructs is above the 0.60 threshold, indicating sufficient measurement reliability.

Table 2 – Standardised loadings, t-values, AVE and composite reliability (CR) for multi-item constructs (results of confirmatory factor analysis)

	Std. loading
Financial rewards (CR = 0.75; AVE = 0.51)	
Working on a free weekend outside the home results in additional financial rewards.	0.71
Working on holidays results in additional financial rewards.	0.85
Spending less fuel than the norm results in additional financial rewards.	0.54
Non-financial rewards (CR = 0.90; AVE = 0.56)	
The communication with my superior is correct.	0.77
Drivers in the company help each other.	0.53
In the company, they praise me when I deserve it.	0.84
When I started working, the company helped me with inclusion into working process.	0.78
In the company, they are ready to help me if I need something.	0.82
The company superiors respect me.	0.87
My coworkers respect me.	0.56
Fatigue (CR = 0.74; AVE = 0.59)	
When I start the workweek on Mondays, I feel rested.	0.72
When I finish the workweek on Fridays, I feel rested.	0.81
Job satisfaction (CR = 0.68; AVE = 0.42)	
The profession of a truck driver was my first choice.	0.75
I am satisfied with my career choice.	0.47
I often think about changing my job as a truck driver. (reverse)	0.69

The descriptive statistics for constructs are summarised in *Table 3*. The mean values on the job satisfaction and non-financial rewards scale are above the midpoint of the scale, while the mean values on the financial rewards scale and fatigue are below the midpoint of the scale. High values of standard deviations indicate significant differences in the assessment of scales between the drivers. The drivers are less satisfied with financial rewards and more confident with non-financial rewards. Overall, they exhibit moderate job satisfaction and report lower job fatigue. There is a weak to moderate positive correlation between constructs.

Table 3 – Descriptive statistics and correlation matrix

	M	SD	Fatigue	Satisfaction	FinR	NFinR
Fatigue	2.99	1.23	-	0.53**	0.42**	0.58**
Satisfaction	3.39	1.14		-	0.21**	0.40**
Financial rewards (FinR)	2.56	1.32			-	0.44**
Non-financial rewards (NFinR)	3.68	1.00				-

Structural equation model exhibited good overall fit (SB χ^2 = 134.4; df = 86; p = 0.001; SB χ^2/ df = 1.6; RMSEA = 0.05; NFI = 0.91; NNFI = 0.96; CFI = 0.97; IFI = 0.97; SRMR = 0.05). The path diagram is presented in *Figure 2*.

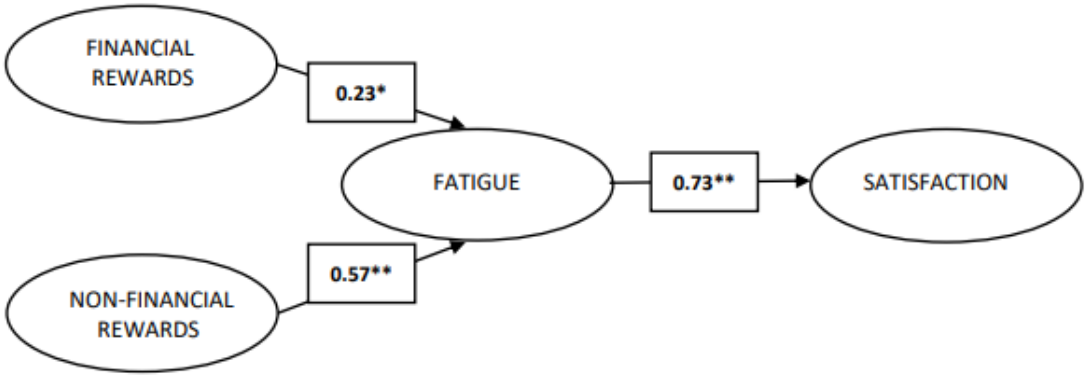

*Figure 2 – Structural equation model (standardised regression coefficients are shown; *p < 0.05; **p < 0.001; FinR = financial rewards, NFinR = non-financial rewards)*

All three hypotheses are supported by the model's overall good fit and statistically significant paths between constructs (*Table 4*). Adding the path between financial rewards and satisfaction or between non-financial rewards and satisfaction (partial mediation) did not improve the model fit (financial rewards: Δ SB χ^2 = 0.01; p = 0.920; non-financial rewards: Δ SB χ^2 = 2.46; p = 0.117). The coefficients between non-financial or financial rewards and satisfaction were not statistically significant when the indirect path through the mediator (fatigue) was presented in the model. The data therefore support a full mediation model. Including age as a control variable of fatigue resulted in a non-significant regression coefficient between the two, suggesting age of truck drivers is not statistically significantly related to their fatigue. The results suggest that both financial and non-financial rewards have a positive effect on driver fatigue. Higher rewards are therefore associated with increased fatigue among truck drivers, but their fatigue is positively correlated with their job satisfaction.

Table 4 – Structural model assessment

	t	P	Hypothesis	Result
FinR → Fatigue	2.38	0.02	H1	Supported
NFinR → Fatigue	5.67	< 0.001	H2	Supported
Fatigue → Satisfaction	8.39	< 0.001	H3	Supported

** FinR = financial rewards; NfinR = non-financial rewards*

5. DISCUSSION

The results of the study confirm that financial rewards have a significant impact on the transport sector. The first hypothesis, which revealed a positive correlation between increasing financial rewards and truck driver fatigue, was confirmed. We therefore cannot overlook the fact that the current state of financial remuneration simulates longer driving hours, which is also reflected in greater fatigue among truck drivers and is consistent with previous studies [58, 59]. These results do not support the claims of Belzer and Sedo [12],

who propose the target earnings hypothesis. However, what is essential to understanding the impact of financial rewards on fatigue in the transport industry is rooted in two facts. The first is that truck drivers find it difficult to balance their target earnings in such a labour-intensive sector as the transport industry, which is characterised by significant pressure from employers to maximise work efficiency. This ties in with expectations to maximise the number of completed trips and speed up deliveries [16, 17]. But even if truck drivers are paid well by their employers, how can they possibly resist their employers' expectations for higher productivity? Faulkiner and Belzer [13] cite a specific example of the impact of increased financial rewards on productivity. The example comes from one of the largest transport companies in the US, which increased truck drivers' wages by 38%. The idea was to make long-distance driving more appealing to new potential recruits and to cut hiring and training costs by halving staff turnover. The results showed that truck drivers became more productive, driving 1,000 more productive miles (1,600 km) per month and generating a higher return on investment (ROI) for the company. Higher-paid experienced drivers contributed approximately $10,474 more in net present value to the company than low-paid inexperienced truck drivers at the same company.

Another factor explaining why financial rewards are so important in the transport sector stems from the prevalent socio-economic status of truck drivers. The road transport sector employs millions of workers worldwide, most of whom are male truck drivers. These workers tend to have a lower level of education and socio-economic status [43]. This makes it difficult for them to find better job alternatives on the labour market, where financial rewards are such a concrete incentive for productivity. In other industries, they may have more regular working schedules or working conditions, but they will earn significantly less. To cite one example of this, we present a study conducted among Indian truck drivers. The results showed that higher financial rewards motivate them to work beyond their capacity and experience greater fatigue due to their responsibility to provide for their families [17]. All of the aforementioned facts, therefore, confirm the first hypothesis regarding the impact of financial rewards on truck driver fatigue.

The testing of the second hypothesis also involved analysing the relationship between rewards and fatigue, with a look at non-financial rewards. The importance of non-financial rewards in the transport sector is apparent in several authors' observations on the issue of financial rewards [23, 60]. They highlight a case where an individual transport company raises wages in order to temporarily attract and retain as many drivers as possible. However, once other transport companies match their financial rewards (which often happens for reasons related to competition), the company in question will no longer be able to attract or retain drivers. Increasing wages or additional financial benefits may therefore encourage truck drivers to switch employers solely for the purpose of finding better pay. Changing employers and constantly looking for better financial conditions certainly do not contribute to a better sense of well-being. Richard et al. [61] found three decades ago that wages in the transport sector are not the main reason for high turnover, but rather the behaviour of dispatchers and management towards truck drivers. Keller and Ozment [62] also identified fairness and respect for drivers as important aspects of ensuring a pleasant working environment that influences satisfaction. Ensuring good working conditions will increase their satisfaction and willingness to work harder. However, this will undoubtedly lead to increased fatigue, as they will be subconsciously motivated to drive for longer hours. The results of the second hypothesis are therefore consistent with the thesis of Judge et al. [20], which states that job satisfaction has a causal effect on work performance. This means that because of their satisfaction with the non-financial characteristics of their job, they will be willing to work more, but will be more fatigued as a result. All of the above facts confirm the validity of the second hypothesis, which shows a positive correlation between non-financial rewards and fatigue among truck drivers. In this respect, non-financial rewards have an even greater effect on truck drivers than financial rewards, as they lead to greater satisfaction in addition to productivity. As stated by several authors, it is positive relationships with employers that contribute to greater driver satisfaction [19, 23, 61-64]. Satisfied drivers are more loyal and therefore willing to do more work for their employers.

The third hypothesis used a structural equation model to test the relationship between fatigue and truck driver satisfaction. Fatigue is a common biological condition experienced by everyone [38], and it is even more prevalent among truck drivers [39-41]. Drivers do have a choice, as they can opt for short-distance trips with a more balanced schedule, but this means lower earnings [12]. However, as long-distance driving is typically rewarded on the basis of productivity, truck drivers are willing to work at night and longer shifts (up to 12 hours). Initially, this may affect their well-being, but based on Helson's Adaptation-Level theory [65, 66], they eventually accept fatigue as a "normal state", as part of their work and way of life, which brings them higher earnings. This is even more relevant for individuals who, due to their socioeconomic status, would not be able to earn such an income in other industries [17] and who value the positive aspects of the truck driving

profession associated with freedom and adventure [43]. The results of the third hypothesis are therefore consistent with the thesis that high job satisfaction is related to subjective well-being [20, 21], as they showed a positive correlation between truck drivers' fatigue and satisfaction. Truck drivers are fatigued, but nevertheless satisfied with their occupation. The third hypothesis is therefore accepted as valid.

With the development of the structural equation model, it was possible to answer all open questions and conclude that the current financial and non-financial rewards in the transport sector have a positive effect on truck driver satisfaction. This is also one of the main tools for attracting and retaining quality employees and motivating them to achieve better results. However, what we had predicted when formulating our hypotheses proved to be problematic. The current reward system in the transport sector encourages long driving hours and, consequently, fatigue.

5.1 Theoretical and practical implications

The study, conducted on a sample of 218 truck drivers engaged in international freight transport in the EU, represents an important contribution to human resource management in the transport sector. It contributes to understanding the impact of financial and non-financial rewards in this specific working environment. Specifically, it represents a contribution and potential for improvement in the following areas:

— Financial rewards: the results build on previous studies stating that drivers who are better financially rewarded are also more tired, but still satisfied with their career choice and are not considering employment in another industry. The only concern is that the current higher financial rewards in the transport sector in the EU are contributing to greater fatigue among truck drivers. Despite the fact that several authors have found in recent studies [14, 67] that higher financial rewards lead to better safety behaviour among truck drivers, this remains an unresolved systemic problem in the industry. Namely, financial rewards stimulate greater fatigue, which is the result of decades of the industry's systemic focus on promoting productivity. This was also demonstrated by the results of our research. The International Labour Organisation (ILO) [68] has also focused on solutions to improve the situation in the industry and has included driver pay in its guidelines. The purpose of these guidelines is to promote safe and, above all, healthy work practices in the transport sector.

— Non-financial rewards: the results add to the literature on human resource management in the transport sector. They demonstrate the importance of non-financial rewards in a sector that is primarily focused on financial rewards. In the past, a focus on non-financial rewards was mainly limited to organisations that sought individuals with greater intellectual capital. These organisations sought to improve employee motivation, strengthen a positive culture, and encourage loyalty and commitment to the organisation. However, even the possibility of promotion as an important aspect of ensuring the non-financial characteristics of a job is limited in the transport sector. Kosteas [69] states that the possibility of promotion in the near future has a positive effect on job satisfaction. However, there are virtually no opportunities for advancement for truck drivers [19], which makes the results emphasising the importance of non-financial rewards in this specific work environment all the more significant. Ensuring good working conditions, which primarily include positive interpersonal relationships, should lead to greater satisfaction among truck drivers and, in turn, a readiness to work harder. The results are therefore consistent with the study by Schaufeli & Bakker [70]. They pointed out that individuals who receive high non-financial rewards usually experience a higher level of engagement at work and are therefore more willing to put in extra effort and be more committed and actively involved in their work. Another contribution of the study is the conclusion that this is true for the transport sector as well.

— Strengthening human resource management and reward systems in transport companies: the findings are very important for human resource management and strengthening human resource management in transport companies. Especially in the development of new reward strategies that would take into account a combination of financial and non-financial rewards. Reward systems structured in this way are one of the main tools for attracting and retaining quality employees and motivating them to achieve better results. In turn, this would help transport companies gain a competitive advantage over other companies in the industry, thereby reducing costs and improving service quality.

— Reducing costs and improving the quality of services in transport companies: the results showed that both financial and non-financial rewards have a significant impact on truck driver satisfaction. This is also essential for reducing staff turnover, which is a major problem in transport companies [4]. By reducing staff turnover, a company can save significantly on driver replacement costs. These are particularly high in the transport sector. Research shows that replacing a driver costs a company between USD 2,200 and

USD 21,000, depending on the individual company or the specific context. The average turnover cost per driver is USD 8,234 [23, 71, 72]. The financial cost of changing employers is also significant for the drivers themselves. Trick et al. [4] calculated that drivers who remain in their jobs earn an average of USD 54.25 more per week than drivers who decide to leave their employer, which amounts to USD 2,836.20 per year. This is 6.02% above the average salary of drivers who leave their jobs. In addition to the high costs of high driver turnover, Rodriguez et al. [71] also highlight other drawbacks for the company, such as the loss of driving skills and experience and poorer quality of service for customers. Therefore, rewards in companies must be part of a comprehensive system that takes into account two fundamental aspects of rewards: financial and non-financial. This will benefit all participants in the transport sector, both employers and truck drivers.

— Improvements in labour legislation: working conditions in the transport sector need to be improved at the EU level. It is necessary to legislate a reduction in the workload of truck drivers, as the results have shown that the current reward system in the transport sector encourages greater productivity. While the results have shown that effective financial and non-financial rewards have an impact on truck driver satisfaction, they also affect fatigue. In the long term, this can have an impact on the health of employees in this specific working environment, which already represents a societal problem.

5.2 Limitations and recommendations for future studies

This study has several limitations that should be acknowledged. First, the sample size was relatively modest. Although the sample was adequate for the specified structural equation model of moderate complexity, and robust estimation methods were applied, a larger sample would have allowed for greater statistical power and more precise parameter estimates. Future studies should aim to replicate the proposed model using larger samples of professional drivers.

An additional limitation of this study concerns the measurement of certain latent constructs. Job satisfaction was measured with three indicators, one of which exhibited a marginally lower standardised loading, resulting in an AVE value below the recommended threshold. Furthermore, fatigue was measured using only two indicators, which were defined at the questionnaire design stage. Although these constructs demonstrated acceptable reliability and satisfactory model fit, the limited number of indicators represents a design-related limitation. Future studies should aim to refine and expand the job satisfaction and fatigue scales to enhance measurement precision and construct validity.

There have been very few recent studies in the EU examining financial and non-financial rewards in the transport sector and their impact on truck driver satisfaction. The most recent study on this topic was conducted in Germany in 2017 [19]. Other studies are even older, making it difficult to compare results. Although the present study was conducted in the EU, it is limited to Central Europe; future research should be extended to other parts of the EU. This would allow for comparisons between different populations of drivers in different geographical and social contexts. Although the study uses a quantitative approach and provides solid and reliable results, these should also be verified using qualitative criteria. For a more in-depth qualitative look at the issue of financial and non-financial rewards, semi-structured interviews with truck drivers and human resources managers in transport companies should be conducted in the future. This would provide a meaningful and consistent follow-up to the results of the study.

As artificial intelligence and truck driving assistance systems keep evolving, we can expect to see some drastic changes to the work tasks of truck drivers. The job of a truck driver will become more and more about system supervision and less about operation. This will result in less fatigue for truck drivers and increased traffic safety, which will, in turn, increase the attractiveness of the profession. This will also require changes in labour legislation and reward systems in transport companies.

6. CONCLUSIONS

Providing effective financial and non-financial rewards in companies is one of the main tools for attracting and retaining staff and increasing employee motivation. This has also been demonstrated by the results of the study conducted for the transport sector. Testing the hypotheses using the structural equation model showed that higher rewards are associated with greater fatigue among truck drivers, but there is a positive correlation between their fatigue and their job satisfaction. The truck drivers are not considering employment in a different industry and are satisfied with their choice of profession. The results obtained have a significant impact on improvements in the area of financial and non-financial rewards, strengthening human resource management

and reward systems in transport companies, reducing driver turnover costs and improving the quality of services in transport companies. They are also valuable for policy-makers in establishing new legislative frameworks in the transport sector, both in terms of safety and employment of truck drivers.

The study has several limitations that should be considered. The first limitation is its relatively small sample size. Future studies should focus on replicating the proposed model using larger samples of professional drivers. An additional limitation of this study relates to the measurement of certain latent constructs. Future studies should focus on improving and expanding the job satisfaction and fatigue scales to improve the accuracy of the measurements and the validity of the constructs.

There has been little research conducted in the field of rewards in the EU, making it difficult to compare results. In the future, research should be expanded to other parts of the EU, as this would allow for comparisons between different populations of drivers in different geographical and social contexts. A quantitative analysis was performed. It would be worthwhile to supplement the research with a more in-depth qualitative look at the issue of financial and non-financial rewards through semi-structured interviews with various participants in the transport sector.

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