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Model-based Approach Design in Terms of Travel Allowances and Driver Remuneration in International Road Freight Transport

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Abstract: International road freight transport depends strongly on the availability and retention of professional drivers, whose total remuneration is affected not only by wages but also by travel allowances. In Slovakia, meal allowances for foreign business trips are set by fixed rates, while accommodation reimbursement is linked mainly to documented costs. This fact creates uncertainty when international road freight drivers spend their rest periods abroad without providing proof of accommodation. This paper designs and evaluates a flat-rate accommodation allowance model for Slovak international road freight transport. The research applies an analytical, model-based approach to compare Slovak with Polish, German, French, Spanish, and Italian scenarios, using a one-week model route from Prague to Athens and back. The results show that accommodation-related compensation differs considerably between the compared systems. The designed model offers a transparent, administratively simple, and sustainability-oriented mechanism for compensating accommodation-related costs without replacing documented reimbursement for accommodation. The proposed model is also interpreted within the broader framework of sustainable development, linking economic efficiency, social stability of driver remuneration, and indirect environmental relevance in international road freight transport.

Keywords: road freight transport, international business trip, model-based approach, driver remuneration, sustainable development

1. Introduction and Literature Review

Road freight transport is a key component of the European transport system, ensuring the continuous movement of goods within national economies and across international supply chains (Faruk Görçün et al., 2024). Its importance is particularly visible in the functioning of the European internal market, where the timely and flexible delivery of goods depends heavily on road haulage. According to Eurostat, total road freight transport in the European Union amounted to more than 13.1 billion tonnes and 1.867 billion tonne-kilometers in 2024, which confirms the continuing relevance of this transport mode for the European economy. Road transport also remains a dominant mode of inland freight transport, accounting for more than three-quarters of inland freight performance in the EU in 2020 (Eurostat, 2025).

The high share of road freight transport is closely related to the operational flexibility of this mode. Unlike rail or inland waterway transport, road freight transport can provide direct door-to-door services and respond relatively quickly to changes in demand, route conditions, and delivery schedules (European Court of Auditors, 2023; Khakdaman et al., 2022). However, this flexibility largely depends on the availability of professional drivers and the economic sustainability of transport companies. To this end, labor costs, remuneration systems, and working conditions represent important factors influencing the stability and competitiveness of the road haulage sector (EURES & European Labour Authority, 2024).

Environmental protection represents an increasingly important challenge for international road freight transport. Transport remains one of the main sources of greenhouse gas emissions in the European Union, while freight transport activity continues to grow and road transport remains a dominant mode of freight movement (EEA, 2025; EEA, 2026). In this context, sustainable development in international road freight transport cannot be understood solely through technological measures, such as fleet renewal, alternative fuels, or low-emission (so-called eco-friendly) vehicles. It also includes organizational, economic, and social measures that support efficient transport planning (Staniuk et al., 2024), stable working conditions, and responsible vehicle operation. From this perspective, remuneration and travel allowance systems are relevant mainly to the economic and social dimensions of sustainability, but they may also have indirect environmental relevance when they support predictable rest planning and remain compatible with efficient routing and environmentally responsible transport operations (UNCTAD, 2026).

In recent years, the road transport sector has faced increasing pressure related to the availability of qualified professional drivers. The shortage of truck drivers is no longer only a national issue, but a structural problem affecting several European countries. The European Labor Authority reported that, in 2023, approximately 7% of truck driver positions in Europe remained vacant, corresponding to around 233 000 unfilled jobs in the road freight sector (IRU, 2026b). This shortage is affected by several factors, including the demanding nature of the profession, long periods away from home, irregular working patterns, the overall attractiveness of remuneration relative to the working conditions required of drivers (IRU, 2026a), as well as increasing regulatory and societal pressure to reduce the negative environmental impacts of road freight transport (Chamier-Gliszczynski et al., 2024; Ji-Hyland & Allen, 2022).

Remuneration in international road freight transport cannot be assessed only through the basic wage. In practice, a driver's total income often comprises several elements, including wages, bonuses, overtime pay, and travel allowances. Driver compensation is also relevant beyond income formation, as prior research has linked compensation practices to broader operational and safety outcomes in road freight transport (Ryley & Belzer, 2023). Travel allowances are particularly important because they are linked to the increased expenses incurred during business trips (Škerlič & Erčulj, 2021; Soro et al., 2025; Sternad, 2019). In the case of international transport, these allowances may constitute a significant portion of the driver's net income (Škerlič & Erčulj, 2021; Soro et al., 2025; Sternad, 2019). Therefore, the design of travel allowance systems is relevant not only from an accounting or tax perspective, but also from the perspective of employee motivation, retention, and fairness (Škerlič & Erčulj, 2021; Soro et al., 2025; Sternad, 2019).

Travel allowances compensate for additional expenses incurred during a business trip. In international road freight transport, the most relevant components are meal allowances and accommodation-related reimbursements. Their importance is not limited to cost compensation; they may also influence the driver's net income and the overall attractiveness of employment in the transport sector (Soro et al., 2025).

The contribution of the paper lies in connecting legal comparison with a practical model calculation. Rather than providing a broad theoretical overview of travel allowances, the paper focuses on a specific unresolved issue in Slovak practice: compensation for accommodation without proof of accommodation. This approach allows the proposed model to be evaluated not only as a legislative idea, but also as a practical remuneration-related mechanism with measurable effects on the driver's income and with relevance to the broader framework of sustainable development.

The research gap addressed in this paper is therefore narrow and practical. The paper does not aim to analyze all aspects of driver remuneration or the full legal framework of travel allowances in Europe. Instead, it focuses on one specific issue: whether a flat-rate accommodation allowance could provide a more transparent solution for Slovak international road freight drivers when no accommodation document is submitted.

2. Data and Methods

This chapter describes the methodological framework for evaluating the proposed flat-rate accommodation allowance model. The research combines a comparative analysis of selected European travel allowance systems with a model-based calculation applied to an international road freight route. This structure enables assessment of both the legal differences between national systems and the economic impact of the proposed model on the driver's total net income.

In the Slovak context, meal allowances are regulated through fixed rates depending on the duration and destination of the business trip (Ministry of Labour, Social Affairs and Family of the Slovak Republic, 2025). Accommodation reimbursement, however, is less suitable when the driver does not submit proof of accommodation. This is particularly relevant in road freight transport, where rest periods may be spent in or near the vehicle rather than in conventional accommodation facilities (Lise et al., 2024). The issue addressed in this paper is therefore not the absence of accommodation reimbursement as such, but the absence of a clear flat-rate mechanism for cases without documented accommodation (Ministry of Labour, Social Affairs and Family of the SR, 2026).

The environmental dimension of the study is assessed conceptually within the framework of sustainable development, rather than through a separate emission calculation. This means that the proposed allowance model is evaluated primarily in terms of its economic and social effects, while its environmental relevance is interpreted indirectly through its compatibility with predictable rest planning, efficient routing, and sustainability-oriented transport operations.

2.1. Research Design

This study employs a comparative, model-based research design. In line with the principles of comparative case study research, the selected countries are analyzed using a common analytical framework to identify differences across national systems while maintaining transparency in case selection and comparison (Krehl & Weck, 2020). The methodological approach consists of two main stages. The first stage is based on a comparative analysis of travel allowance systems, taxation, and the treatment of social contributions in selected European countries. The second stage applies the findings from this comparison to a model international road freight operation to evaluate the economic impact of different allowance systems on a professional driver's total net income.

2.2. Data Sources and Analytical Parameters

The study uses secondary data obtained from legal regulations and official administrative sources. The analyzed parameters include:

- meal allowance rates,
- accommodation allowance rules,
- income tax rates,
- employee social contributions, and
- employer social contributions.

In the Slovak context, particular attention is paid to the distinction between meal allowances, which are regulated through fixed rates, and accommodation reimbursement, which is more problematic in cases without proof of accommodation.

2.3. Model Route and Calculation Procedure

The empirical part of the study is based on a model international transport route from Prague to Athens and back. The route represents a one-week international road freight operation and was selected because it includes several countries and allows the application of foreign travel allowance rules. The route was created using Map&Guide (see Fig. 1) and was used to calculate travel allowances and net wages.

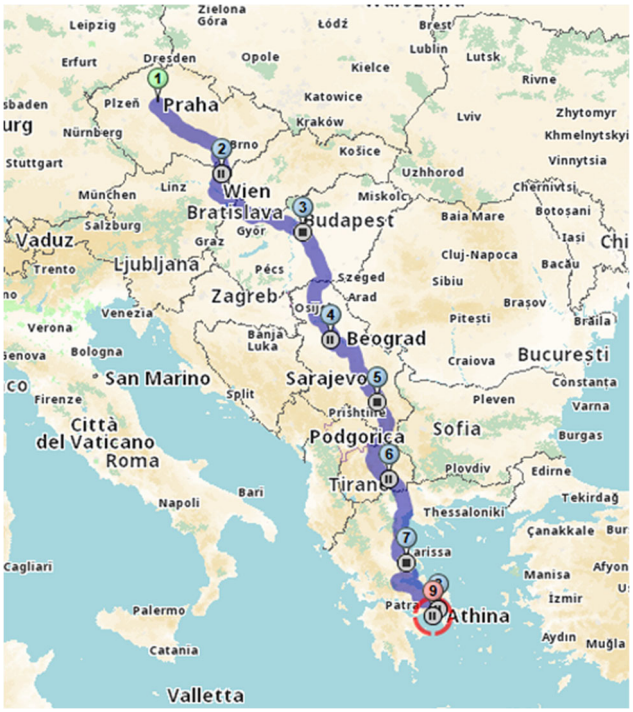

Fig. 1. Simulation of the route Prague-Athens. Source: authors, based on Map&Guide

The route was used as a standardized operational scenario for all analyzed systems. This means that the same route, duration, and sequence of countries were applied when calculating the driver's entitlement to travel allowances under different national frameworks. Using a single model route makes the comparison more transparent because the results are not affected by varying transport distances or numbers of rest periods.

The model route includes both the outward journey from Prague to Athens and the return journey from Athens to Prague. The practical output from Map&Guide included route distance, country sequence, arrival and departure times, rest periods, and border crossings. These data were necessary to determine the duration of the driver's stay in individual countries and to calculate the relevant meal- and accommodation-related allowances.

2.4. Calculation Procedure

The calculation procedure consisted of several steps. The travel allowances for the model route were calculated in accordance with the rules of each selected country. The calculation included meal allowances and accommodation-related allowances where applicable. The time spent in each country and the location of rest periods were used to determine the relevant daily allowance amounts. The calculation was based on the following general relationships (Eq. 1–5):

$$TT = MA + AA \tag{1}$$

where:
TTA – total travel allowances [€],
MA – represents meal allowances [€],
AA – accommodation-related allowances [€].

$$SGW = GW + EC \tag{2}$$

where:
SGW – super-gross wage [€],
GW – gross wage [€],
EC – employer contributions [€].

$$\mathrm{NW} = \mathrm{GW} - \mathrm{ECC} - \mathrm{PIT} \tag{3}$$

where:
NW – net wage [€],
EEC – employee contributions [€],
PIT – personal income tax [€].

$$\mathrm{TNI} = \mathrm{NW} + \mathrm{TA} \tag{4}$$

where:
TNI – total net income [€],
NW – net wage [€],
TA – total travel allowances [€].

$$\Delta\mathrm{TNI} = \frac{TNI_{proposed} - TNI_{current}}{TNI_{current}} \times 100 \tag{5}$$

where:
ΔTNI – the percentage change in total net income after applying the proposed model [%].

Based on these relationships, the calculation first determined travel allowances, then net wage, and finally the driver's total net income. The current Slovak system was subsequently compared with the proposed flat-rate accommodation allowance model. The impact of the proposed model was evaluated by assessing changes in total net income, including both net wages and travel allowances, as this indicator reflects the amount effectively received by the driver during the modeled working week.

3. Results

The results are based on model route calculations and compare remuneration outcomes under the travel allowance, tax, and social contribution systems of selected European countries. Although the same model transport operation and total weekly labor cost were applied across all cases, the calculated values of travel allowances, net wage, and total net income differed substantially between countries. The structure of travel allowances, along with the treatment of accommodation-related compensation and the level of employee deductions, mainly caused these differences.

The results are presented in four steps as follows:

- First, the model route calculation is evaluated under the selected national systems.
- Second, the accommodation allowance component is analyzed separately, as it represents the key basis for the proposed Slovak flat-rate model.
- Third, the proposed flat-rate accommodation allowance percentage is derived.
- Finally, the proposed model is applied to the Slovak system, and its impact on the driver's total net income is evaluated.

3.1. Model Route Quantification

The model route quantification confirmed that the same international transport operation can lead to considerably different remuneration outcomes depending on the national system applied. The comparison included Slovakia, Poland, Germany, France, Spain, and Italy. For each country, the calculation included travel allowances, gross wage, employee contributions, income tax, net wage, and total net income. The gross wage values were derived from the fixed weekly super-gross wage using Equation (2). Employee contributions and income tax were then deducted from the gross wage to determine the net wage, according to Equation (3). The updated calculation results are summarized in Table 1.

Table 1. Model route quantification results under selected national systems (related to beginning of 2026). Source: authors

Country	Travel allowances [€]	Gross wage [€]	Employee contributions [€]	Income tax [€]	Net wage [€]	Total net income [€]
Slovakia	373.75	734.21	105.73	105.65	522.83	896.58
Poland	519.42	835.14	179.36	83.21	572.57	1 091.99
Germany	339.00	808.47	176.64	100.50	531.33	870.33
France	354.77	733.73	146.59	33.81	553.33	908.10
Spain	403.03	728.07	47.32	136.92	543.83	946.86
Italy	542.22	755.66	69.45	171.93	514.28	1 056.50

The values presented in Table 1 were calculated using the formula framework defined in Section 2.4. Total travel allowances were calculated according to Equation (1), net wage according to Equation (3), and total net income according to Equation (4).

The highest travel allowances were calculated under the Italian system, reaching 542.22 €, followed by Poland with 519.42 €. These two countries, therefore, provided the highest travel allowance compensation in the model case. By contrast, the lowest travel allowances were calculated under the German system, amounting to 339.00 €, while France reached 354.77 €. Slovakia reached 373.75 €, higher than Germany and France but still lower than Spain, Poland, and Italy. In the Slovak case, the amount consisted solely of meal allowances because a separate flat-rate accommodation allowance without proof of accommodation was not applied under the current model. The Slovak result reflects the absence of a legally regulated accommodation allowance without proof of accommodation. In contrast, Italy and Poland achieved the highest allowance values due to their more favorable allowance mechanisms.

3.2. Accommodation Allowances in the Countries

Since the main objective of the paper is to evaluate the possibility of introducing a flat-rate accommodation allowance in Slovakia, the accommodation-related component was analyzed separately from total travel allowances. This step was necessary because the selected national systems differ not only in the amount of travel allowances but also in how accommodation costs are recognized when no accommodation document is submitted.

The calculated accommodation allowance values for the model route are presented in Table 2.

Table 2. Accommodation allowance component under individual national systems. Source: authors

Country	Accommodation allowance [€]
Poland	202.75
Germany	54.00
France	0.00
Spain	150.00
Italy	361.48

The results show that the analyzed countries use very different approaches to accommodation-related compensation. Some systems provide an explicit flat-rate mechanism without proof of accommodation, while others rely on documented reimbursement or use a combined travel allowance structure. This heterogeneity confirms that Slovakia cannot simply copy one national model. Instead, the proposed Slovak solution should be based on a simplified, transparent mechanism that can be applied consistently to foreign business trips.

To this end, the accommodation values in Table 2 were used to derive a unified percentage rate for the Slovak flat-rate accommodation allowance. The derivation of this percentage rate is presented in the following section.

3.3. Derivation of the Proposed Flat-rate Accommodation Allowance

The proposed flat-rate accommodation allowance was derived from the accommodation allowance values calculated for the selected countries. The aim was to create a simple, percentage-based mechanism applicable under Slovak conditions for international road freight drivers who spend a rest period abroad without submitting proof of accommodation. The proposed mechanism was therefore not based solely on one foreign system, but on the average accommodation-related compensation identified in the comparative model.

The first step was to calculate the total accommodation allowance values from the selected countries. The model included Poland, Germany, France, Spain, and Italy. Slovakia was not included in this calculation because the objective was to derive a new mechanism for the Slovak system. The total accommodation-related compensation from the selected systems amounted to 768.23 €.

$$202.75 + 54.00 + 0.00 + 150.00 + 361.48 = 768.23\ €$$

This value was then divided by the number of selected foreign systems:

$$\frac{768.23}{5} = 153.65\ €$$

The resulting value of 153.65 € represents the average accommodation-related compensation for the whole model transport operation. Since the model route included six rest periods for which an accommodation allowance could be considered, the average compensation was subsequently converted into an average value per night:

$$\frac{153.65}{6} = 25.61\ €$$

The calculated average accommodation allowance was therefore 25.61 € per night. This value was used to determine the percentage relationship between accommodation compensation and the meal allowance. In the next step, the amount of 25.61 € was compared with the full foreign meal allowance rates applicable under the Slovak system for the selected countries (see Table 3). The updated thesis applies the same procedure and reports an average accommodation value of 25.61 € per night before calculating its percentage relationship to the 100% meal allowance rates (see Table 3).

Table 3. Derivation of the flat-rate accommodation allowance percentage. Source: authors

Country	Full meal allowance rate [€]	Accommodation allowance ratio [%]
Poland	52	49.25
Germany	63	40.65
France	63	40.65
Spain	60	42.68
Italy	63	40.65
Average	–	42.78

The calculated ratios show that the average accommodation allowance of 25.61 € per night corresponds to 49.25% of the Polish full meal allowance, 40.65% of the German, French, and Italian full meal allowance, and 42.68% of the Spanish full meal allowance. The arithmetic average of these ratios was calculated as follows:

$$\frac{49.25 + 40.65 + 40.65 + 42.68 + 40.65}{5} = 42.78\ \%$$

The resulting average value was 42.78%. For practical application, this value was rounded upward to 45%. The upward rounding was selected because a five-percentage-point interval is easier to apply in payroll calculations and possible legislative wording than a highly specific value such as 42.78%. This means that the proposed Slovak model is based on the following principle (Eq. 6):

$$AA = 0.45\ \times MA \tag{6}$$

where:
AA – the flat-rate accommodation allowance [€],
MA – the full foreign meal allowance applicable in the country where the driver takes the required rest period [€].

The proposed mechanism, therefore, links the accommodation allowance directly to the existing Slovak system of foreign meal allowance rates. This is important because the meal allowance rates are already defined by country and can be updated through the existing legal framework. As a result, the proposed accommodation allowance would automatically reflect changes in foreign meal allowance rates without requiring a separate, complex accommodation allowance table.

3.4. Impact of the Designed Model on the Slovak System

After deriving the proposed flat-rate accommodation allowance, the model was applied to the Slovak system. The current Slovak calculation included only meal allowances, as the existing system does not provide a separate flat-rate accommodation allowance without proof of accommodation. Under the current model, Slovak travel allowances reached 373.75 €, and the driver's total net income amounted to 896.58 €.

The proposed model adds a flat-rate accommodation allowance equal to 45% of the country's full foreign meal allowance for the driver's required rest period. The accommodation allowance for each rest period was calculated according to Equation (6). The accommodation allowance was calculated for six rest periods on the model route. The calculation is summarized in Table 4.

Table 4. Accommodation allowance calculated by the developed Slovak model. Source: authors

Date	Country of rest period	Full meal allowance rate [€]	Proposed accommodation allowance, 45% [€]
20.03.2026	Hungary	55.00	24.75
21.03.2026	Serbia	60.00	27.00
22.03.2026	Greece	59.00	26.55
23.03.2026	North Macedonia	37.00	16.65
24.03.2026	Serbia	60.00	27.00
25.03.2026	Austria	63.00	28.35
Total			150.30

The proposed flat-rate accommodation allowance would increase Slovak travel allowances by 150.30 € on the model route. As the proposed allowance is treated as a travel allowance rather than a wage component, the net wage remains unchanged at 522.83 €. The increase is therefore reflected directly in the driver's total net income.

Under the current Slovak system, travel allowances amounted to 373.75 €. After applying the proposed accommodation allowance, travel allowances would increase to:

$$373.75 + 150.30 = 524.05\ €$$

Thus, the new total travel allowances would amount to 524.05 €. When combined with the unchanged net wage, the driver's total net income would increase as follows:

$$522.83 + 524.05 = 1\,046.88\ €$$

The proposed Slovak model would therefore increase the driver's total net income from 896.58 € to 1 046.88 €. The difference between the current and proposed models is 150.30 €, which exactly matches the newly introduced accommodation allowance. The percentage change in total net income was calculated according to Equation (5). The percentage increase in total net income was calculated as follows:

$$\frac{1\,046.88 - 896.58}{896.58} \times 100 = 16.76\%$$

The findings are summarized in Table 5.

Table 5. Impact of the suggested accommodation allowance based on the Slovak model. Source: authors

Indicator	Current Slovak system [€]	Proposed Slovak model [€]	Difference [€]
Net wage	522.83	522.83	0.00
Meal allowances	373.75	373.75	0.00
Flat-rate accommodation allowance	0.00	150.30	150.30
Total travel allowances	373.75	524.05	150.30
Total net income	896.58	1 046.88	150.30

The results show that the proposed model would have a substantial effect on the Slovak driver's total net income in the modeled transport operation. Although the net wage remains unchanged, the introduction of a flat-rate accommodation allowance increases total net income by 16.76%. This confirms that travel allowances, especially accommodation-related compensation, can significantly influence the final income of international road freight drivers.

The proposed model also changes Slovakia's position in the international comparison. Under the current system, Slovakia reached a total net income of 896.58 €, which was lower than that of Poland, France, Spain, and Italy. After applying the proposed model, the Slovak total net income would increase to 1 046.88 €. This would bring Slovakia closer to the highest values observed in the comparison, particularly Italy with 1 056.50 € and Poland with 1 091.99 €.

However, the proposed model would not make Slovakia the highest-income country in the comparison. This is important from a policy perspective. The aim of the proposal is not to create an excessive compensation mechanism, but to reduce the gap resulting from the absence of an accommodation allowance for those without proof of accommodation. The proposed rate of 45%, therefore, appears to be a balanced solution: it substantially increases the driver's net income while remaining linked to the comparative average and the existing Slovak system of foreign meal allowance rates.

These results provide the economic basis for the subsequent discussion of the proposed model within the broader framework of sustainable development, particularly in relation to the economic and social dimensions of driver remuneration and its indirect environmental relevance.

4. Discussion

The results of the model calculation confirm that travel allowances represent a substantial component of total driver remuneration in international road freight transport. The comparison of selected national systems showed that a driver's final income position cannot be assessed solely based on net wages. Although the net wage is an important indicator, the inclusion of travel allowances alters the income rankings between countries. This was especially evident in cases where countries with lower net wages achieved higher total net income due to more favorable travel allowance mechanisms. The updated model findings, therefore, show that travel allowances, and particularly accommodation-related compensation, may substantially affect the practical attractiveness and sustainability-related interpretation of driver remuneration systems.

Overall, the results acknowledge that introducing a flat-rate accommodation allowance could improve the transparency and predictability of the Slovak travel allowance system. It would provide a clear rule for situations in which the driver spends a rest period abroad without submitting an accommodation document. At the same time, the model would strengthen the competitiveness of Slovak road freight employment conditions without changing the wage component itself.

The derivation of the 45% rate is one of the most important findings of the research conducted. The rate was not selected arbitrarily. It was derived from the accommodation-related compensation calculated under the selected foreign systems. The average accommodation allowance per night was calculated at 25.61 € and

compared with the full Slovak foreign meal allowance rates for the countries analyzed. The resulting average ratio was 42.78%, rounded up to 45% for practical application. This upward rounding is justified by the need for a simple, administratively applicable percentage, especially if the mechanism were to be considered in payroll practice or in future legislative discussions.

The application of the proposed model under Slovak conditions showed that a targeted accommodation allowance can yield a meaningful increase in total net income without altering the wage component. In the model case, the increase reached 16.76%, which confirms that accommodation-related compensation can have a substantial effect even when the basic payroll structure remains unchanged. Importantly, the proposal does not directly increase the wage base but strengthens the compensatory component of the driver's income. From a broader perspective, driver pay may also affect carrier performance, as higher relative driver earnings have been associated with better motor carrier safety outcomes (Ryley & Belzer, 2024). Recent research also shows that incentive structures may influence truck drivers' behavior and safety performance, supporting the need to consider remuneration mechanisms in a broader operational context (Kalmus et al., 2025; Meyer et al., 2025).

The ecological relevance of the proposed allowance model should be interpreted as an indirect and enabling effect rather than as a direct emission-reduction measure. The model does not change vehicle technology, fuel type, route distance, load factor, or driving regime. Therefore, it cannot be claimed that the proposed allowance directly reduces greenhouse gas emissions. However, remuneration and travel allowance systems form part of the organizational conditions under which international road freight transport is performed. From this perspective, the proposed model can be linked to the broader concept of sustainable development, which combines economic efficiency, social well-being, and environmental responsibility (UNCTAD, 2026).

The proposed flat-rate accommodation allowance contributes primarily to the economic and social dimensions of sustainability. Economically, it creates a transparent and administratively simple compensation mechanism. Socially, it improves the predictability of income for drivers who spend rest periods abroad without submitting accommodation documents. Its environmental relevance is indirect. By reducing uncertainty related to accommodation reimbursement, the model can support planned rest periods without creating additional administrative pressure connected with documented accommodation. This may help keep rest planning compatible with efficient routing, fuel consumption management, eco-driving measures, and other environmental management practices in road freight transport (EEA, 2025; EEA, 2026; Jazairy et al., 2023). The proposed model should therefore be understood as a complementary, sustainability-oriented payroll mechanism, rather than a standalone environmental policy instrument.

At the same time, the proposed model does not replace technological or operational decarbonization measures in road freight transport. Its role is narrower: it supports the organizational and social conditions for planning and performing sustainable transport operations. Future research should therefore quantify whether similar compensation mechanisms affect route deviations, rest location choices, idling time, fuel consumption, and other operational indicators relevant to environmental performance.

This result has practical implications for both employees and employers. For drivers, the proposed model would increase the predictability of remuneration during international business trips. Driver turnover has been linked to compensation levels, suggesting that remuneration remains an important factor in driver retention (Trick et al., 2021). It would also provide compensation for a situation specific to road freight transport that is not fully reflected in the current Slovak reimbursement framework. For employers, a flat-rate model could reduce payroll calculation uncertainty and simplify the treatment of accommodation-related compensation. A transparent percentage-based system would be easier to apply than individual assessment of undocumented accommodation situations.

5. Conclusion

This paper aimed to propose and evaluate a flat-rate accommodation allowance model for Slovak international road freight drivers when no proof of accommodation is submitted. The research was based on a comparative analysis of selected European countries and a model calculation applied to an international road freight route. The results confirmed that travel allowances constitute an important component of total driver remuneration and that differences across national systems can significantly affect drivers' final income. At the same time, the findings show that remuneration policies can be discussed within the broader framework of sustainable development, particularly through their economic, social, and indirect environmental relevance.

Based on the accommodation-related compensation identified in the selected countries, the proposed Slovak model establishes a flat-rate accommodation allowance equal to 45% of the full foreign meal allowance rate applicable in the country where the driver spends the required rest period. This rate was derived from the average accommodation allowance ratio of 42.78%, rounded up to 45% for practical application. The proposed

mechanism, therefore, builds on the existing Slovak system of foreign meal allowance rates and avoids the need to create a separate accommodation allowance table.

The designed model should not be interpreted as a replacement for documented accommodation reimbursement. Rather, it is intended as a complementary mechanism for specific cases in which accommodation proof is not submitted. Its main advantage lies in its simplicity, transparency, and alignment with existing foreign meal allowance rates. For employers, it could reduce payroll calculation uncertainty, while for drivers, it could provide more predictable compensation during international business trips. Regarding sustainable development, the proposed model primarily contributes to the economic and social dimensions, while its environmental relevance remains indirect. It can support more predictable rest-period planning and remain compatible with efficient routing, fuel consumption management, and environmentally responsible transport operations.

The study has several limitations. The calculation was based on a single model route and selected European countries, and the results are valid only under the legal and economic parameters applicable during the analyzed period. Future research could extend the model to other routes, include additional countries, or evaluate the fiscal and administrative impact of the proposed system on employers and public authorities. Further research should also examine whether similar compensation mechanisms influence route deviations, rest location choices, idling time, fuel consumption, and other operational indicators relevant to environmental performance. Before practical implementation, the proposal would also require detailed legal, tax, and environmental assessment.

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