

Control Practices and Differences in Road Freight Transport in in the Northeastern Border Region of Hungary

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Abstract. *Traffic safety is a complex system and one of the most significant safety risks in road transport is the safety of goods transported. Controlling it, and enforcing the rules, are prerequisites for improving safe transport. The safety risks for cross-border freight transport are even more significant. The study examines transport administrative procedures in the northeastern border counties of Hungary. It presents the specificities of controls and infringements. Particular attention is paid to the country of origin of the offenders and the type of border control they had to submit to. These provide a specific pattern, knowledge of which can help to improve the effectiveness of border and roadside checks.*

Keywords: *transport, traffic rule, Hungary, criminal geography, EU borders*

Introduction

Transporting goods by road is a complex socio-economic system with which everything, indirectly or directly, but everyone comes into contact. On the one hand, as a participant in transport, and on the other hand, as an inherent part of everyday life, as a user of transport as an economic branch. For example, if we shop in a store, someone must deliver the goods we bought there. The present study presents the increasingly significant problems that arise with the increase in motorisation through traffic safety as a socially significant problem¹: the development of violations in the eastern counties of Hungary. Regarding traffic safety, the EU has set a long-term goal of minimising the number of people killed and seriously injured in road traffic accidents by 2050.²

Enforcing compliance with the rules is also of prime importance to achieving the goals. Increasing the willingness to pay the fines imposed on foreign traffic offenders is an

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¹ Marjan P. Hagenzieker, Jacques J.F. Commandeur, and Frits D. Bijleveld, “The History of Road Safety Research: A Quantitative Approach,” *Transportation Research, Part F: “Traffic Psychology and Behaviour,”* 25, Part B (2014), <https://doi.org/10.1016/j.trf.2013.10.004>.

² European Commission, “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Europe on the MOVE Sustainable Mobility for Europe: Safe, Connected, and Clean,” COM/2018/293 final, Brussels, 17.05.2028, accessed September 28, 2023, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0293>.

important task in this context,³ since foreigners are fined 50% was not paid⁴. According to the authors, the reasons for this, in addition to those formulated by the relevant EU proposal, are that foreign traffic violators do not know the sanctions of the given EU member state. These sanctions are unique at the EU level. Therefore, this study aims to help non-Hungarian traffic violators learn about the administrative procedures initiated by the County Government Offices' Traffic Authorities.

International cooperation and the exchange of information and experience, i.e., our collective thinking,⁵ are not just beneficial but essential to increase traffic safety. One crucial foundation for this, in addition to the knowledge of the authorities' sanctioning process, is the availability of information about the traffic authority that imposes the sanction.

2. Literature review

2.1. Aim of the EU

Transporting goods by road is part of transport, and as such, it is a multi-complex system. Traffic safety must, therefore, be interpreted as a complex system⁶.

According to some views, traffic safety can be divided into three levels:

- Education: education on safe traffic, education PR;
- Engineering: for the sake of vehicle safety (this applies to vehicles, public roads, and traffic engineering alike);
- Enforcement: forcing compliance with the rules through inspections and sanctions⁷.

³ European Commission, Directorate-General for Mobility and Transport, *EU Road Safety Policy Framework 2021–2030, Next Steps towards 'Vision Zero'* (Luxembourg: Publications Office of the European Union, 2020), accessed September 24, 2023, <https://data.europa.eu/doi/10.2832/391271>.

⁴ European Commission, "Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2015/413 Facilitating Cross-Border Exchange of Information on Road-Safety-Related Traffic Offenses," Brussels, 1.3.2023, COM(2023) 126 final, 2023/0052 (COD), accessed September 24, 2023, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52023PC0126>.

⁵ Akinori Morimoto, Ailin Wang, and Naohiro Kitano, "A Conceptual Framework for Road Traffic Safety Considering Differences in Traffic Culture through International Comparison," *IATSS Research* 46, no. 1 (2022), accessed October 05, 2023, <https://doi.org/10.1016/j.iatssr.2021.11.012>.

⁶ Hagenzieker, Commandeur, and Bijleveld.

⁷ Norman Damon, "The Action Program for Highway Safety," *The Annals of the American Academy of Political and Social Science* 320, no. 1 (1958); Róbert Major, *A közúti közlekedési balesetek megelőzése, különös tekintettel a rendőrség lehetőségeire és korlátaira* (PhD-értekezés) [Preventing road traffic accidents, with particular reference to the possibilities and limitations of the police (PhD thesis)] (Pécs: Pécsi Tudományegyetem Állam- és Jogtudományi Kar, 2009); Róbert Major, *Közlekedérendészet* [Traffic Policing] (Budapest: Nemzeti Közszolgálati Egyetem egyetemi tankönyv, 2016); Ferenc Irk, "A közlekedésbiztonság helyzete nemzetközi kitekintéssel és a közlekedérendészet továbbfejlesztésének lehetőségei, módszerei" [The state of road safety with an international perspective and ways and means to further develop traffic policing], évi különszám: Tanulmányok a rendészeti stratégiához [Special issue no. 1: Studies on law enforcement strategy], *Rendészeti Szemle Különszám* (március 2010); Mihály Rigó, "A működő svéd modell és rendező elve a „3E”" [The working Swedish model and director principle is "3E"], *Közúti és Mélyépítési Szemle* 57, no. 12 (2007); Mehmet Demirel, *Road Safety Evaluation of Urban Major Arterials Case Study of 1071 Malazgirt Boulevard in Ankara* (Master's thesis) (Ankara: Middle East Technical University, 2019).

About the English initials, this became known colloquially as the 3E rule. In recent years, researchers have identified several E. For example, emergency response, evaluation, exposure, and examination are called new Es⁸. In 2020, the UN formulated the basic traffic safety actions in a matrix comprising five pillars and four areas. The distinction between the four areas is essential because the dominance of national-level intervention prevails. The pillars (Safe vehicle, Safe user, Safe road, Effective post-crash response, and The road safety management pillar) and the areas (legislation, enforcement, education, technology) are closely related. Enforcing compliance with the rules also appears in these areas⁹.

2.2. The appearance of traffic offences in studies

In recent years, the investigation of traffic offences has become a focus of researchers' attention. The pandemic caused by COVID-19 has led to a number of studies on the investigation of epidemiological violations¹⁰.

The other so-called classical field is the study of traffic violations, which from the law enforcement side mainly examines violations from the perspective of traffic accidents¹¹. Robert Javoršek in his research work also uses data from the Slovenian police to provide a picture of the comparison of traffic accidents and tachograph-related violations. The research, which focuses on the period 2009–2010, examines accidents caused by drivers of buses and lorries obliged to use tachographs, but does not analyse the nationality of the tachograph-

⁸ John A. Groeger, "How Many E's in Road Safety?" in *Handbook of Traffic Psychology*, ed. Bryan E. Porter (Academic Press, 2011); Katherine L. Plant, Rich C. McIllroy, and Neville A. Stanton, "Taking a '7 E's' Approach to Road Safety in the UK and Beyond," in *Contemporary Ergonomics and Human Factors*, ed. Rebecca Charles and John Wilkinson (Chartered Institute of Ergonomics and Human Factors, 2018).

⁹ UNECE, *A Foundational Safety System Concept to Make Roads Safer in the Decade 2021–2030* (New York: United Nations Publications, 2020).

¹⁰ Miklós Hollán, "A járványügyi szabályszegés 'dekriminalizációja': felemás büntetőpolitikai félfordulat járvány idején" [The 'decriminalisation' of epidemic non-compliance: a half-turn in criminal policy during an epidemic], *MTA Law Working Papers* 7, no. 24 (2020); István Ambrus and Miklós Hollán, "A fertőző betegségek elleni küzdelem a magyar büntetőjogban: régi problémák és új aspektusok a Covid-19 járvány idején" [Combating epidemics in Hungarian criminal law: old problems and new aspects during the Covid-19 pandemic], *Magyar Tudomány* 182, no. 5 (2021); István Balázs and István Hoffman, "A közigazgatási jog rezilienciája – koronavírus idején" [The resilience of administrative law in the time of the crown virus], in *Jogi diagnózisok a COVID-19 világjárvány hatásai a jogrendszerre* [Legal diagnoses. The impact of the COVID-19 pandemic on the legal system], ed. Fruzsina Gárdos-Orosz and Viktor Olivér Lőrincz (Budapest: Társadalomtudomány Kutatóközpont Jogtudományi Intézet; L'Harmattan, 2020).

¹¹ Anikó Juhász, "Hatékonyság a közlekedésrendészetben" [Efficiency in traffic policing] *Magyar Rendészet*, no. 4 (2019): 149–156, doi: 10.32577/mr.2019.4.11; Anikó Juhász and Róbert Major, "A közúti ellenőrzés pszichikai hatása és a szabályszegő magatartások háttere" [The psychological impact of roadside checks and the background to offensive traffic behaviour], *Magyar Rendészet* 21, no. 4 (2021): 155–170, <https://doi.org/10.32577/mr.2021.4.8>; Evelin Ritó and Zsolt Czékmann, "Okos megoldás a közlekedésszervezésben – avagy az automatikus döntéshozatali eljárás egy példán keresztül" [A smart solution for traffic management – or an example of automatic decision-making], *Miskolci Jogi Szemle* 13, no. 2 (2018): 104–118; Lars Åberg, "Traffic Rules and Traffic Safety," *Safety science* 29, no. 3 (1998): 205–215, [https://doi.org/10.1016/S0925-7535\(98\)00023-X](https://doi.org/10.1016/S0925-7535(98)00023-X); Robert Javoršek, "Policijska kontrola nad vozili z vgrajenimi digitalnimi tahografi" [Police control of vehicles fitted with digital tachographs] (Bachelor's thesis, University of Maribor, 2011).

related offences, but only the types of offence and the sanctions applied. Marcin Rychter¹² looks at the traffic enforcement side, including detected infringements, revealing that in 2010 the ratio of administrative fine decisions to vehicles checked in Poland was 15.4%, a decreasing trend since 2003. In terms of nationality, the proportion is 14.4% for Polish nationals and 17.6% for foreign nationals. The author also describes the types of offences, with a high proportion of offences being driving time, break and rest period offences (70%), followed by improper use of tachographs (15%). The author takes a non-disciplinary approach to his research and concludes by making technical and training recommendations to improve the quality of enforcement activities in order to detect digital tachograph manipulation as widely as possible.

3. Methods

Our research analysed the administrative fines imposed by the Transport Authorities of the Government Offices of the counties of Hajdú-Bihar, Szabolcs-Szatmár-Bereg and Jász-Nagykun-Szolnok for traffic and on-site inspections. The choice of the research area was guided by the fact that the counties under study should include both external and internal borders of the European Union, as well as counties that are not border counties.

The research was based on the random checks carried out by the road inspectors of the county government offices using the stopping method. One specific form of checks is the group of on-site checks, where the vehicles and the documentation relating to the activity carried out by the operator are checked by the authority at the premises of the undertaking. These checks are aimed at enforcing lawful behaviour, preventing accidents (prevention), monitoring the goods transported, protecting the environment and animals, and preventing the exploitation of drivers.

In the territorial inspections, the nationality of the vehicles checked was considered as a geographical feature. Nationality is determined by the country in which the controlled vehicle has its officially registered keeper or the nationality of the drivers.

In addition to the analysis of time series, comparisons were made based on the construction of a specific indicator. Among the counties of Hajdú-Bihar, Szabolcs-Szatmár-Bereg and Jász-Nagykun-Szolnok, which make up the Northern Great Plain region, Hajdú-Bihar county borders Romania and Szabolcs-Szatmár-Bereg county borders three countries (Romania, Ukraine, Slovakia). In addition to this geographical location, the dominant factor influencing road traffic in the region is the Barcelona-Marseille-Milan-Budapest-Miskolc-Nyíregyháza-Ungvár-Lviv-Kiev (TEN-T) axis, which connects Eastern Europe with Southern Europe (**Fig. 1**). This axis includes the three-country Záhony-Csap-Agcsernyő logistics area, which is the largest rail logistics centre in East-Central Europe. Jász-Nagykun-Szolnok County is situated in the outer agglomeration of Budapest, which also determines its transport conditions. The growth axis of Kassa-Miskolc-Tiszújváros-Nyíregyháza-Debrecen-Nagyvárad, which is aimed at the decentralisation of Budapest, is of increasing importance in the region under study.

¹² Marcin Rychter, "Possibilities of Manipulating Recommendations of Elements of the Digital Tachographs System and Ways of Preventing this Action," *Journal of KONES* 19, no. 2 (2012).

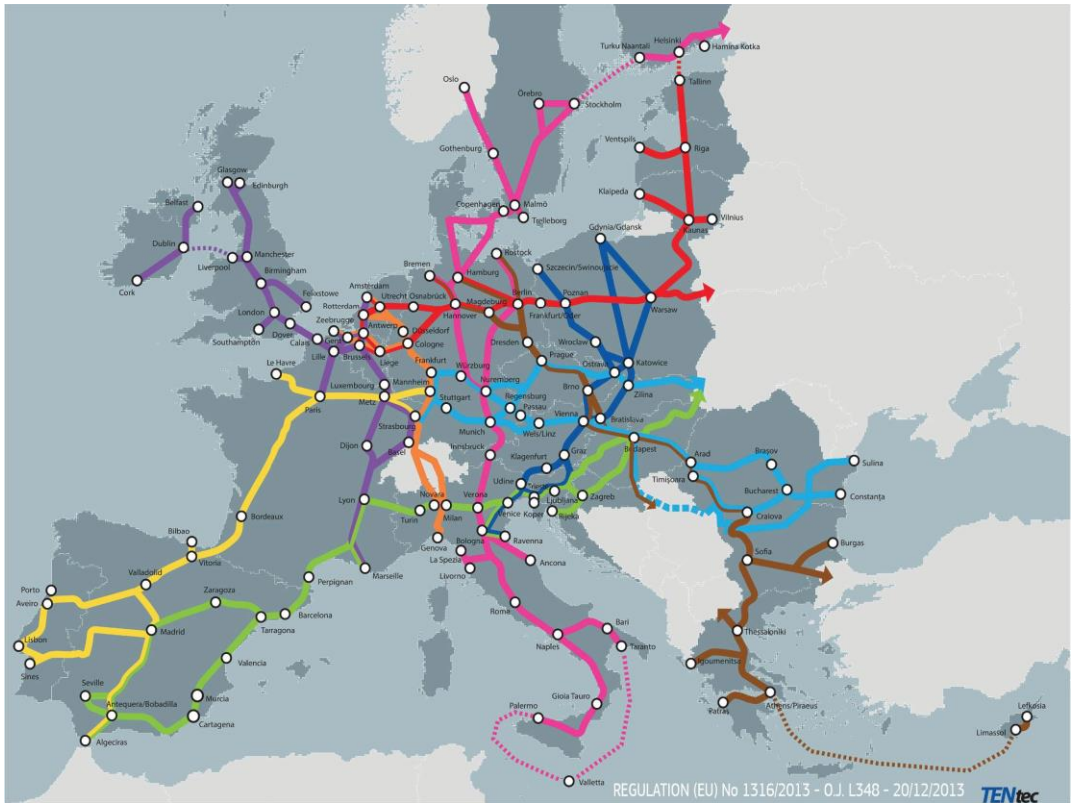


Figure 1: TEN-T core network

Source: “Az uniós közúti törzshálózat: az utazási idő rövidült, de a hálózat még nem kapcsolt üzemi sebességre” [The EU road core network: journey times have been reduced, but the network is not yet up to speed] (Különjelentés [Special report]), accessed October 16, 2023, <https://op.europa.eu/webpub/eca/special-reports/core-road-network-9-2020/hu/>.

4. Trends in irregularities in the transport of goods in the North Great Plain region

4.1. The formation of the Transport Authorities of the County Government Offices from the point of view of goods transport and transport

Numerous studies and books have already been published to present the majority of the acting authorities, of which more research needs to be done on the Transport Authorities and legal predecessor organisations of the Hungarian County Government Offices¹³.

The history of the organisational structure of the Hungarian Transport Authority can be divided into the following main stages:

- 1945–1983: The early history of today’s Transport Authority, which is characterised by the dominance of central control;

¹³ István Tóth, “A magyar közlekedési hatóság jubileumai” [Anniversaries of the Hungarian transport authority], *Közlekedéstudományi Szemle* 43, no. 10 (1993); Ferenc Horváth and László Csermely, *125 éves a magyar Közlekedési Hatóság (1868–1993)* [125 years of the Hungarian Transport Authority (1868–1993)] (Közlekedési Főfelügyelet, 1993); József Engi, “A közúti közlekedés szervezési és vezetési vázlatja” [Outline of the organisation and management of road transport], in “A közlekedérendszetről, a közúti közlekedés szabályozásáról és szervezéséről” [On traffic police, road traffic regulation and organisation], *Belvedere Meridionale* XII, no. 7-8 (2000).

- 1983–1991: The era of the formation of regional transport authorities;
- 1991–2011: Unified Transport Authority and its deconcentration;
- From 2011 to the present: organisational affiliation with Government Offices within the framework of the centralisation of public administration.

1945–1983:

This era is characterised by the appearance of the early antecedents of today's Transport Authority and centralised control. The created central ministry carried out the official tasks of transport administration; the creation of local transport administrative bodies was only incidental.

After the Second World War, the Ministry of Transport was established in 1945, which included the VI—Department of Road Vehicles. This department's task was, among other things, to control the operation of motor vehicles¹⁴. The National Motor Vehicle and Road Traffic Enforcement Committee was established under the auspices of the ministry and, through its activities, covered the entire field of transport vehicles.

From June 1, 1949, the name of the Ministry of Transport was changed to the Ministry of Transport and Posts (KPM), and in parallel, some minor and significant reorganisations of ministerial organisations were implemented. Then, the Audit Department was established¹⁵. At that time, the checks were carried out jointly with the police.

In 1954, the KPM Automobile Inspection was established, and national powers were given to it. It was the task of the KPM Car Inspection to continue to control the traffic of people and goods on the road with the police. The creation of the new organisational unit was justified by the ever-increasing number of vehicles, their technical condition, and the economic and efficiency problems of goods transport. Due to the increased tasks, the KPM Car Inspection created its county network. Thus, the County Car Inspection Branches were made, characterised by strong central management¹⁶. Overall, a centralised institutional system was developed, fulfilling its task through a county/territorial level network.

1983–1991: The era of regional transport authorities

Individual state administration matters were removed from the ministry's remit, and the ministry's tasks shifted mainly towards the preparation of legislation, the professional management of law enforcement, and the representation of professional interests. At the same time, decentralisation prevailed in individual state administration matters.

On a momentous day, July 1, 1983, the KPM, a significant entity in the history of Hungarian transport, was abolished. This marked a pivotal shift as the Ministry of Transport took over most of its tasks¹⁷. Simultaneously, the National Transport Authority, a new player in the field, was established. The National Transport Authority, acting as a second-level authority, coordinated and supervised the administrative bodies found at the county level¹⁸. In parallel, on the same historic day, the transport departments of the county councils were

¹⁴ Horváth and Csermendy.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Tóth.

established¹⁹ under the supervision of the independently managed county Traffic Inspections. They acted as first-level authorities, further solidifying the changes in the Hungarian transport landscape.

1991–2011: Unified Transport Authority and regionalisation

The change of regime in Hungary affected the organisational structure of the transport authority. With the creation of the unified transport authority, this authority was organised into regions in the spirit of regionalisation at the end of this era.

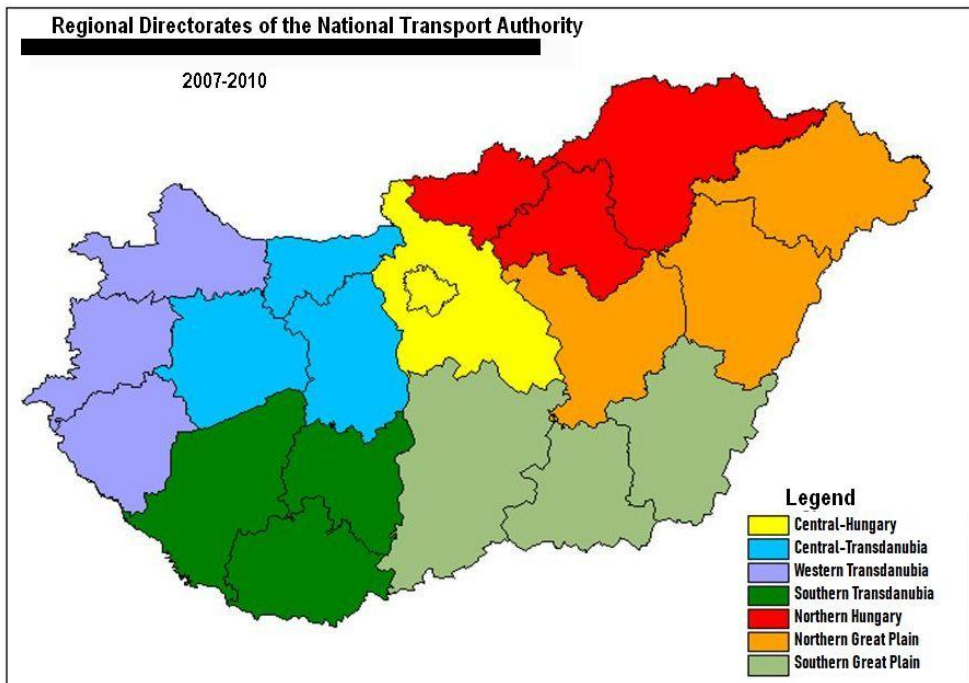


Figure 2. The Regional Directorates of the National Transport Authority (2007–2010)

Source: Ministry of Innovation and Technological

After 1990, the Transport, Communications, and Water Minister came under the control of the General Transport Inspectorate, and the county traffic inspectorates were its local bodies²⁰.

From January 1, 1998, the unified Transport Authority had two main parts:

- General Transport Authority
- the county (capital city) traffic authorities.

At the same time, from January 1, 2000, the unified Transport Authority was divided into three main organisational units:

- Central Transport Authority (KKF)
- county (capital city) Traffic Supervision (territorial supervision)
- Main Transport Inspectorate, like the supervision of the two organisations listed above, which acts at the second level in case of appeals.

¹⁹ Ibid.

²⁰ Ibid.

The year 2007 brought another significant change in the organisational structure. The National Transport Authority (NKH) was established on January 1, 2007, and in the spirit of regionalisation, the county traffic authorities were organised into regional directorates. The county traffic inspectorates were nationally classified into seven regions. In this way, he once again took steps towards significant decentralisation. In addition, instead of the previous county frameworks, establishing the institutional system began at the regional level.

From 2011 to the present, the government office as an organisational unit

The public administration reforms affected the transport authority's organisation by creating government offices; this era is characterised by centralisation. The year 2010/2011 brought a significant turn in the life of the Hungarian regional administration.

At that time, the capital and county government offices were established as part of a general reorganisation, which are state administrative bodies in the areas of general competence of the Government. These offices took over most of the former actors' public and professional administration tasks.

With the disbanding of the Regional Directorates, the former County Traffic Inspectorates joined this organisational structure on January 1, 2011. The professional management of the transport area was raised to the ministerial level in 2016, with the abolition of the National Transport Authority.

4.2. From inspection to sanctioning

Knowledge of the control and possible sanctioning process is essential for those involved in transportation, significantly affecting their sense of safety and behaviour.

In Hungary, the tasks of the Transport Authorities of the County Government Offices include road inspection and the imposition of administrative sanctions in the case of discovered infractions. One of these sanctions is the administrative fine, but this is only one means of enforcing the rules. Sanctions are not enough on their own; inspections have an important role to play in increasing effectiveness.²¹

Road inspection is a common type within the EU, except for integration; it occurs in a few countries²². We do not find this device among the neighbouring countries in Ukraine either. The road inspection process is uniform within the EU. Among the inspections, road inspections dominate, which are mainly carried out on public roads by the authorities or bodies acting under their supervision.

Within the EU, road inspections are carried out based on uniform criteria. EU law states that within the EU, road inspections of freight forwarders and carriers are possible at any time, regardless of the place of registration.

These inspections aim to enforce legal behaviour, prevent accidents (prevention), monitor transported goods, enforce environmental and animal protection, and avoid exploitation of motorists.

²¹ Gajduschek; Kovács Kovács, "Az objektív felelősség első fél éve" [Modelling administrative fines], *Magyar Jog* 56, no. 3 (2009).

²² Hudec et al., "The Impact of Roadside Technical Inspections on Transport and Logistics Systems in the Slovak Republic," *Transport Problems* 17, no. 3 (2022).

Fig. 3 shows the process from inspection to execution. During a roadside inspection, after stopping the vehicle, the road inspectors first inform the driver of the inspection. This is followed by a check of personal and driving documents. The chassis number of the vehicle is also checked. The next step is the vehicle inspection, which is the obligatory inspection of the vehicle and personal and material conditions (safety glasses, work lights). This is followed by axle weight measurement, tachograph inspection, and a more detailed technical inspection based on the thematic examination.

The mobile measuring station carries out a more detailed on-site technical inspection.²³ The examination ends with a report since the report is always prepared during an inspection if there are no deficiencies,²⁴ the checking is stated in a so-called “simplified road inspection report.” If road inspectors reveal a deviation (deficiency) from the provisions of the applicable and relevant legislation, they use a document called “Report on road inspection.”

Special measures are also taken during the inspection when dangerous and severe errors are detected (e.g., invalidation of the vehicle’s driving license on the spot, ordering a technical inspection).

In the event of a law violation, the authority with authority and competence²⁵ (in this case, the Transport Authority of the County Government Office) initiates an administrative procedure within eight days against the driver(s) and the operator, as well as, in certain cases the company loading the goods to clarify the facts.

Upon discovery of legal violations during the roadside inspection, the customer has eight days, to provide a statement explaining the reasons and addressing the issue of responsibility. In case of infringement, the authority has 60 days to decide. This timeframe does not include the duration of the suspension or interruption of the procedure or the client’s default or delay.

²³ Another better-known name for a mobile measuring station is the “mobile technical inspection station.”

This facilitates road inspections and saves costs and delays on the part of freight forwarders and carriers, as there is no need to visit a nearby inspection station due to the more detailed technical inspections of the inspection. These tests can also be carried out at the place of the stop. If a mobile measuring station is unavailable, the testing station closest to the inspection location or designated road facilities can also be used. European Commission, “Report from the Commission to the European Parliament and the Council on the application by the Member States of Directive 2000/30/EC of the European Parliament and of the Council of June 6, 2000 on the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the community Reporting Period 2011–2012,” 3, COM/2014/0569 final, Brussels, 12.09.2014, accessed October 29, 2023, [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex% 3A52014DC0569](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52014DC0569).

²⁴ Deficiency: technical defects and other cases of non-compliance discovered during the road technical inspection. Directive 2014/47/EU of the European Parliament and of the Council of April 3 2014 on the Technical Roadside Inspection of the Roadworthiness of Commercial Vehicles Circulating in the Union and Repealing Directive 2000/30/EC (Text with EEA relevance) Article 3 (16), *Official Journal of the European Union*, 29.04.2014, L 127/134, accessed August 29, 2023, <https://eur-lex.europa.eu/eli/dir/2014/47/oj>.

²⁵ Territorial competence applies to the given county, meaning that the Transport Authorities of the County Government Office can only conduct their inspections within the county border.

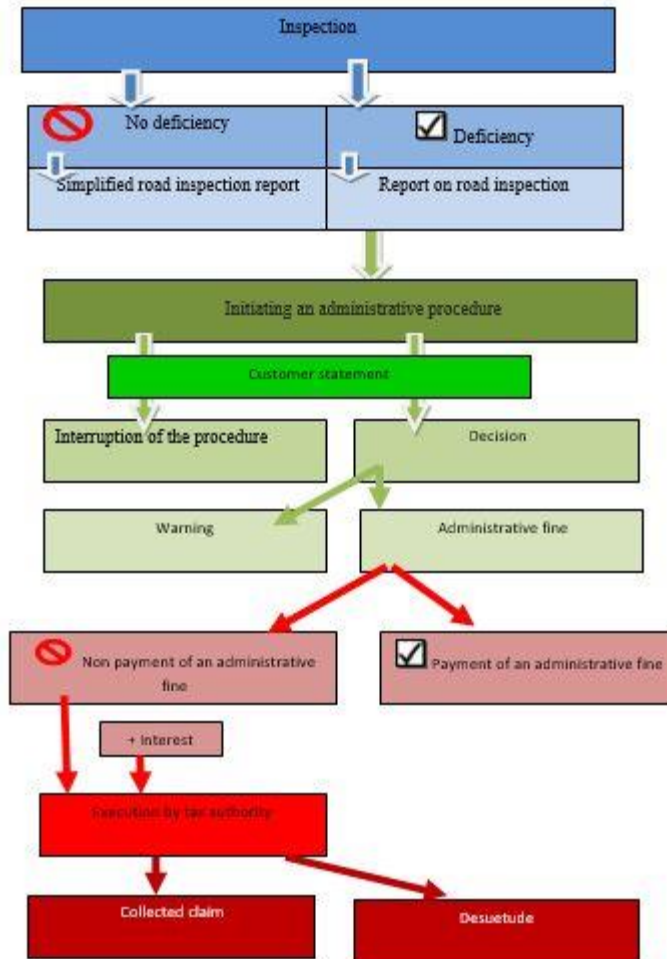


Figure 3. From checking to the execution

As a result of the administrative procedure, the procedure is terminated by an order or a decision by the applicable legislation.

In the case of procedures ending with a decision, a sanction will be imposed. The administrative decision becomes final on the day of receipt. The customer then has 30 days to either file an administrative lawsuit against the decision or pay the fine. In justified cases, the customer may request an instalment payment discount if justified.

The final decisions are entered into the “Register of Administrative Sanctions” program by the government office administrator. This obligation exists in the case of administrative sanctions applied during administrative official proceedings initiated due to infractions committed on or after January 1, 2021.

Among the investigated types of infractions, the sanctions in the procedure initiated for “violation of the provisions on the road traffic of vehicles exceeding the maximum permissible total weight, axle load, and size” do not have to be registered in the “Register of Administrative Sanctions.”

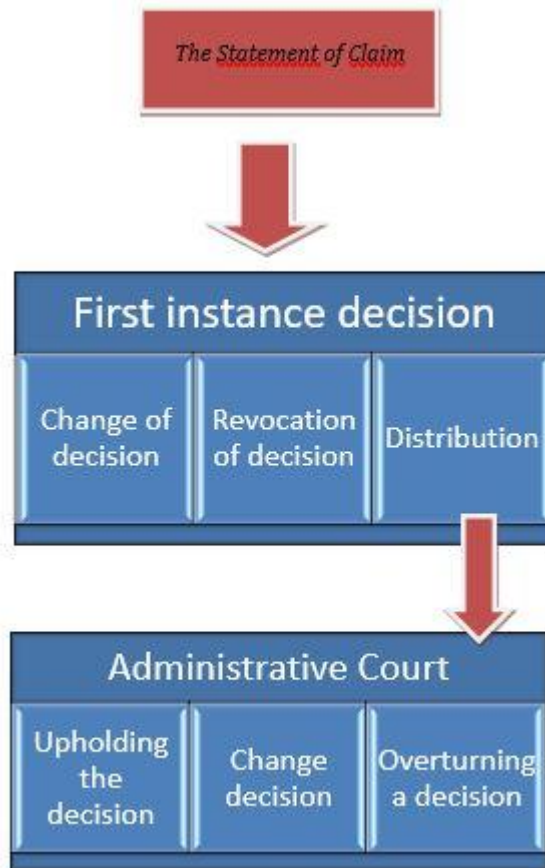


Figure 4. The procedure starts with a letter of claim

The enforcement procedure will be followed if the client does not file an administrative lawsuit against the decision and does not fulfil his obligation to pay money within the deadline. You must pay a late fee starting from the due date. The Tax Authority enforces this based on the Transport Authority request.

The customer can file an administrative lawsuit against the decision that has become final in the territorially competent Public Administrative Court against the county government office that made the decision. The first-instance authority can modify or withdraw its decision; if it does not, it can refer it to the competent Administrative Court. The Administrative Court, as a second-instance authority, can uphold the decision of the first-instance authority, change it, or annul it. (**Fig. 4**)

4.3. Analysis of checks by nationality and time interval

The analysis of controls by nationality, including foreign nationalities, is important because it shows the transport geography of the country and can also be used as an indicator of the economic links in the region.

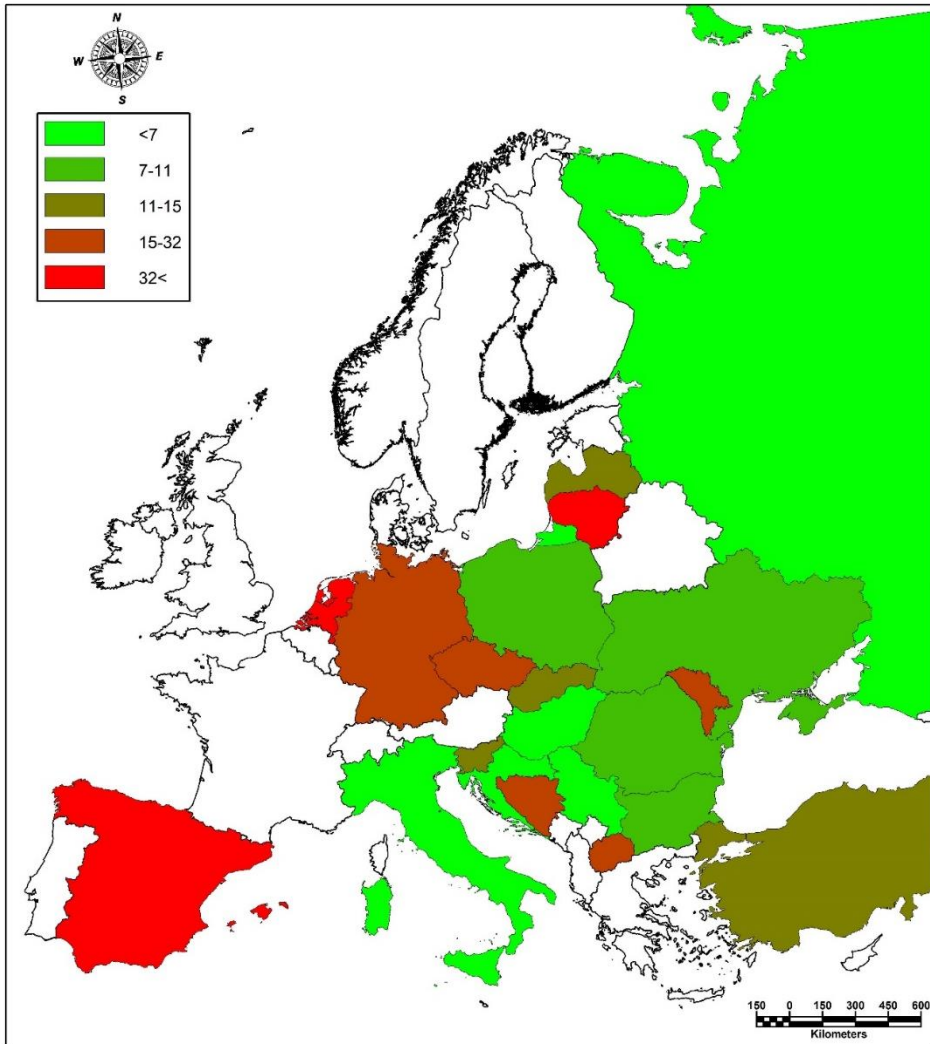


Figure 5. Distribution of the frequency of administrative fines imposed by the Transport Authorities of the County Government Offices in the Northern Great Plain region by nationality (2017–2021) (number of fines per 100 inspections) (Editor’s own)
(Data source: Ministry of Innovation and Technology)

The Northern Great Plain region’s strategic geographical location significantly influences the composition of foreign nationalities checked. In the period under review, 38,915 checks were carried out in the Northern Great Plain region, of which 21.39% were foreign and 78.61% were of Hungarian nationality.

The geographical location of the region is also reflected in the fact that 76.5% of the foreign nationals checked were from countries bordering the region, with a majority being Romanian nationals, accounting for 60.31% of the foreign nationals checked.

The high number of checks on Romanian nationals is due to the geographical proximity of the Schengen area and the importance of Hungary as a member of the Schengen area for Romania’s access to the rest of the EU, as well as the importance of the aforementioned transport corridor Kassa-Miskolc-Nyíregyháza-Debrecen-Nagyvárad.

Among the neighbouring countries, a significant number of non-EU Ukraine goods transporters (859) were also checked, which is explained by the fact that for Ukraine the Northern Great Plain region is one of the most important routes of entry to the European Union. 5.87% of those checked were of Slovak nationality. Slovakia has access to parts of Southern Europe, e.g. the Balkan Peninsula, and Romania via the region. However, no border crossing point open to goods traffic between the region and Slovakia, but traffic from the south, coming from Košice, passes through the area.

In addition to the neighbouring countries, the number and percentage of Polish nationals checked is also significant (12.08%), which is a key factor in the economic relations between Poland and Hungary and in the access of Polish hauliers to the southern parts of Europe. Moreover, Polish road hauliers have become the main European hauliers, as confirmed by EUSTAT data, which show that they are the leaders in international road freight transport in terms of the volume of goods transported every year during the period under review.

Differences in border crossings also appear in the data since border traffic control has ceased when crossing the border within the Schengen borders. In contrast, when crossing the Schengen border, e.g., the Romanian, Ukrainian, Bulgarian, Serbian, and Russian vehicles are checked, and the customs authority discovers many deficiencies. These countries are at the end of the scale in **Fig. 5**.

5. Conclusion and practical use

It can also be seen from the above that the Transport Authorities of the County Government Offices generate a large amount of data while performing their tasks, which are managed by the data management legislation. After anonymising the data, a forecast could be made based on predictive analytics from the data in the records taken during the inspection.

Based on past months' data, this would show which vehicles should be stopped at a given checkpoint. This could help uncover infractions on a broader scale. The data analysis clearly shows that people from different countries have a specific pattern of breaking the rules. Considering these characteristics, the inspection work can be significantly streamlined, leading to a more efficient and effective process.

Predictive software has a proven track record in predicting crimes for nearly two decades. Such software was first developed in Hungary (2004) and then in the USA (2006). The American software (PredPol) later achieved remarkable success, and there was a year when one person out of 33 was "protected" by the PredPol software. This success story underscores the potential of predictive analytics in various field, including transportation.

If we look at the various predictive software, they are almost exclusively used to predict crimes. They are used to predict crimes of the "street crime" type (e.g., robbery, pickpocketing, car theft, burglary, bicycle theft, armed robbery); this software can predict crimes committed on the street.

Considering that the software is based on mathematical and statistical principles and criminological theories, they can predict any action. One of the most important conditions for forecasting is that a given plot is available in sufficient numbers. In other words, for example, a crime should be committed in as large a number as possible. A specific action must be available in sufficient numbers to ensure the forecast is accurate and reliable. In the case of BigData, one of the 3V letters, "V," stands for "volume," i.e., a large amount of data.

Based on the above, predicting infractions during the road transport of goods is possible. To the best of the authors' knowledge, an example of this has yet to be based on the available literary sources. Despite this, the authors suggest that, concerning the practical usability of the research, it is worth considering the forecasts based on predictive analytics for road freight transport and transport. The nationality of the violator and the type, place, and time of the infraction can be predicted. In the case of the place and time of the infraction, based on crime forecasts, the software could provide a time interval and a road section a few kilometres long (i.e., not exact time /hours and minutes/ and same mileage). Despite this, according to the authors, predictive software is recommended to detect infractions more effectively.

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