

**ANALYTICAL NOTE
ON THE FINANCIAL AND ECONOMIC ASSESSMENT
OF IMPLEMENTING THE UN/UN/ECE No.22 HELMET SAFETY
REGULATION IN UKRAINE ¹**

Within the framework of this study titled “Financial and Economic Assessment of the Results of Implementing the UN/ECE No.22 Helmet Safety Regulation² in Ukraine” a comprehensive economic and financial justification was conducted to evaluate the regulation’s impact on economic development, the fiscal burden – particularly in healthcare and social protection funding – and the reduction of the financial costs associated with road-traffic injuries among motorcycle and moped riders and passengers.

In Ukraine, the use of motorcycle helmets motorcycle helmet use by riders and passengers of motorcycles and mopeds is mandatory and regulated by Section 2.3 of the “Traffic Rules,” approved by Cabinet of Ministers Resolution No. 1306³. Non-compliance with helmet usage, including its absence, is subject to an administrative sanction in the form of a fine amounting to thirty non-taxable minimum incomes of citizens, as stipulated in Article 121 of the Code of Ukraine on Administrative Offenses⁴ (as of 2025, the fine amounts to 510 UAH). Since helmets are among the most critical personal protective equipment, these provisions of Ukrainian legislation primarily aim to reduce the incidence of injuries and fatalities among motorcycle and moped users resulting from road traffic accidents.

However, as of 2021, the total number of years of life lost due to premature mortality and years lived with disability resulting from road injuries in Ukraine - measured in Disability-Adjusted Life Years (DALYs) – amounted to 312,866.73

¹ Analytical note provides an annotated summary of research titled “Financial and Economic Assessment of the Results of Implementing the ECE No. 22 Helmet Safety Regulation in Ukraine” conducted by the State Organization “Institute for Economics and Forecasting of the National Academy of Sciences of Ukraine”. It presents the key findings derived from the study.

² This study evaluates the application of the requirements outlined in “UN Regulation No. 22 - Rev.5 - 06 series. United Nations Economic Commission for Europe. Uniform provisions concerning the approval of protective helmets and of their visors for drivers and passengers of motor cycles and mopeds.” For brevity, the full title is subsequently referred to as the “Helmet Safety Regulation ECE No. 22,” “ECE No. 22 Regulation,” or “ECE No. 22.06 Regulation,” denoting the current version.

³ Traffic Rules of Ukraine. Resolution of the Cabinet of Ministers of Ukraine No. 1306 dated October 10, 2001 (as amended and supplemented as of April 1, 2025) // Official Portal of the Verkhovna Rada of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/1306-2001-%D0%BF#Text> (in Ukrainian)

⁴ Code of Ukraine on Administrative Offenses (current version as of June 14, 2025) // Official Portal of the Verkhovna Rada of Ukraine. URL: <https://zakon.rada.gov.ua/laws/show/80731-10/paran872#n872> (in Ukrainian)

years.⁵ In 2024, riders and passengers of motorcycles and mopeds accounted for 87% of all injuries and 8% of all fatalities among those involved in road traffic crashes with this type of vehicle. The rate of motorcycle helmet use in Ukraine remains low, contributing to a higher incidence of injury among riders and passengers. In view of the above, there is a significant need to strengthen safety and certification measures related to helmet use, particularly in the context of reducing road traffic injuries and sustaining human capital. However, the absence of explicit legislative requirements for helmet certification or compliance with international safety standards creates barriers to forward movement in this matter.

The enforcement of the Helmet Safety Regulation UN/ECE No. 22.06⁶ in Ukraine will establish advanced safety requirements for motorcycle helmets, ensuring a significantly higher level of protection for riders and passengers of motorcycles and mopeds in road traffic accidents. Compared to previous versions, Regulation UN/ECE No. 22.06⁷ establishes requirements for enhanced impact resistance, expanded testing for rotational forces, and evaluation of protective effectiveness across a wider range of speeds and impact angles. The implementation of the Helmet Safety Regulation UN/ECE No. 22.06 in Ukraine will contribute to achieving the goals of reducing road traffic injuries among riders and passengers of motorcycles and mopeds, as well as to fostering a progressive motorcycle helmet market in the country.

RESEARCH OBJECTIVE

An assessment of the financial and economic outcomes of implementing Regulation No. 22 “Uniform provisions concerning the approval of protective helmets and of their visors for drivers and passengers of motor cycles and mopeds” adopted by the United Nations Economic Commission for Europe (UN/ECE), and its impact on the state budget of Ukraine, the healthcare system, social protection, and related sectors.

RESEARCH OUTCOMES

To achieve the stated objective, a study evaluating the economic benefits of implementing Helmet Safety Regulation UN/ECE No 22.06 in Ukraine was conducted. Additionally, a comprehensive scenario-based financial and economic assessment was performed using a multi-variant approach to event development. This assessment represents a significant component of the economic justification process amid the high uncertainty caused by martial law and limited availability of current statistical data.

⁵ Global Burden of Disease Study (2021) Data Recourses. Ukraine. DALY. Road Injury. URL: <https://vizhub.healthdata.org/gbd-results/>

⁶ UN Regulation No. 22 - Rev.5 - 06 series. United Nations Economic Commission for Europe. UN Treaty Collection. URL: <https://unece.org/transport/documents/2021/08/standards/un-regulation-no-22-rev5-06-series>

⁷ The Helmet Safety Regulation ECE UN No. 22.05 (Series 05), which was in force since 2003, has been repealed for the certification of new helmets and was officially replaced by Regulation ECE UN No. 22.06 (Series 06).

The assessment of unit economic costs for medical care due to injuries sustained by motorcycle and moped riders and passengers involved in road traffic crashes in Ukraine was conducted based on the adaptation of the Maximum Abbreviated Injury Scale (MAIS) to Ukrainian-specific conditions, the structure and value of emergency, primary, and specialized medical care provided as a consequence of crash-related injuries, and consideration of helmet use or non-use by riders and passengers. Results indicate that that helmet use by motorcycle and moped riders and passengers substantially reduces unit economic costs of medical care, particularly in cases of severe or critical injuries. The evaluation revealed that unit economic costs of medical care per rider and passenger involved in traffic crashes ranged from UAH 6,790 for minor injuries (MAIS 1) to UAH 336,050 for severe and critical injuries (MAIS 5). Across all MAIS injury severity levels, helmet use contributed to injury avoidance and reduced medical costs by approximately 6% for minor injuries and up to 40% for severe injuries. For severe injuries (MAIS 5), surgical treatment accounted for the largest share of costs, reaching UAH 260,900, when helmets were not used.

An estimate of the total annual budgetary health care expenditure for motorcycle and moped riders and passengers injured in traffic crashes in Ukraine was carried out considering the probabilities of injury and fatality in crashes, including varying levels of bodily injuries, as well as official data from the National Health Service of Ukraine regarding the average cost of medical services. In total, the evaluation carried out facilitated the quantification of the total annual budgetary health care expenditure for all injured motorcycle and moped riders and passengers involved in traffic crashes in Ukraine in 2024, amounting to UAH 156.06 million. This finding confirms the significant impact of such injuries on the financial burden borne by public healthcare expenditures.

An economic justification of the potential budgetary expenditure savings from implementing the Helmet Safety Regulation UN/ECE No. 22 in Ukraine has been conducted. Additionally, a forecast of changes in health care funding, resulting from reductions in injury rates among motorcycle and moped riders and passengers involved in traffic crashes (based on the MAIS injury severity scale), was performed assuming increased helmet usage. This justification was based on a multi-scenario budgetary assessment of health care expenditures in Ukraine over the period from 2026 to 2030, encompassing four scenarios: the inertia scenario (only 61% helmet usage among motorcycle and moped riders and passengers); the moderate coverage scenario (75% usage); the high coverage scenario (90% usage); and the full coverage scenario (100% usage, as recommended by WHO, with all riders and passengers using certified helmets):

- under the inertia scenario, assuming that the current helmet usage rate of 61%⁸ is maintained through 2030, budgetary expenditures for medical care of

⁸ According to data from: *Public Opinion Survey on the Implementation of Motorcycle Helmet Safety Standards. Analytical Report Based on the Results of an Online Questionnaire*. Kiev International Institute of Sociology - NGO Advocacy Center "Life", 53 pages. URL: <https://center-life.org/wp-content/uploads/2025/04/Opytuvannia-shchodo-pidtrymky-vprovadzhennia-sertyfikativ-bezpeky-motosholomiv.pdf> (in Ukrainian)

injured motorcycle and moped riders and passengers involved in traffic crashes are projected to increase to UAH 471.90 million, thereby imposing a greater financial burden on the state budget;

- in the case of the moderate scenario being implemented and helmet usage rising to 75% by 2030, the potential budgetary expenditure savings on medical care would amount to UAH 119.83 million;

- under the high coverage scenario, potential savings are projected to reach UAH 234.90 million by 2030;

- the maximum potential budgetary expenditure savings on health care are expected under the full helmet usage scenario (100% usage by motorcycle and moped riders and passengers), amounting to UAH 306.17 million by 2030.

Within the scenario-based assessment, an additional evaluation was conducted based on the assumption that if, as of 2024, the helmet usage rate in Ukraine had been 75% instead of 61%, the estimated annual budgetary savings in health care expenditures for injured motorcycle and moped riders and passengers in traffic crashes would have amounted to UAH 11.41 million; at 90% usage, savings would be UAH 15.26 million; and at 100% usage, UAH 20.52 million.

The study provides a macroeconomic justification of the socio-economic benefits of implementing the Helmet Safety Regulation UN/ECE No. 22.06 in Ukraine. This justification is based on the calculation of lost human capital (which includes economic losses due to premature mortality or disability, productivity losses, losses in consumption and savings, and GDP reduction), as well as on the calculation of the social cost of loss of life and health (which encompasses expenditures from social insurance funds and the Pension Fund of Ukraine, along with productivity losses due to incapacity). In particular, it was established that:

- total losses from fatalities and injuries resulting from traffic crashes involving motorcycles and mopeds in 2024, estimated using various methodological approaches to economic loss assessment, ranged from UAH 30.6 billion to UAH 34.5 billion, representing approximately 0.4% to 0.45% of GDP;

- economic losses to the economy and the state caused by each traffic crash fatality involving a motorcycle or moped range from UAH 4.7 million to UAH 14.4 million. Losses due to disability sustained by an injured motorcycle or moped rider or passenger range from UAH 5.1 million to UAH 14.8 million. The lowest losses occur when the injured rider or passenger experiences a temporary loss of work capacity, leading to socio-economic losses of UAH 15,400 per such case;

- the largest items of budgetary expenditure on social protection, which are included in the assessment of the socio-economic impacts of implementing UN/ECE Regulation No. 22, are disability pension payments and survivor benefits.

Scenario-based economic assessment of potential changes in social protection expenditures under the implementation of UN/ECE Regulation No. 22 and varying injury rates among motorcycle and moped riders and passengers involved in road traffic crashes revealed that:

- assuming that the share of motorcycle and moped riders and passengers wearing certified helmets increased from 45%⁹ to 100% in 2024, the socio-economic benefits from reduced mortality, disability, and injury rates in road traffic crashes would range from UAH 7.4 billion to UAH 21.8 billion. Under this scenario, Ukraine's economy and government could avoid losses equivalent to between 0.1% and 0.28% of GDP;

- if the share of motorcycle and moped riders and passengers wearing certified helmets increased from 45% to 66%, the socio-economic benefits from reduced mortality, disability, and injury rates in road traffic crashes as of 2024 would be estimated between UAH 2.7 billion and UAH 7.8 billion. Under this scenario, Ukraine's economy and government could avoid losses equivalent to between 0.04% and 0.1% of GDP;

- assuming that the share of motorcycle and moped riders and passengers wearing certified helmets rises from 45% to 66%, and simultaneously the condition of roads and road infrastructure worsens, the socio-economic benefit would range from UAH 2.0 billion to UAH 4.5 billion. Under this scenario, Ukraine's economy and government could avoid losses equivalent to between 0.03% and 0.06% of GDP.

According to the findings of the scenario-based forecast assessment regarding the prevention of losses from fatalities, disabilities, and injuries in traffic crashes in Ukraine involving motorcycle and moped riders and passengers, it has been established that:

- if the share of motorcycle and moped riders and passengers using certified helmets increases from 45% to 100% during 2026–2030, then the estimated cumulative socio-economic effect of implementing UN/ECE Regulation No. 22 by 2030 would range from 0.31% to 0.92% of GDP;

- assuming that the share of motorcycle and moped riders and passengers using certified helmets increases from 45% to 66% during the period 2026–2030, the estimated cumulative socio-economic effect of implementing UN/ECE Regulation No. 22 by 2030 is projected to range from 0.11% to 0.33% of GDP;

- assuming that the share of motorcycle and moped riders and passengers using certified helmets increases from 45% to 66% during the period 2026–2030, accompanied by deterioration of road and transport infrastructure, the estimated cumulative socio-economic effect of implementing UN/ECE Regulation No. 22 by 2030 is projected to range from 0.09% to 0.19% of GDP.

The study also assessed the total individual costs incurred by unhelmeted motorcycle and moped riders and passengers injured in traffic crashes. These costs include, in addition to medical expenses, socio-economic losses due to temporary work incapacity (for cases of minor and moderate injuries) and losses due to disability (for cases of severe and critical injuries). For minor injuries (MAIS 1),

⁹ According to data from: *Public Opinion Survey on the Implementation of Motorcycle Helmet Safety Standards. Analytical Report Based on the Results of an Online Questionnaire*. Kiev International Institute of Sociology - NGO Advocacy Center "Life", 53 pages. URL: <https://center-life.org/wp-content/uploads/2025/04/Opytuvannia-shchodo-pidtrymky-vprovadzhennia-sertyfikativ-bezpeky-motosholomiv.pdf> (in Ukrainian).

the total individual costs per injured rider and passenger wearing helmets amount to UAH 22,14, compared to UAH 23,09 for unhelmeted individuals. The difference in costs becomes substantially greater with increasing injury severity. Specifically, for MAIS 5 injuries, the total individual costs per injured rider and passenger wearing helmets reach UAH 5.27 million, whereas for unhelmeted individuals the costs increase to UAH 5.41 million.

This report also presents a comprehensive market overview of the main price segments of the motorcycle helmet market in Ukraine, certified according to UN/ECE Regulation 22.06. It was found that the individual costs of purchasing a new helmet certified under UN/ECE Regulation 22.06 are significantly lower compared to the potential total individual costs incurred in the event of injury to motorcycle and moped riders and passengers without helmets in traffic crashes. Specifically, the lowest price of a helmet certified under UN/ECE Regulation 22.06 available on the Ukrainian market is UAH 2,500¹⁰. Meanwhile, total individual losses following injuries sustained in traffic crashes by unhelmeted riders and passengers can range from UAH 23,09 for minor injuries and temporary work incapacity up to UAH 5.41 million for severe injuries resulting in lifelong disability.

Therefore, the present study, entitled “Financial and Economic Assessment of the Results of Implementing the UN/ECE No. 22 Helmet Safety Regulation in Ukraine” substantiates the potential macroeconomic, fiscal, and individual benefits associated with the adoption of personal protective equipment standards for motorcycle and moped riders and passengers, specifically through the enactment of Regulation UN/ECE No. 22. The application of a multi-scenario analytical framework enabled the comprehensive consideration of diverse determinants shaping the financial and economic assessment, alongside varying degrees of implementation intensity of Regulation UN/ECE No. 22. The results obtained may provide valuable evidence to support the development of strategic frameworks and policy interventions in the domains of road safety governance, infrastructure development, budgetary expenditure optimization, and the enhancement of healthcare and social protection systems.

Moreover, the outcomes of this research may contribute to advancing Ukraine’s efforts to fulfill the United Nations Sustainable Development Goals (SDG 3.6), with particular emphasis on Target 7¹¹ - Voluntary Global Performance Targets for Road Safety Risk Factors, as promulgated by the World Health Organization.

IDENTIFIED LIMITATIONS AND RELEVANT PROPOSALS

¹⁰ The analysis was performed using data sourced from publicly accessible information channels, notably leading online marketplaces and specialized internet retailers in Ukraine.

¹¹ Target 7, part of the broader Voluntary Global Performance Targets for Road Safety Risk Factors, aims to significantly increase the proportion of motorcycle riders who correctly use certified helmets, with the goal of reaching nearly 100% usage by 2030. This initiative recognizes the critical role of helmets in reducing head injuries and fatalities from motorcycle crashes.

The assessment of public expenditures on medical care and social protection caused by injuries sustained by unhelmeted motorcycle and moped riders and passengers in road traffic crashes in Ukraine, as well as the preliminary stage of data collection¹², revealed several limitations, including the following:

- comprehensive registries of road traffic accidents involving motorcycle and moped riders and passengers have not yet been developed, which would include detailed documentation of sustained injuries with indication of helmet usage status (unhelmeted); helmet type; presence or absence of helmet certification, including compliance with the Helmet Safety Regulation UN/ECE 22.06; injury severity according to the internationally standardized Maximum Abbreviated Injury Scale (MAIS); type of medical care provided; and the associated medical care costs. These limitations complicate the assessment process and hinder the substantiation of future strategies and policy interventions for improving road safety for motorcycle and moped riders and passengers;

- incomplete standardization of medical statistics on injuries sustained in road traffic crashes and their inconsistency, particularly with international scales such as the Maximum Abbreviated Injury Scale (MAIS), which is utilized in the EU, the USA, and many other countries;

- insufficient medical statistics data on the outcomes of injuries sustained in road traffic crashes, specifically regarding the provision of emergency medical care, the list of primary care services, specialized and highly specialized medical care, as well as additional laboratory and other types of examinations and rehabilitative medical services;

- insufficient availability of medical statistics data on the duration (in years) and the scope of medical services required by injured persons in road traffic crashes designated as “lifelong” medical care;

- limited intersectional coordination and fragmented approaches to the formation of statistical data on injuries sustained in road traffic crashes - particularly among government authorities such as the National Police of Ukraine, the National Health Service of Ukraine, the State Statistics Service of Ukraine, the Ministry of Social Policy of Ukraine, and the Pension Fund of Ukraine.

On the basis of the outlined issues, the following priorities have been identified for Ukraine:

- establishment of a consolidated analytical center responsible for the collection, systematization, and analysis of relevant data on traffic crash outcomes, including data on helmet usage by motorcycle and moped riders and passengers;

- adoption in Ukraine of a unified comprehensive methodology for assessing economic and social costs¹³ that may be incurred as a result of injuries in road

¹² To collect the preliminary information for the assessment, data provided by government agencies as well as official statistical reports and publications from the Ministry of Internal Affairs of Ukraine, the National Police of Ukraine, the Ministry of Health of Ukraine, the National Health Service of Ukraine, the Ministry of Social Policy of Ukraine, and the Pension Fund of Ukraine were gathered and systematized.

¹³ It is proposed to adapt in Ukraine the comprehensive methodology for assessing social and economic losses from injuries and fatalities resulting from road traffic accidents, authored by Blincoe L. (2023),

traffic accidents, which would account for: levels of injury severity according to the MAIS scale; specifics of protection status during road traffic accident injuries (e.g., for motorcycle and moped drivers and passengers, the presence or absence of a helmet and its certification, including compliance with the UN/ECE 22.06 Motorcycle Helmet Safety Regulation); various types of economic and social costs, including expenses for emergency, primary, specialized, and highly specialized medical care, as well as additional instrumental and laboratory diagnostics; costs for social protection and social security; losses of human capital in cases of death or injury in road traffic accidents (taking into account DALY, QALY); the value of statistical life (VSL);

- implementation in Ukraine of a comprehensive interdisciplinary research project that would integrate relevant developments and adapt the best international practices and methodologies in the fields of road safety, medicine, economics, law, and statistics, with the aim of addressing identified challenges and developing further policy measures to enhance the road safety of motorcycle and moped drivers and passengers, as well as encouraging their use of certified helmets.