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CROSS-SUBSIDISATION AND PERCEIVED FAIRNESS AMONG YOUNG DRIVERS IN POLAND'S MOTOR INSURANCE

Beata NOWOTARSKA-ROMANIAK[1*], Sonia SZCZEPANIK[2]

[1] Katowice University of Economics; beata.nowotarska-romaniak@uekat.pl, ORCID: 0000-0003-3563-2596
[2] Katowice University of Economics; sonia.szczepanik@edu.uekat.pl, ORCID: 0000-0002-4275-3700
*Correspondence author

Purpose: The purpose of this paper is to examine young drivers' perceptions of the fairness of third-party liability insurance pricing in Poland, particularly regarding age-based premium differentiation, perceived unequal treatment, and the relationship between insurance premiums and actual accident risk.
Design/methodology/approach: The study combines statistical analysis of road accident data published by the National Police Headquarters with a survey conducted among drivers aged 18-24 in the Silesian Voivodeship. Data were collected using an anonymous questionnaire distributed near major universities. A total of 128 correctly completed questionnaires were obtained.
Findings: The results indicate that young drivers perceive the current insurance pricing system as excessively generalised and strongly dependent on age-based classifications. Most respondents assessed third-party liability insurance premiums as excessively high and believed that insurers insufficiently considered individual driving behaviour, accident-free history, and driving experience. Respondents also reported perceptions of unequal treatment, including higher premiums and limited access to discounts. At the same time, the findings suggest that young drivers generally accept differentiated pricing because it reflects observable behavioural factors rather than solely demographic characteristics.
Research limitations/implications: The study is limited by a relatively small, regionally concentrated sample, which may reduce the generalisability of the findings. Future research could incorporate larger, more geographically diverse samples, as well as insurer-side actuarial data.
Practical implications: The findings suggest that insurers could improve perceptions of fairness by implementing more individualised pricing mechanisms based on driving behaviour, claim-free history, and telematics-based solutions.
Originality/value: The paper contributes to the limited literature concerning young drivers' perceptions of fairness within the Polish motor insurance market and connects theoretical debates on actuarial fairness with empirical evidence collected directly from young drivers.
Keywords: motor insurance; young drivers; actuarial fairness; third-party liability insurance; cross-subsidisation.
Category of the paper: Research paper.

1. Introduction

Poland remains one of the most motorised countries in Europe, with private vehicles remaining a dominant means of everyday transport. According to Statistics Poland (GUS), by the end of 2024, there were approximately 22.9 million registered passenger vehicles in the country, corresponding to 612 vehicles per 1000 inhabitants (GUS, 2024). Even when considering only vehicles up to 30 years old, the motorisation rate remained exceptionally high. The widespread use of private automobiles underscores the growing significance of road safety issues and reinforces the importance of mechanisms that provide financial protection for road users. Consequently, motor insurance constitutes one of the most important segments of the Polish insurance market, performing both protective and compensatory functions within the broader transport and legal system.

Among the various forms of motor insurance operating in Poland, compulsory third-party liability insurance (pol. odpowiedzialność cywilna, OC) holds a particularly significant position. Under Polish law, every registered vehicle owner is obliged to maintain valid OC coverage, which provides compensation for damage caused to third parties in connection with the operation of a motor vehicle (Ustawa z dnia 22 maja 2003 r. o ubezpieczeniach obowiązkowych, Ubezpieczeniowym Funduszu Gwarancyjnym i Polskim Biurze Ubezpieczycieli Komunikacyjnych). The compulsory nature of this insurance reflects the social importance of guaranteeing compensation for victims of road traffic accidents and of ensuring the financial stability of the compensation system. In practice, the motor insurance market also includes motor own damage insurance (pol. Autocasco, AC), assistance insurance, and accident insurance products; however, OC insurance remains the most universal and socially significant form of coverage (Handschke, Monkiewicz, 2010, pp. 87-88).

The motor insurance market operates on risk assessment and premium differentiation. Insurers set premiums using numerous variables that reflect the likelihood of accidents and expected claim costs. Across the literature, young-driver insurance premiums are usually higher than those for older motorists, but the premium gap is not uniform across countries. European Commission road-safety syntheses show that 16 to 24 year old drivers are heavily over-represented in crash and fatality statistics, with risks about 2 to 3 times higher than those of more experienced drivers, and that young-driver crashes are more often linked to night driving, speeding, single-vehicle loss-of-control events, alcohol, distraction, and peer passengers (Euopean Comission 2026a, 2026b) Because insurers price for expected claims, age is widely used as a rating factor: the ABI notes that age materially affects both the likelihood and cost of claims and that premiums rise for younger drivers, while Confused.com likewise states that drivers aged 17 to 25 typically face the highest prices (ABI 2026; Rahou 2026). Consequently, drivers entering the insurance market often face substantially higher premiums than older, more experienced policyholders.

The relationship between young drivers and road accident risk is well documented in European and international literature. Reports published by the European Commission indicate that drivers aged 18-24 remain significantly overrepresented in road accident statistics and face accident risks approximately two to three times higher than those of more experienced drivers (European Commission, 2021). Young drivers are particularly associated with single-vehicle crashes, loss-of-control accidents, speeding, night-time driving, and risky driving behaviour linked to distraction, fatigue, alcohol consumption, and peer influence. Similar patterns are evident globally. According to the World Health Organisation (WHO, 2026), road traffic injuries remain the leading cause of death among individuals aged 5-29 worldwide, with young male drivers especially likely to engage in high-risk driving behaviour.

Similar trends are evident in the Polish context as well. Data published annually by the National Police Headquarters indicate that young drivers continue to represent one of the highest-risk categories within road traffic statistics, particularly when measured by the accident rate per 10,000 population. Although the overall number of road accidents in Poland has gradually declined in recent years, young drivers remain disproportionately represented in accident statistics relative to their share of the population (The National Police Headquarters Road Traffic Office, 2025). According to the National Police Headquarters Road Traffic Office (2025), 2941 road accidents involving drivers aged 18-24 were recorded in Poland in 2025. While this age category did not constitute the largest absolute group of accident perpetrators, young drivers ranked among the highest-risk categories when accident frequency was analysed relative to population size. The report also indicates that drivers aged 18-24 ranked fourth in both fatalities and injuries in road accidents. The statistical profile of young drivers presented in police reports remains relatively limited and primarily descriptive. The reports do not provide a broader sociological or behavioural characterisation of this age group, nor do they explain the rationale behind the adopted age classifications.

Nevertheless, the reports consistently associate young drivers with increased risk-taking behaviour, insufficient driving experience, and a lower ability to assess road conditions properly. A particularly significant factor concerns driving speed. According to police statistics, the most common cause of accidents involving young drivers was failure to adjust speed to prevailing traffic conditions, accounting for 35.5% of accidents among drivers aged 18-24. Excessive speed, combined with limited driving experience and behavioural risk factors, contributes to the persistent classification of young drivers as a high-risk category within the motor insurance market.

At the same time, the relationship between accident statistics and insurance pricing remains socially controversial. Although insurers justify higher premiums for young drivers through actuarial risk assessment, public debate increasingly questions whether age-based pricing accurately reflects individual accident risk and driving behaviour. Consequently, the case of young drivers represents a particularly visible example of the broader tension between actuarial fairness and perceived fairness within contemporary motor insurance systems.

From an insurance economics perspective, higher premiums for young drivers are generally justified by actuarial principles and risk-based pricing. According to the classical actuarial approach, insurance premiums should closely match the expected loss for a given insured individual or risk group. More precise risk classification improves market efficiency, reduces adverse selection, and enables insurers to align premiums with anticipated claim costs (Crocker, Snow, 1986; Dionne, Rothschild, 2014). Within this framework, age and driving experience are treated as actuarially relevant predictors of accident probability and therefore constitute legitimate variables in insurance pricing models.

At the same time, the use of demographic variables in insurance pricing raises significant ethical, social, and economic debates. Young drivers often view current premium structures as unfair, overly generalised, or insufficiently linked to their actual driving behaviour and individual accident history. The issue, therefore reflects a broader tension within insurance systems between actuarial fairness and social perceptions of equal treatment. On the one hand, insurers seek to improve pricing accuracy and reduce market inefficiencies through increasingly detailed risk segmentation. On the other hand, excessive reliance on demographic characteristics may fuel perceptions of discrimination and undermine the solidarity-based function traditionally associated with insurance systems (Landes, 2015).

This debate has intensified in recent years as telematics and behavioural pricing systems have become more prominent in motor insurance markets. Contemporary usage-based insurance models increasingly enable insurers to assess policyholders based on actual driving behaviour, rather than relying solely on demographic proxies such as age or gender. Studies by Usman et al. (2024) suggest that telematics-based pricing may reduce cross-subsidisation between low- and high-risk drivers by improving the precision of risk assessment. However, other researchers argue that highly individualised pricing models may weaken the redistributive and solidarity functions of insurance by fragmenting risk pools into increasingly narrow categories (Cevolini, Esposito, 2022; Xin, Huang, 2023). As a result, the development of behavioural insurance technologies raises new questions about the balance between efficient actuarial pricing and socially acceptable forms of risk redistribution.

Despite the growing body of literature on actuarial fairness, risk classification, and technological transformations in the insurance sector, relatively little attention has been devoted to how young drivers perceive these mechanisms. Existing research primarily focuses on the economic efficiency of insurance pricing systems and regulatory frameworks, as well as the technical aspects of telematics-based insurance models. Relatively little research examines the subjective experiences of young drivers, particularly their perceptions of fairness, discrimination, affordability, and the adequacy of age-based premium differentiation.

This research gap is particularly evident in the Polish context. Although industry reports and market surveys indicate growing dissatisfaction among young drivers with third-party liability insurance premiums, academic studies examining young drivers' attitudes to insurance pricing remain limited. Existing Polish studies largely focus on general insurance consumer

behaviour or broader transformations within the insurance sector, while the perspectives of young drivers themselves remain underexplored.

Accordingly, this study aims to examine young drivers' perceptions of the fairness of third-party liability insurance pricing in Poland, with particular emphasis on age-based premium differentiation, perceived unequal treatment by insurers, and attitudes towards the relationship between insurance premiums and actual accident risk. The study also seeks to identify the strategies young drivers use to reduce insurance costs and to assess how factors such as driving experience, vehicle ownership status, and financial responsibility for insurance premiums influence these perceptions. By combining theoretical discussions of actuarial fairness and redistributive pricing mechanisms with empirical evidence collected directly from young drivers, the study contributes to the broader debate over the balance between efficient risk classification and perceived fairness in contemporary motor insurance systems.

2. Theoretical Background and Literature Review

Motor insurance constitutes one of the most significant segments of the Polish property insurance market and encompasses both vehicle protection and the civil liability of vehicle owners and users. The functioning of the motor insurance system is regulated primarily by the Act on Compulsory Insurance (Ustawa z dnia 22 maja 2003 r. o ubezpieczeniach obowiązkowych, Ubezpieczeniowym Funduszu Gwarancyjnym i Polskim Biurze Ubezpieczycieli Komunikacyjnych). The Polish market includes several principal forms of motor insurance, including motor own damage insurance (Autocasco, AC), compulsory third-party liability insurance (odpowiedzialność cywilna, OC), and assistance insurance covering various forms of roadside and post-accident support (Handschke, Monkiewicz, 2010). Among these products, compulsory third-party liability insurance occupies a particularly important position due to its universal and legally mandatory character.

Motor insurance in Poland operates under the bonus–malus principle, in which insurance premiums are adjusted based on a driver's claims history. Claim-free driving generally results in premium reductions, whereas accidents and insurance claims lead to increased premiums (Rogowski, ed., 2016). Premium levels are additionally influenced by factors such as age, driving experience, vehicle type, insurance history, and place of residence. Consequently, motor insurance performs not only a protective and compensatory role but also a preventive and redistributive function within the broader compensation system (Witkowska, 2020).

In the context of motor insurance for young drivers, particular importance is attached to the redistributive dimension of insurance pricing, especially in relation to cross-subsidisation. Cross-subsidisation occurs when insurance premiums diverge from strictly individualised actuarial pricing and instead incorporate a degree of risk pooling between different categories

of policyholders. Under perfect risk classification, each insured individual would pay a premium equal to their expected loss, thereby eliminating implicit financial transfers between groups (Landes, 2015). In practice, however, insurers rarely achieve complete pricing granularity due to regulatory limitations, market structures, and broader social considerations. As a result, motor insurance systems frequently contain implicit redistributive mechanisms through which certain policyholder groups partially subsidise the risks generated by others.

This issue is particularly relevant for young drivers, who are commonly classified as a high-risk category in insurance pricing systems due to their elevated accident risk and limited driving experience. Consequently, the relationship between actuarial fairness, risk classification, and redistributive pricing mechanisms constitutes a central theoretical problem in contemporary motor insurance markets. The theoretical foundations of this issue were established by Crocker and Snow (1985, 1986), who demonstrated that risk classification involves an inherent trade-off between efficiency and redistribution. More precise risk classification reduces adverse selection and improves allocative efficiency; however, it simultaneously eliminates cross-subsidies that may benefit higher-risk groups within pooled insurance arrangements (Crocker, Snow, 1986). Dionne and Rothschild (2014), in a comprehensive review of the literature, further formalised this trade-off by identifying three possible regulatory scenarios. In the first scenario, prohibiting risk classification has no observable effect because there is no meaningful cross-subsidisation in the market. In the second scenario, restrictions on risk classification generate only efficiency losses without producing redistributive benefits. In the third scenario, prohibiting detailed risk classification creates cross-subsidies from low-risk to high-risk policyholders. Although such redistribution may be regarded as socially desirable, it inevitably reduces market efficiency (Dionne Rothschild, 2014).

This theoretical framework is particularly relevant in the context of motor insurance, where young drivers are often classified as high risk due to their elevated accident risk and limited driving experience. Consequently, less differentiated pricing systems may contain implicit redistributive mechanisms through which lower-risk policyholders partially subsidise higher-risk groups, including young drivers. At the same time, highly individualised pricing structures may substantially increase insurance costs for novice drivers, raising broader questions concerning fairness, affordability, and the social function of insurance systems.

Empirical research demonstrates that restrictions on risk classification can generate measurable redistributive effects within insurance markets. Schmeiser, Störmer, and Wagner (2013) examined the consequences of the European Union's 2012 prohibition on gender-based pricing and identified the emergence of cross-subsidisation between male and female policyholders across motor, health, and annuity insurance markets. Their findings indicate that lower-risk groups effectively subsidised higher-risk policyholders under unisex pricing regulations, while individuals facing increased premiums expressed lower acceptance of the revised pricing system. Similar redistributive mechanisms were identified by Finkelstein, Poterba, and Rothschild (2009) in the United Kingdom annuity market, where the magnitude

of cross-subsidisation depended substantially on contractual structures and insurers' ability to differentiate policyholders through alternative mechanisms.

The relationship between compulsory insurance systems and redistributive pricing has also been examined in the context of motor insurance markets. Schwarze and Wein (2005) demonstrate that mandatory third-party motor insurance in Germany required a degree of pooling among heterogeneous policyholders, thereby limiting the efficiency gains associated with increasingly detailed risk classification. Likewise, Tennyson (2010), analysing community-rated automobile insurance in Massachusetts, shows that restricting premium differentiation may produce measurable behavioural effects, as drivers classified as higher risk exhibit weaker incentives to reduce loss exposure when premiums do not accurately reflect individual claims history.

In the literature, particular importance is attributed to bonus–malus systems, which constitute a structural element of most European motor insurance markets. Lemaire and Zi (1994), comparing bonus–malus systems across 22 countries, demonstrate that young and inexperienced drivers frequently pay premiums exceeding their expected losses during the early years of driving, thereby contributing to an intertemporal redistribution mechanism that benefits older, claim-free policyholders later in the insurance cycle. This form of redistribution is rarely explicit yet remains embedded within merit-rated insurance systems. de Jong and Ferris (2006) further argue that excessive restrictions on risk classification may intensify adverse selection if cross-subsidies benefiting higher-risk groups become too substantial relative to the informational advantages available to those policyholders.

Beyond efficiency considerations, the literature increasingly addresses the ethical and normative dimensions of actuarial pricing. Landes (2015) argues that strict actuarial fairness, understood as assigning each policyholder a premium precisely corresponding to individual risk, may undermine the social purpose of insurance by weakening the redistributive and risk-pooling mechanisms inherent within insurance systems. From this perspective, the central issue is not whether redistribution exists within insurance markets, but rather what degree of cross-subsidisation may be considered socially acceptable. Similar concerns are raised by Xin and Huang (2023), who demonstrate that increasingly precise algorithmic pricing models may reduce cross-subsidisation while simultaneously fragmenting the insurance pool and reducing affordability for higher-risk groups, including young novice drivers.

Collectively, these studies demonstrate that motor insurance pricing involves a persistent tension between actuarial efficiency and broader social expectations concerning fairness and solidarity. This tension becomes particularly visible in relation to young drivers, whose elevated premiums are statistically justified yet frequently perceived as excessive or insufficiently individualised.

Recent technological developments are significantly transforming contemporary motor insurance markets. In particular, telematics- and usage-based insurance models increasingly enable insurers to assess policyholders based on actual driving behaviour rather than relying

primarily on demographic indicators such as age or gender. As a result, these technologies are frequently presented as a mechanism capable of reducing redistributive distortions embedded within traditional pricing systems.

Usman et al. (2024) demonstrate that telematics-based pricing models may reduce cross-subsidisation among higher-risk drivers by adjusting premiums according to real-time driving behaviour and behavioural risk indicators. From this perspective, personalised pricing systems may improve actuarial accuracy and reduce the reliance on demographic proxies that frequently disadvantage young drivers. However, the literature also indicates that increasingly individualised pricing mechanisms may generate new forms of inequality and intensify market segmentation.

Gemmo, Browne, and Grundl (2025), analysing a theoretical market characterised by cross-subsidisation under the Wilson-Miyazaki-Spence framework, demonstrate that the introduction of screening technologies such as telematics improves welfare primarily for low-risk individuals willing to disclose behavioural information. At the same time, policyholders unwilling or unable to participate in such systems may experience deteriorating market conditions and intensified adverse selection effects. Consequently, the transition from pooled pricing structures toward highly individualised behavioural pricing does not necessarily produce universally beneficial outcomes.

These developments are particularly relevant in the Polish motor insurance market, where drivers under 25 frequently face premiums substantially above market averages despite the broader downward trend in road accident statistics observed recently. The Polish case therefore illustrates the broader tension identified within the literature between actuarial differentiation, redistributive pricing mechanisms, and perceptions of fairness within compulsory insurance systems. Whether current premium structures primarily reflect objective actuarial risk, implicit cross-subsidisation embedded within bonus–malus systems, or excessive reliance on demographic proxies remains both an empirical and normative question.

Research concerning Polish young drivers' attitudes toward motor insurance pricing and cross-subsidisation mechanisms remains limited. The most directly relevant evidence originates primarily from industry reports rather than academic studies. A 2025 survey conducted by Rankomat found that 55% of respondents believed young drivers pay excessively high third-party liability insurance premiums, while only 23% considered the current pricing system justified (Rankomat.pl, 2025). Among respondents supporting lower premiums for young drivers, the most frequently identified reasons included the general unaffordability of insurance, the financial barriers young people face when seeking independence, and the perception that premium levels do not accurately reflect actual accident risk. These findings suggest a widespread perception that the burden imposed on young drivers within the insurance system may be disproportionate.

At the same time, existing evidence indicates that Polish drivers broadly accept the principle of risk-differentiated pricing itself. According to a study conducted by the Polish Insurance Association (Polska Izba Ubezpieczeń, 2022), 83% of respondents agreed that drivers regularly accumulating penalty points should pay higher insurance premiums. This suggests that dissatisfaction among young drivers may not stem from opposition to actuarial differentiation as such, but rather from perceptions that current pricing systems rely excessively on demographic categories instead of individual driving behaviour.

Academic research addressing these issues within the Polish context remains scarce. Borda and Jędrzechowska (2012) examined consumer attitudes and decision-making processes within the Polish motor insurance market; however, their study preceded the substantial premium increases and market transformations observed during the 2020s and did not specifically address redistributive pricing mechanisms or perceptions of age-based discrimination. Consequently, there remains a lack of empirical research examining how young Polish drivers themselves perceive the fairness of motor insurance pricing systems and whether they consider existing premium differentiation mechanisms justified.

Discussions of telematics and behavioural pricing systems similarly dominate the literature concerning cost-reduction strategies for young drivers. Usman et al. (2024) demonstrate that telematics-based pricing can reduce cross-subsidisation by adjusting premiums based on actual driving behaviour rather than demographic proxies. Cevolini and Esposito (2022; 2025) further argue that behavioural insurance models increasingly individualise risk assessment, potentially improving pricing precision while simultaneously weakening the solidarity and risk-pooling functions traditionally associated with insurance systems. Additional studies also identify practical limitations associated with telematics-based insurance, including privacy concerns, technological costs, cyber risks, and implementation challenges (Cimbru et al., 2025; Qi et al., 2025).

Within the Polish grey literature, several practical strategies for reducing insurance costs are frequently identified, including registering an experienced driver as a co-owner of the vehicle, selecting lower-powered vehicles, comparing offers across insurers, and building a claim-free driving history (Rankomat.pl, 2025; Klaro.pl, 2026; Przewodnik Ubezpieczeniowy, 2026). However, these recommendations remain largely absent from peer-reviewed academic literature. The only recent academic contribution indirectly related to this issue is the study by Śliwiński, Kuryłowicz, and Pajewska-Kwasny (2025), which discusses digital transformation and the growing role of telematics and artificial intelligence in the Polish insurance sector, although it does not directly analyse cost-minimisation strategies among young drivers.

Despite the growing body of literature concerning actuarial fairness, risk classification, and cross-subsidisation in motor insurance, considerably less attention has been devoted to how young drivers themselves interpret and evaluate these mechanisms. Existing studies primarily focus on pricing efficiency, the regulatory consequences of risk classification,

and technological transformations in insurance markets, while the subjective experiences of young drivers remain comparatively underexplored.

This research gap is particularly visible in Poland, where no dedicated academic study has directly examined whether young drivers perceive age-based premium differentiation as fair, whether they believe insurance premiums accurately reflect actual accident risk, or which aspects of the insurance system they consider most discriminatory. Furthermore, limited research has examined how young drivers attempt to reduce insurance costs or how factors such as driving experience, vehicle ownership, and financial responsibility for premiums influence these perceptions.

Accordingly, the purpose of this study is to examine young drivers' perceptions of the fairness of third-party liability insurance pricing in Poland, with particular emphasis on age-based premium differentiation, perceived unequal treatment by insurers, and attitudes toward the relationship between insurance premiums and actual accident risk. The study also seeks to identify the strategies young drivers use to reduce insurance costs and to assess how factors such as driving experience, vehicle ownership status, and financial responsibility for insurance premiums influence these perceptions. To achieve these objectives, the study addresses the following research questions:

RQ1: How do young drivers assess the fairness of third-party liability insurance pricing in Poland?

RQ2: Do young drivers perceive age-based premium differentiation as justified by actual accident risk?

RQ3: Which forms of unequal treatment by insurers are most frequently identified by young drivers?

RQ4: What strategies are most commonly used by young drivers to reduce motor insurance costs?

RQ5: How do factors such as driving experience, vehicle ownership status, and responsibility for paying insurance premiums influence young drivers' perceptions of fairness within the motor insurance market?

By combining theoretical considerations of actuarial fairness and redistributive pricing mechanisms with empirical data collected directly from young drivers, the study contributes to the broader discussion of the balance between efficient risk classification and perceived fairness in contemporary motor insurance systems.

3. Research methodology

For the purposes of this study, a survey was conducted among young drivers participating in the Polish motor insurance market. The study employed the field survey method to collect empirical data. Data collection was carried out between April 2024 and March 2025 in the vicinity of the largest universities located in the Silesian Voivodeship, including the University of Silesia in Katowice, the Silesian University of Technology, the Medical University of Silesia in Katowice, and the University of Economics in Katowice.

Participation in the study was voluntary and anonymous. Before completing the questionnaire, respondents were informed about the purpose of the study and assured that all responses would remain confidential and analysed exclusively in aggregate form. The age range of young drivers was defined as 18–24 years, in accordance with the classification adopted in the annual reports of the National Police Headquarters. Consequently, the inclusion criteria for participation were: (1) being between 18 and 24 years of age and (2) holding a valid driving licence and consenting to participate in the survey.

The study employed a non-probability purposive sampling approach, targeting young drivers within the selected academic environments.

The questionnaire was developed specifically for the purposes of this study following a review of the literature concerning actuarial fairness, motor insurance pricing, cross-subsidisation, and young drivers' perceptions of insurance markets. The instrument consisted predominantly of closed-ended questions designed to measure respondents' perceptions of premium fairness, experiences of unequal treatment by insurers, insurance purchasing behaviour, and opinions regarding the relationship between insurance premiums and accident risk. In addition, one open-ended question enabled respondents to express their own views on changes that could improve the situation of young drivers in the Polish motor insurance market. The questionnaire was therefore designed to address the research objectives and research questions formulated in the preceding section. Prior to data collection, the questionnaire underwent an internal review to ensure clarity, logical sequence, and consistency with the study objectives.

Data were collected using an anonymous questionnaire consisting of 12 substantive questions and four demographic (metric) questions. A total of 128 correctly completed questionnaires were obtained and qualified for further analysis (see Table 1). Given the exploratory nature of the study, the primary objective was not to estimate population parameters but to identify dominant attitudes and perceptions regarding the fairness of motor insurance pricing among young drivers. Consequently, a purposive sample of 128 respondents was considered sufficient to identify the principal patterns and relationships within the analysed population. Nevertheless, the relatively limited sample size may restrict the generalisability of the findings, an issue discussed in the limitations section.

Respondents were recruited in the vicinity of the largest universities in the Silesian Voivodeship because these institutions provided efficient access to individuals belonging to the target population of the study, namely drivers aged 18-24 years. The selection of academic settings was therefore based on practical considerations associated with reaching respondents who met the inclusion criteria rather than on an intention to investigate university students as a distinct social group. Although many participants were students, the study focused on young drivers irrespective of their educational status.

Table 1.
Socio-demographic characteristics of respondents (N = 128) in %

Sex			
Men		Women	
49.2		50.8	
Driving experience			
Less than 1 year	1-2 years	3-5 years	More than 5 years
12.5	53.1	32.8	1.6
Status regarding the vehicle covered by third-party liability insurance			
User without ownership rights	Co-owner of the vehicle	I use the car but I am not its owner or co-owner	
15.6	32.8	51.6	
Responsibility for the payment of the third-party liability insurance premium			
Full self-payment	Partial self-payment	Paid by another person	
58.6	18.0	23.4	

Source: Authors' own calculations based on survey data.

Table 1 presents the socio-demographic characteristics of the respondents participating in the study. The gender distribution of the sample was relatively balanced, with women accounting for 50.8% and men for 49.2%. Concerning driving experience, the largest group of respondents had held a driving licence for between one and two years (53.1%). Respondents with driving experience of three to five years represented 32.8% of the sample, whereas individuals with less than one year of driving experience accounted for 12.5%. Only 1.6% of respondents had possessed a driving licence for more than five years. The analysis of vehicle ownership status indicates that the majority of respondents used a vehicle without being its owner or co-owner (51.6%). Co-owners of vehicles constituted 32.8% of the sample, while sole vehicle owners represented 15.6% of respondents. The findings further demonstrate that most respondents covered the costs of third-party liability insurance premiums independently. 58.6% of respondents reported full self-payment of the insurance premium, whereas 18.0% reported partial contribution to the premium. In contrast, 23.4% of respondents indicated that the insurance premium was paid entirely by another person, such as a parent or guardian.

4. Results

The first two survey questions enabled the researchers to identify the motor insurance products most commonly used by young drivers, as well as their preferences for the insurance companies with which they currently hold policies.

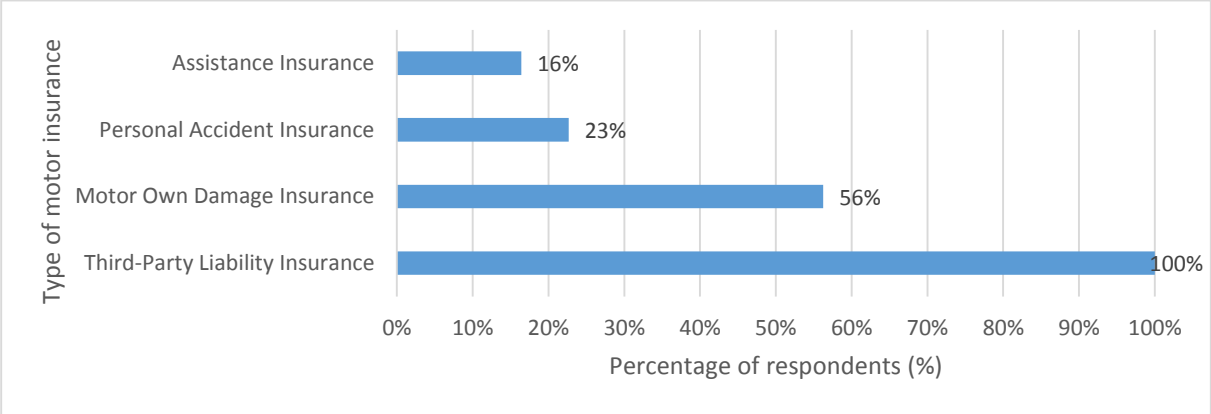

Figure 1. Types of motor insurance held by young drivers.

Source: Authors' own calculations based on survey data.

Figure 1 presents the types of motor insurance policies held by young drivers participating in the study. All respondents reported having compulsory third-party liability insurance (100%), reflecting the mandatory nature of this coverage in Poland. More than half of the respondents additionally reported possessing their own motor damage insurance (56%), indicating a relatively high level of interest in voluntary vehicle protection among young drivers. Participation levels were considerably lower for personal accident insurance (23%) and assistance insurance (16%). These findings suggest that young drivers primarily prioritise mandatory insurance coverage and protection against vehicle damage, while supplementary insurance products remain less common among this demographic.

The distribution of insurance providers selected by young drivers shows a clear dominance of PZU, chosen by 41% of respondents (see Figure 2). The second-most-frequently chosen insurer was Warta, selected by 23% of respondents.

Considerably lower percentages were observed for the remaining insurance companies. ERGO Hestia and Allianz Polska were each indicated by 9% of respondents, while UNIQA accounted for 8%. Link4 was selected by 5% of respondents, whereas Compensa, Generali, Aviva, and HDI Ubezpieczenia each represented 2% of responses. The findings suggest a strong concentration of young drivers within the largest and most recognisable insurance providers operating in the Polish market. This pattern may reflect factors such as brand recognition, perceived reliability, pricing policies, market availability, or the influence of family purchasing decisions in the selection of motor insurance providers.

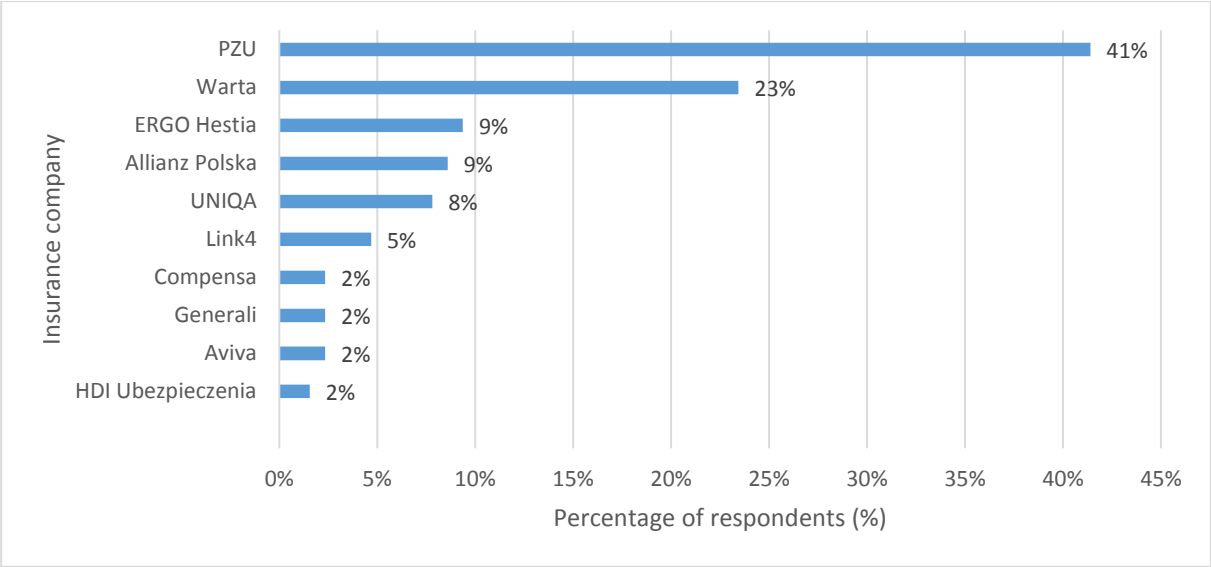

Figure 2. Motor insurance companies selected by young drivers.

Source: Authors' own calculations based on survey data.

The survey also examined the factors influencing young drivers' selection of motor insurance companies (see Figure 3). The findings indicate that insurance price was the most significant determinant in the decision-making process. A substantial proportion of respondents agreed or strongly agreed that insurance cost influenced their choice of insurer, confirming the high price sensitivity characteristic of younger consumers.

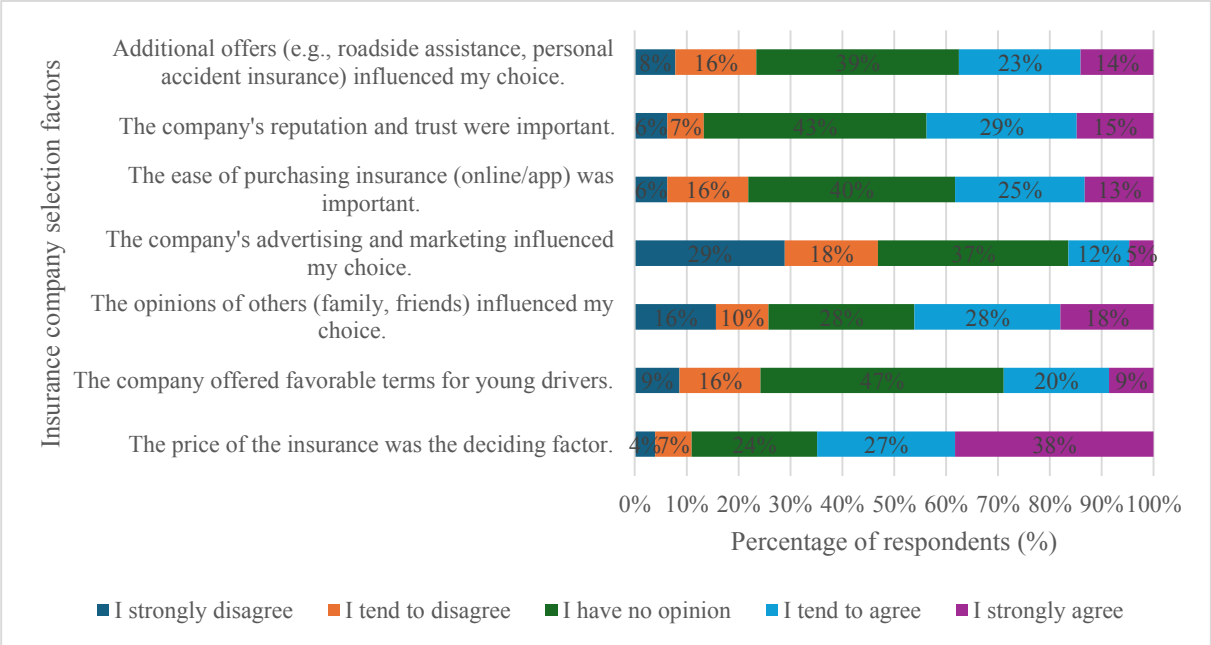

Figure 3. Factors influencing young drivers' choice of an insurance company.

Source: Authors' own calculations based on survey data.

Another important factor was the availability of favourable insurance terms specifically for young drivers. Nearly half of the respondents expressed neutral opinions in this regard; however, a considerable share indicated that preferential terms influenced their purchasing

decisions. Similar tendencies were observed for the reputation and trustworthiness of the insurance company, as well as for the ease of purchasing insurance through online platforms or mobile applications. These results suggest that both economic and convenience factors play an important role in young drivers' insurance preferences.

Additional insurance benefits, such as roadside assistance or personal accident insurance, were also identified as factors influencing insurer selection, although respondents' opinions were more diversified in this category. By contrast, advertising and marketing activities appeared to exert only a limited influence on respondents' decisions, with a substantial proportion expressing disagreement or neutral attitudes toward this factor.

The opinions of family members and friends also demonstrated moderate importance in the insurer selection process. This finding may indicate that young drivers partially rely on informal recommendations and social environment when making insurance-related decisions, particularly during the early stages of participation in the motor insurance market.

The respondents were also asked to evaluate the level of the third-party liability insurance premium offered by their current insurance company (see Table 2). Assessments were made using a five-point Likert scale ranging from "definitely too high" to "definitely too low". Notably, none of the respondents evaluated the premium as either "rather low" or "definitely low", indicating a generally negative perception of insurance pricing among young drivers.

Table 2.
Rating the third-party liability insurance premium offered to the young driver by their current insurance company (N = 128)

		Definitely too high	Rather too high	Adequate
Overall		28%	41%	31%
Sex	Women	23%	45%	32%
	Men	38%	38%	24%
Driving experience	Less than 1 year	25%	44%	31%
	1-2 years	25%	44%	31%
	3-5 years	40%	38%	21%
	More than 5 years	50%	0%	50%
Status regarding the vehicle covered by third-party liability insurance	User without ownership rights	60%	25%	15%
	Co-owner of the vehicle	26%	50%	24%
	I use the car, but I am not its owner or co-owner	24%	41%	35%
Responsibility for payment of the third-party liability insurance premium	Full self-payment	43%	40%	17%
	Partial self-payment	39%	35%	26%
	Paid by another person	23%	44%	33%

Source: Authors' own calculations based on survey data.

Overall, the majority of respondents considered the insurance premium to be excessively high. Specifically, 41% of participants described the premium as "rather too high", while 28% regarded it as "definitely too high". Only 31% assessed the premium level as adequate.

Differences were also observed between male and female respondents. Men demonstrated a more critical assessment of insurance prices, with 38% indicating that premiums were "definitely too high", compared with 23% of women. Female respondents were more likely to select the response "rather too high" (45%) than male respondents (38%).

Substantial differences were also observed regarding vehicle ownership status. Respondents using vehicles without ownership rights expressed the most negative evaluations, with 60% indicating that premiums were "definitely too high" and only 15% considering them adequate. By contrast, co-owners of vehicles demonstrated comparatively less critical attitudes, with half of the respondents evaluating premiums as "rather too high" and 24% considering them adequate. Respondents who used a vehicle without being its owner or co-owner provided relatively more balanced assessments, although negative evaluations continued to predominate.

Perceptions of insurance pricing also varied by driving experience. Respondents with less than three years of driving experience most frequently assessed premiums as "rather too high" (44%). Among drivers with three to five years of experience, 40% considered the premiums "definitely too high". The most experienced respondents, with more than 5 years of driving experience, showed a more divided assessment: half rated premiums as "definitely too high". while the other half considered them adequate.

A similar relationship was identified regarding responsibility for the insurance premium. Respondents who independently covered the full insurance cost expressed the most critical evaluations, with 43% describing premiums as "definitely too high." By contrast, individuals whose insurance premiums were paid by another person assessed pricing less negatively, with 33% considering the premium level adequate.

The survey additionally examined the strategies employed by young drivers to reduce the cost of third-party liability insurance premiums (Figure 4). The findings indicate that the most common method was the use of multi-insurance packages offered by a single insurer, which was declared by 46% of respondents. Another frequently reported strategy was building a claim-free driving history to obtain future discounts, as reported by 43% of participants.

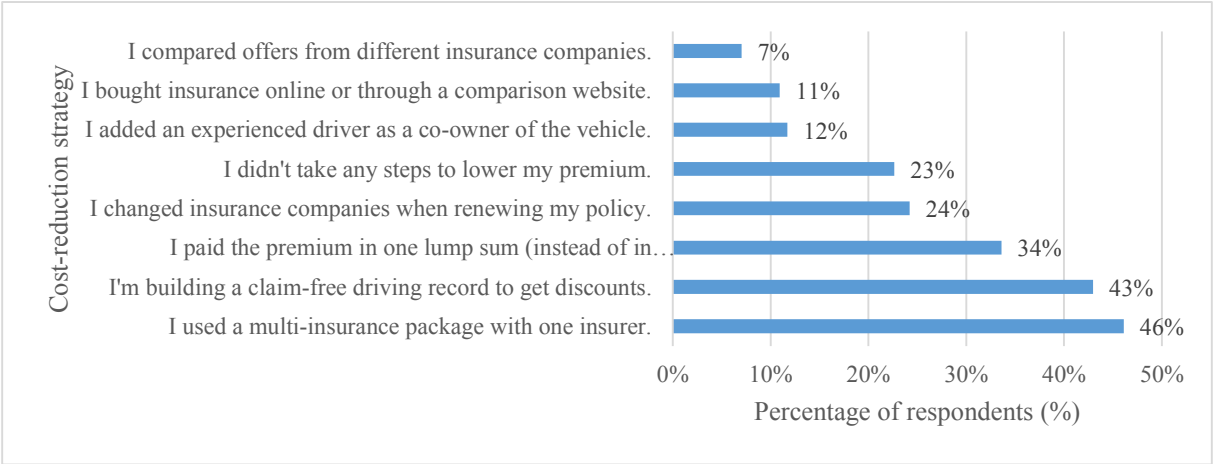

Figure 4. Strategies used by young drivers to reduce third-party liability insurance premiums.

Source: Authors' own calculations based on survey data.

A considerable proportion of respondents also declared paying the insurance premium as a single lump-sum payment rather than in instalments (34%). Less frequently, respondents reported changing insurance companies during policy renewal periods (24%) or taking no action to reduce the premium (23%). Other strategies were relatively uncommon among the surveyed young drivers. Adding a more experienced driver as a co-owner of the vehicle was indicated by 12% of respondents, while 11% reported purchasing insurance online or through comparison websites. Only 7% declared actively comparing offers from different insurance companies before purchasing a policy. The results suggest that young drivers primarily rely on long-term discount mechanisms and insurer package offers rather than active market comparisons when attempting to reduce insurance costs. This may indicate limited market knowledge, low engagement in comparative analysis, or a preference for simplified purchasing decisions within this demographic group.

The subsequent survey question examined whether young drivers believed they were treated less favourably by insurers than older drivers (see Table 3).

Table 3.
Young drivers' perceptions of insurer treatment relative to older drivers (N = 128)

		Yes	No	it's hard to say
Overall		78%	4%	18%
Sex	Women	80%	2%	18%
	Men	76%	6%	17%
Driving experience	Less than 1 year	69%	6%	25%
	1-2 years	81%	1%	18%
	3-5 years	79%	7%	14%
	More than 5 years	50%	0%	50%
Status regarding the vehicle covered by third-party liability insurance	User without ownership rights	85%	5%	10%
	Co-owner of the vehicle	81%	5%	14%
	I use the car, but I am not its owner or co-owner	74%	3%	23%
Responsibility for payment of the third-party liability insurance premium	Full self-payment	85%	5%	10%
	Partial self-payment	81%	5%	14%
	Paid by another person	74%	3%	23%

Source: Authors' own calculations based on survey data.

The results indicate that the majority of respondents perceived age-based unequal treatment by insurance companies. Overall, 78% of respondents answered affirmatively, while only 4% rejected this opinion. The remaining 18% indicated uncertainty.

Differences between male and female respondents were relatively limited. Women more frequently perceived unequal treatment by insurers (80%) compared with men (76%), whereas male respondents slightly more often rejected this opinion.

The perception of unequal treatment was also associated with driving experience. Respondents with one to two years of driving experience most frequently declared that young drivers were treated worse by insurers (81%). A similarly high proportion was observed among drivers with three to five years of experience (79%). By contrast, respondents with more

than 5 years of driving experience showed more divided opinions, though this result should be interpreted cautiously given the limited number of individuals in this category.

Substantial differences were also observed regarding vehicle ownership status and responsibility for insurance payments. Respondents without ownership rights to the insured vehicle most frequently perceived unequal treatment by insurers (85%). An identical percentage was recorded among respondents who fully financed their insurance premiums. In contrast, respondents whose premiums were paid by another person reported less frequent discriminatory treatment, although affirmative responses continued to predominate in this group.

The findings suggest that young drivers are highly aware of age-based differentiation in the motor insurance market and commonly perceive insurance pricing practices as unfavourable toward their demographic.

Young drivers were also asked whether they had ever encountered insurer treatment they perceived as unequal or discriminatory (see Figure 5). The results indicate that the most commonly identified issue was the imposition of very high third-party liability insurance premiums, which was reported by 71% of respondents. This finding confirms that insurance pricing is the primary area in which young drivers perceive unfavourable treatment in the motor insurance market.

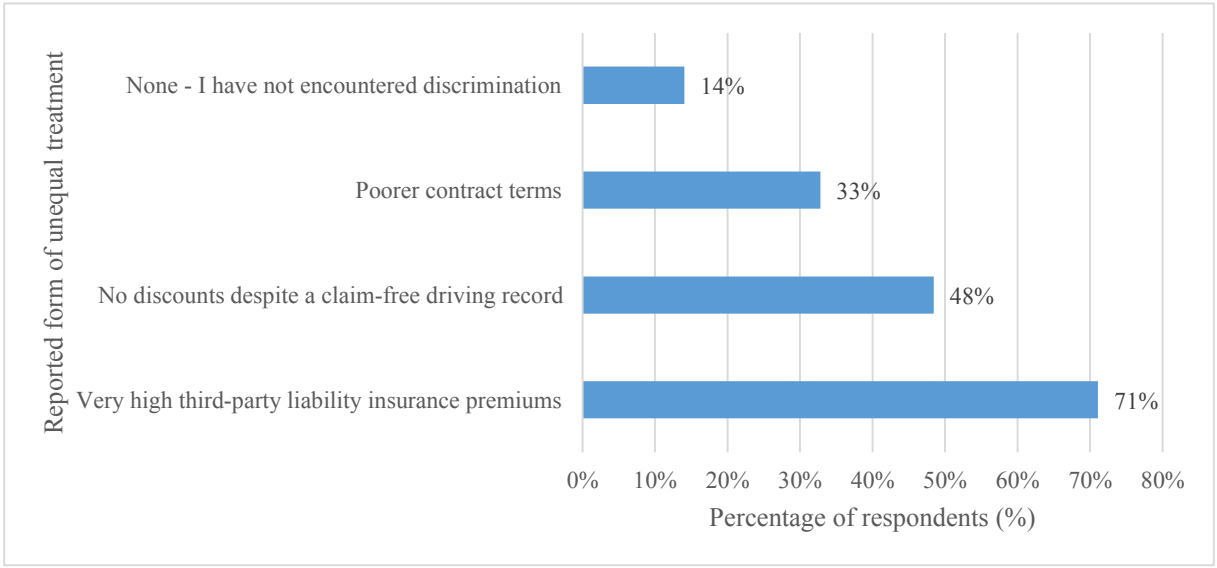

Figure 5. Forms of unequal treatment perceived by young drivers.

Source: Authors' own calculations based on survey data.

Another frequently indicated problem concerned the lack of discounts despite maintaining a claim-free driving record, as reported by 48% of respondents. This suggests that many young drivers perceive limited opportunities to benefit from standard bonus mechanisms commonly available to more experienced drivers. Additionally, 33% of respondents reported encountering less favourable contract conditions specifically offered to young drivers. These responses may reflect perceptions of restricted coverage, less advantageous policy terms, or higher contractual requirements imposed on younger policyholders. Only 14% of respondents reported not

experiencing any form of unequal treatment by insurers. Overall, the findings suggest that the vast majority of surveyed young drivers perceive age-based disparities in the insurance market, particularly in pricing and access to preferential conditions.

Given the context of the preceding survey questions concerning insurance pricing and perceived unequal treatment, respondents were additionally asked whether, in their opinion, the level of third-party liability insurance premiums accurately reflects the actual risk of causing road accidents (see Table 4).

The results demonstrate a predominantly sceptical attitude toward the fairness of insurance pricing mechanisms among young drivers. Overall, 59% of respondents stated that insurance premiums do not adequately reflect the actual risk of causing accidents, whereas only 8% disagreed. One-third of respondents (33%) indicated uncertainty regarding this issue.

Table 4.
Young drivers' perceptions of the adequacy of third-party liability insurance premiums relative to accident risk (N = 128)

		Yes	No	it's hard to say
Overall		8%	59%	33%
Sex	Women	5%	62%	34%
	Men	11%	57%	32%
Driving experience	Less than 1 year	13%	69%	19%
	1–2 years	9%	62%	29%
	3–5 years	2%	55%	43%
	More than 5 years	50%	0%	50%
Status regarding the vehicle covered by third-party liability insurance	User without ownership rights	10%	60%	30%
	Co-owner of the vehicle	12%	62%	26%
	I use the car, but I am not its owner or co-owner	5%	58%	38%
Responsibility for payment of the third-party liability insurance premium	Full self-payment	7%	73%	20%
	Partial self-payment	4%	61%	35%
	Paid by another person	9%	53%	37%

Source: Authors' own calculations based on survey data.

Differences between male and female respondents were relatively limited, though women showed slightly stronger scepticism toward insurance pricing practices. Among female respondents, 62% rejected the view that premiums accurately reflect accident risk, compared with 57% among men.

Perceptions of premium adequacy also varied by driving experience. Respondents with less than three years of driving experience most frequently rejected the relationship between premium levels and actual accident risk, with negative responses accounting for 69% and 62%, respectively. Drivers with three to five years of experience demonstrated the highest level of uncertainty, with 43% selecting the response “it is hard to say”. The results for respondents with more than 5 years of driving experience should be interpreted cautiously, given the minimal size of this subgroup.

Differences were also observed regarding vehicle ownership status and responsibility for insurance payments. Respondents fully financing their insurance premiums expressed the strongest disagreement with the statement that premiums accurately reflect accident risk, with 73% selecting the response "no". Similarly, high levels of scepticism were observed among respondents who used vehicles without ownership rights.

Overall, the findings suggest that young drivers frequently perceive insurers' pricing policies as insufficiently linked to individual driving behaviour and actual accident risk. This may indicate a belief that age-based categorisation plays a more significant role in insurance pricing than individual driving characteristics or claim history.

The final question addressed to young drivers was open-ended and aimed to identify potential changes that, in the respondents' opinion, could improve young drivers' position in the motor insurance market. Respondents were invited to freely express their views and propose solutions concerning insurance pricing, policy conditions, and insurer practices. The responses were subsequently grouped into thematic categories to identify the most frequently recurring opinions and expectations among the surveyed individuals (see Figure 6).

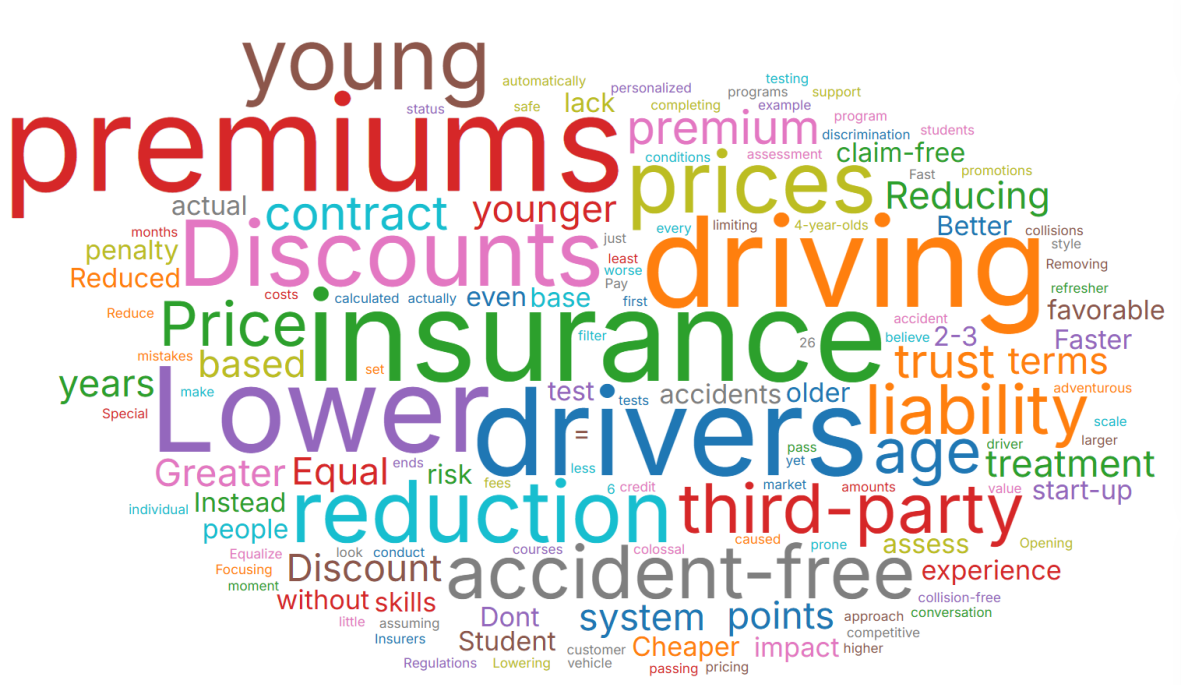

Figure 6. Young drivers' proposals for improving the motor insurance market (word cloud).

Source: Authors' own calculations based on survey data.

The responses to the open-ended question revealed a high degree of dissatisfaction among young drivers with the functioning of the motor insurance market, particularly regarding the pricing policies applied to third-party liability insurance. The dominant theme identified in respondents' statements concerned the need to reduce insurance premiums for young drivers. Numerous respondents directly emphasised that insurance costs were excessively high, using expressions such as "a colossal price reduction", "lower third-party liability insurance premiums", and "pay at least a little less for third-party liability insurance premiums".

Another frequently recurring issue concerned insurers' perceived overreliance on age as a determinant of insurance pricing. Respondents repeatedly argued that premiums should be based primarily on actual driving behaviour, accident history, and penalty points rather than on age or the length of driving licence possession. Several participants explicitly called for "equal treatment of drivers regardless of age or length of driving licence" and argued that insurers should "not look at age, just the lack of accidents". One respondent stated that insurers should "focus on actual accident-free driving instead of driving experience", while another suggested that "premiums should be set based on accident-free driving and penalty points".

The responses also indicate a strong expectation for faster, more accessible discount systems for young drivers. Many respondents expressed frustration that several years of claim-free driving did not result in meaningful premium reductions. One participant noted:

"I've had my licence for three years and still don't get a discount, even though I haven't had a single accident or ticket".

Similarly, respondents proposed mechanisms such as "discounts for claim-free driving every 6 months", "faster discounts", and "discounts calculated from the moment they pass their driving test".

A further recurring theme concerned the perception that insurers demonstrate insufficient trust toward young drivers. Respondents frequently emphasised the need for a more individualised assessment of risk rather than generalised assumptions based on age. Several participants suggested that insurers should assess "actual driving skills to assess risk" or introduce systems based on driving style and safe driving behaviour. One respondent proposed:

"Instead of automatically assuming that younger drivers are worse, conduct tests that actually assess skills and base the premium on them".

In addition to financial issues, some respondents proposed institutional or regulatory changes to limit age-based differentiation in insurance pricing. Suggestions included "regulations limiting age discrimination", "lowering the age at which young driver status ends", and introducing "special programmes for students and people up to 26 years of age".

The collected responses demonstrate that young drivers perceive the current motor insurance system as insufficiently individualised and excessively dependent on age-based risk categorisation. The findings suggest that respondents expect greater recognition of accident-free driving, safer driving behaviour, and personal responsibility within insurance pricing mechanisms.

The final issue addressed in the survey concerned young drivers' opinions regarding the fairness of the system used to determine third-party liability insurance premiums in Poland (see Table 5). The collected responses indicate a predominantly negative assessment of the current pricing system. More than half of respondents (52%) stated that the existing system for determining insurance premiums is unfair, whereas only 7% considered it fair. A substantial proportion of respondents (41%) selected the response "it is hard to say", suggesting uncertainty about the mechanisms insurers use to calculate insurance premiums.

Table 5.
Young drivers' perception of the fairness of the third-party liability insurance premium system in Poland (N = 128)

		Yes	No	it's hard to say
	Overall	7%	52%	41%
Sex	Women	5%	57%	38%
	Men	10%	48%	43%
Driving experience	Less than 1 year	19%	56%	25%
	1-2 years	6%	53%	41%
	3-5 years	5%	48%	48%
	More than 5 years	0%	100%	0%
Status regarding the vehicle covered by third-party liability insurance	User without ownership rights	10%	75%	15%
	Co-owner of the vehicle	5%	40%	55%
	I use the car, but I am not its owner or co-owner	8%	53%	39%
Responsibility for the payment of the third-party liability insurance premium	Full self-payment	3%	60%	37%
	Partial self-payment	13%	61%	26%
	Paid by another person	7%	47%	47%

Source: Authors' own calculations based on survey data.

Differences between male and female respondents were relatively limited, although women more frequently evaluated the system negatively. Among female respondents, 57% considered the premium determination system unfair, compared with 48% of men. Male respondents were more likely to express uncertainty about this issue.

Perceptions of unfairness were also associated with driving experience. Respondents with less than one year of driving experience most frequently assessed the system negatively (56%). Negative evaluations remained dominant among drivers with one to two years (53%) and three to five years of driving experience (48%). Particularly noteworthy is the result among respondents with more than 5 years of driving experience, all of whom rated the system as unfair. However, this finding should be interpreted cautiously due to the limited size of this subgroup.

Substantial differences were also observed regarding vehicle ownership status. Respondents using vehicles without ownership rights expressed the most critical opinions, with 75% considering the premium determination system unfair. Comparatively, lower levels of negative assessment were recorded among co-owners of vehicles (40%), although uncertainty remained particularly high within this group.

The findings further indicate that direct financial responsibility for insurance premiums influences perceptions of fairness. Respondents who fully finance their own insurance premiums showed the greatest dissatisfaction with the current system, with 60% rating it negatively. By contrast, respondents whose premiums were paid by another person more frequently expressed uncertainty regarding the fairness of insurance pricing mechanisms.

The results suggest that young drivers commonly perceive the current system of determining third-party liability insurance premiums as insufficiently transparent and inadequately adjusted to individual driving behaviour and actual accident risk.

5. Discussion and conclusion

The purpose of this study was to examine young drivers' perceptions of the fairness of third-party liability insurance pricing in Poland, with particular emphasis on age-based premium differentiation, perceived unequal treatment by insurers, and attitudes toward the relationship between insurance premiums and actual accident risk. The study also sought to identify the strategies young drivers use to reduce insurance costs and to assess how factors such as driving experience, vehicle ownership status, and financial responsibility for insurance premiums influence these perceptions.

The findings indicate that young drivers constitute a distinct and economically vulnerable group within the Polish motor insurance market. The analysis of statistical data from the National Police Headquarters, combined with the survey conducted among drivers aged 18-24, confirms that this age group continues to be characterised by relatively high accident risk, which is reflected in higher third-party liability insurance premiums. This observation is consistent with previous studies demonstrating that novice drivers are disproportionately represented in road traffic accidents and therefore remain classified by insurers as a high-risk category (European Commission, 2026a, 2026b). However, while the actuarial rationale for age-based premium differentiation is well established in the literature, the present study demonstrates that young drivers frequently perceive the current pricing system as insufficiently reflecting their individual driving behaviour and actual accident risk. This finding highlights the tension between actuarial fairness, based on statistical risk assessment, and perceived fairness, based on individual expectations of equitable treatment, which has been discussed by Landes (2015) and more recently by Xin and Huang (2023).

The statistical analysis confirmed that young drivers remain disproportionately represented in road accident statistics in Poland, particularly in terms of the accident rate per 10,000 population. Although the number of accidents involving young drivers has gradually declined in recent years, this group continues to exhibit one of the highest accident rates among all driver categories. These findings are consistent with reports published by the European Commission (2026a; 2026b), which identify novice drivers as being particularly vulnerable to road accidents due to limited driving experience and a greater propensity for risk-taking behaviours. Similar conclusions have been reported in international studies, which demonstrate that young drivers are overrepresented in speed-related, single-vehicle, and loss-of-control crashes. Consequently, the objective accident statistics support insurers' classification of young drivers as a high-risk category, providing an actuarial justification for higher insurance premiums. However, as demonstrated by the present study, actuarial justification alone does not necessarily translate into acceptance of premium differentiation by those directly affected by it.

The survey findings further indicate that third-party liability insurance premiums constitute a substantial financial burden for young drivers. Most respondents assessed current premium levels as excessively high, while none considered them low. These findings correspond with the results of the Rankomat (2025) survey, in which more than half of Polish respondents also considered premiums for young drivers to be excessive. However, the present study extends these observations by demonstrating that dissatisfaction with insurance pricing is particularly pronounced among respondents who bear the financial responsibility for paying insurance premiums themselves. This suggests that direct exposure to insurance costs significantly shapes perceptions of affordability and fairness, making financial responsibility an important factor influencing attitudes toward insurance pricing. The findings therefore indicate that perceptions of fairness are influenced not only by the objective level of premiums but also by the economic burden experienced by individual policyholders.

The findings further demonstrate that dissatisfaction among young drivers does not stem from opposition to risk differentiation itself, but rather from the perception that current pricing systems insufficiently recognise individual driving behaviour. Respondents frequently indicated that insurers rely excessively on age-based classification while paying limited attention to factors such as accident-free driving history, penalty points, or actual driving skills. These findings suggest that respondents do not reject the principle of risk-based pricing itself; instead, they question the variables currently used to estimate individual risk. Consequently, many respondents perceived existing pricing practices as overly generalised and insufficiently individualised.

The present study extends the existing literature by distinguishing between acceptance of risk-based pricing as a principle and dissatisfaction with the specific variables currently used for risk classification. The findings indicate that young drivers do not reject differentiated insurance premiums per se; rather, they question the predominance of demographic characteristics over behavioural indicators such as accident-free driving, penalty-point records, or actual driving behaviour. While previous studies have largely focused on the efficiency and fairness of actuarial pricing systems, the present study demonstrates that young drivers generally accept differentiated premiums when they are perceived to reflect individual driving behaviour rather than demographic characteristics alone.

This interpretation is reinforced by respondents' perceptions of unequal treatment within the insurance market. Most surveyed drivers believed that insurers treat young drivers less favourably than older policyholders, primarily through higher premiums, limited access to discounts, and less favourable contractual conditions. Particularly significant was the widespread belief that insurance premiums do not accurately correspond to the actual probability of causing accidents. Instead, respondents perceived age itself as the dominant determinant of premium calculation. These findings provide an interesting perspective on the theoretical debate concerning actuarial fairness and risk classification. While previous studies have demonstrated that demographic characteristics, including age, improve insurers' ability to

estimate expected losses (Crocker, Snow, 1986; Dionne, Rothschild, 2014), the present study suggests that young drivers place greater value on behavioural indicators of risk than on demographic proxies. This finding supports the argument advanced by Landes (2015) that perceptions of fairness in insurance extend beyond actuarial accuracy and involve broader social expectations regarding equal and individualised treatment.

The present study extends the existing literature by demonstrating that dissatisfaction among young drivers is directed primarily at the variables currently used for risk classification rather than at the principle of risk-based pricing itself. While previous studies have largely focused on actuarial efficiency, regulatory consequences, or technological developments in insurance pricing, the present findings indicate that young drivers generally accept differentiated premiums when they are perceived to reflect observable driving behaviour rather than demographic characteristics alone.

The open-ended responses provide additional insight into young drivers' expectations of the insurance system. The dominant demand concerned lower premiums for drivers maintaining a claim-free driving history and greater recognition of individual driving behaviour in premium determination. Respondents frequently proposed solutions based on behavioural rather than demographic risk assessment, including premium reductions linked to accident-free driving, penalty-point records, completion of safe-driving courses, and individualised monitoring systems. Faster access to discounts, student-oriented insurance programmes, and more flexible pricing structures were also commonly suggested. These findings indicate that young drivers favour insurance systems that reward demonstrated driving behaviour, rather than relying primarily on demographic characteristics such as age or driving experience.

The respondents' expectations closely correspond with recent developments in motor insurance research. The growing interest in telematics and usage-based insurance reflects a broader shift from demographic toward behavioural risk assessment. Usman et al. (2024) demonstrated that telematics-based pricing can reduce cross-subsidisation by aligning premiums more closely with actual driving behaviour, while Cevolini and Esposito (2022, 2025) argue that although such approaches increase individual responsibility and pricing accuracy, they may simultaneously weaken the solidarity function traditionally associated with insurance. The preferences expressed by respondents therefore mirror broader changes taking place within contemporary insurance markets, where advances in data collection enable increasingly personalised pricing models.

Taken together, these findings reinforce the broader theoretical debate concerning actuarial fairness and redistributive pricing in insurance systems. Although insurers' reliance on age-based risk classification is supported by objective accident statistics and actuarial principles, the surveyed respondents frequently perceived these practices as disproportionate and insufficiently transparent. The present study therefore illustrates a clear distinction between actuarial fairness and perceived fairness. Whereas insurers seek to maximise pricing accuracy through statistically significant risk factors, young drivers evaluate fairness primarily through

the extent to which premiums reflect their own driving behaviour and personal responsibility. Consequently, the findings suggest that dissatisfaction with current pricing mechanisms is driven less by opposition to risk-based pricing itself than by a preference for more individualised and transparent methods of risk assessment.

The results additionally suggest that behavioural pricing mechanisms based on observable driving behaviour may represent a compromise between actuarial efficiency and perceived fairness among young drivers. Many respondents expressed support for pricing mechanisms linked directly to individual driving behaviour and claim history, which closely corresponds with recent developments in telematics-based insurance and usage-based pricing discussed in the literature (Usman et al., 2024). At the same time, these expectations reflect broader concerns identified by Cevolini and Esposito (2022; 2025), who argue that although behavioural pricing may improve actuarial accuracy and individual responsibility, it may also weaken the solidarity function traditionally associated with insurance systems. Consequently, the present findings suggest that young drivers favour insurance systems that combine actuarial precision with greater transparency and recognition of individual driving behaviour, rather than relying predominantly on demographic characteristics.

Taken together, the findings contribute to the growing discussion on the relationship between actuarial fairness and perceived fairness in contemporary motor insurance systems. While previous research has primarily examined the economic efficiency of risk classification and the implications of cross-subsidisation, the present study provides empirical evidence on how these mechanisms are perceived by the group most directly affected by age-based pricing policies. The results demonstrate that young drivers generally accept the principle of differentiated insurance premiums when these are based on observable driving behaviour and individual risk factors. However, dissatisfaction emerges when premium determination is perceived as relying predominantly on demographic characteristics. By combining theoretical considerations regarding actuarial fairness with empirical evidence from the Polish motor insurance market, the study contributes to a better understanding of the social acceptance of risk-based insurance pricing and highlights the importance of transparency and individualisation in future insurance models.

Overall, the findings provide clear answers to the research questions formulated in the literature review. The results indicate that young drivers generally perceive the current premium determination system as unfair (RQ1), question whether age-based differentiation adequately reflects actual accident risk (RQ2), identify high premiums and limited access to discounts as the principal forms of unequal treatment (RQ3), rely primarily on long-term discount mechanisms and insurance packages to reduce costs (RQ4), and demonstrate that financial responsibility for insurance premiums significantly shapes perceptions of fairness (RQ5).

Despite the valuable findings obtained through the study, several limitations should be acknowledged. First, the research was conducted on a relatively small sample of 128 respondents, limiting the generalisability of the results to the broader population of

young drivers in Poland. The study was additionally limited to respondents in the Silesian Voivodeship, primarily in the vicinity of major universities, which may have led to the over-representation of students and individuals pursuing higher education. Second, the research relied on self-reported survey data, which are subject to subjective perceptions, response bias, and individual interpretations of fairness and discrimination. Respondents' evaluations of insurers and premium determination mechanisms, therefore, do not necessarily correspond to the actuarial methodologies actually employed by insurance companies. Another limitation is the study's cross-sectional design. The findings reflect respondents' opinions at a specific point and do not capture potential changes in perceptions resulting from evolving market conditions, regulatory reforms, or fluctuations in insurance premiums. Furthermore, the study focused primarily on perceived fairness and subjective experiences rather than on direct analysis of insurers' pricing algorithms or actuarial data. Finally, certain respondent categories, particularly drivers with longer driving experience, were represented by relatively few participants. Consequently, findings concerning these subgroups should be interpreted cautiously.

The findings demonstrate that although age-based premium differentiation is actuarially justified, young drivers increasingly expect insurance pricing to reflect individual driving behaviour rather than demographic characteristics alone. The study therefore contributes to the ongoing debate concerning the balance between actuarial efficiency and perceived fairness in contemporary motor insurance systems, particularly in markets where compulsory third-party liability insurance plays a central social role.

Future research could therefore benefit from larger, more geographically diverse samples, comparative analyses across additional age groups, and the incorporation of insurer-side actuarial data on premium calculation mechanisms. Further studies examining telematics-based insurance systems and individualised behavioural pricing models may also provide valuable insight into potential alternatives to traditional age-based pricing structures.

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