PRICING STRATEGY IN THE ROAD INDUSTRY:
THEORETICAL FOUNDATIONS AND PRACTICAL ASPECTS

Objective. The pricing strategy is a critical aspect of any business, including the road industry. This paper examines the theoretical foundations and practical aspects of pricing strategy in the road industry. The study explores the essence of pricing and pricing strategy in road enterprises, the methods used to determine the price of road works, and the peculiarities of estimating costs to cover risks when calculating the value of road works. The purpose of this research is to identify the main factors influencing the pricing strategy of road enterprises and to propose recommendations for improving the pricing strategy. Methods. The research methods used in this paper include a literature review, analysis of statistical data, and case studies. The study found that pricing strategy in the road industry is influenced by factors such as market demand, competition, cost of production, and government regulations. Results. The most commonly used pricing methods in the road industry include cost-plus pricing, value-based pricing, and target costing. Estimating the costs to cover risks when calculating the value of road works is crucial for ensuring the profitability and sustainability of road enterprises. The practical significance of this research lies in providing road enterprises with a comprehensive understanding of pricing strategy and its importance in the industry. The research findings can help road enterprises develop effective pricing strategies that balance the interests of stakeholders and contribute to the development of the road industry. In conclusion, this paper provides an in-depth analysis of the theoretical foundations and practical aspects of pricing strategy in the road industry. The study highlights the importance of pricing strategy for the sustainability and profitability of road enterprises and provides recommendations for improving the pricing strategy. Further research can be focused on exploring the impact of emerging technologies on pricing strategy in the road industry and developing pricing models that account for environmental sustainability. Keywords: road management, price strategy, cost calculation, risk management, pricing.
Analysis of recent research and publications.
In recent years, researchers have examined various aspects of pricing strategies in the road industry. For example, J. Smith in [1] analyzed the importance of pricing in the transport sector and concluded that effective pricing can significantly affect a company's profitability. In a similar study, Y. Chen, Y. Wang [2] explored the role of pricing in the context of supply chain management, emphasizing the need to consider pricing as an integrated part of the overall business strategy.

Other researchers have focused on specific pricing strategies. For instance, Wu Y., Liu Y., Wang Y. in [3] investigated the use of value-based pricing in the road industry, arguing that it can lead to improved customer satisfaction and increased profits. Zhang Y., Li Y. [4] examined the effectiveness of cost-plus pricing in the context of road infrastructure projects, finding that it can be a useful method for ensuring fair prices and profitability.


Overall, these studies highlight the importance of effective pricing strategies in the road industry and provide insights into various approaches and factors that can impact pricing decisions.

The current article aims to build on this existing research by analyzing the theoretical foundations of pricing strategies in the road industry and examining practical examples of their application at the Ukrainian and global levels. The study's goal is to identify the most effective pricing strategies for the road industry and provide recommendations for their implementation. The research's novelty lies in its comprehensive analysis of theoretical and practical aspects of pricing strategies in the road industry, which can contribute to the development of a more efficient pricing policy for companies in this sector.

The study was based on a theoretical and methodological framework that included the works of both Ukrainian and international scholars, methodological standards, analytical reports from national and international organizations, practical comments and recommendations, as well as insights from experts and companies.

The essence of the concepts of price and pricing at road enterprises of the economy requires additions and clarifications, which is connected with peculiarities of the activities of road enterprises and their performance of special works, as the above interpretation the concept of "price" reveals its general meaning, so it needs clarification. Theoretical and applied issues of pricing in the road industry were studied I. Kozarchuk [8], G. Lipskyi [9], L. Lysenko [10], M. Lykhostup [9], S. Secant [11], V. Shemaev [12] and others, however, are absent fundamental scientific research.

The purpose of the article. The purpose of this article is to analyze the theoretical foundations of the pricing strategy in the road industry and to apply the practical aspects of its application at the Ukrainian level. The task of the research is carried out in the analysis of different approaches to pricing, identification of factors influencing the price policy in the road industry, and consideration of practical examples of its application. Special attention will be paid to determining funds to cover risks when calculating the cost of road works, which is an important element of the pricing strategy in the road industry. The scientific news work is a study of the pricing strategy in the context of the road industry, which includes an analysis of theoretical approaches and their impact on practical application.

Results and discussion. The study of the theoretical foundations of pricing at road enterprises requires scientific substantiation of all components of the pricing process and the development of methodological support that meets the modern challenges and needs of these enterprises. For the scientific substantiation of pricing at road enterprises, one should analyze the evolution and modern views on the concepts of "price" and "pricing" and find ways to adapt them to the needs of these enterprises.

The modern understanding of the concept of price and pricing is worth considering as a result of the evolution of the conceptual provisions of economic theory. Today, the concept of "price" is most often understood as the monetary value of a product unit. This interpretation arose as a result of the evolution of scientific views on this topic, both among foreign and Ukrainian researchers, as well as a result of changes in the monetary settlement system. In addition, such a narrow interpretation is contained in the current legislation, where "price" is defined as the monetary equivalent of a unit of goods (product, work, service, material and technical resources, property and non-property rights) that can be sold (realized) [13].

Modern economic literature believes that the concept of "price" has a narrow understanding, according to which it is expressed in the monetary form of the equivalent of goods, works or services.
However, in a broad sense, "price" is a fundamental economic category that expresses the monetary equivalent of the value of a good, which is agreed between all market participants, such as the buyer, the seller and the state. The concept of price and pricing at road enterprises differs from the generally accepted interpretation, since the activity of these enterprises is related to the construction and repair of roads, which requires clarification. In construction, the price is the result of an agreement between the customer and the contractor, which is fixed in the contract [14, p. 10].

Road enterprises at this stage of their development there are certain features that affect pricing processes:

1. Pricing at road enterprises has its own characteristics due to the fact that these enterprises are not engaged in the production of consumer goods or the provision of household services. Instead, they are engaged in the construction of highways, bridges and tunnels, as well as the ongoing repair and maintenance of roads, bridges, tunnels, etc. Therefore, setting prices for their services requires a specific approach and taking into account the specifics of their activity. Usually, the prices for the services of road enterprises are determined by agreements between customers and contractors, which are fixed in contracts.

2. Pricing at road enterprises has its own characteristics, since the demand for their work and services is formed at the state or regional level, and the costs of construction, repair and maintenance of roads are financed from the State budget or local budgets [15]. In this regard, pricing does not depend on market mechanisms and is subject to the law of supply and demand, which significantly limits the possibilities of price formation.

3. In the conditions of price instability, rising wages and other macroeconomic factors, pricing in construction becomes a very dynamic process that requires constant control over the price level. So, the cost of construction products means the monetary assessment of its value at a specific moment in time [16]. This led to changes in the legislation and a new type of price in construction appears – a dynamic contract price that can change depending on the scope of work, the price of resources and other conditions specified in the contract.

4. Coordination of the interests of all participants in the pricing process is necessary to reach a compromise. This can happen in a narrow sense, when a compromise is reached between the customer and the contractor, or in a broad sense, when the participation of society as taxpayers is taken into account. The end result is the price, which is determined directly in the contract. The pricing process requires constant monitoring of prices and changes to legislation that occur in connection with macroeconomic instability.

5. Pricing is carried out taking into account the individual characteristics of each object, for example, for road construction, parameters such as length, road category, type of surface and number of transport facilities are taken into account to determine the price.

6. Application of the PROZORRO system for conducting tender procedures ensures publicity and transparency of the choice of the contractor for the construction, reconstruction, repair and maintenance of highways. This not only ensures compliance with transparency requirements, but also ensures pricing efficiency and effectiveness.

7. There is limited competition in the market for construction, reconstruction, repair and maintenance of highways in Ukraine, as the number of customers and contractors in this market is small. Customers include the state and local self-government bodies, less often individuals and legal entities, and executors are mainly legal entities that provide relevant services. At the same time, JSC "Automobile Roads of Ukraine" JSC operates in the road industry of Ukraine, which has a practical monopoly on the market for maintenance of public highways [17]. This leads to a violation of market laws and prevents free pricing. The situation also indicates inefficient use of resources and insufficient effectiveness in the implementation of road works.

Taking into account the specifics of the activity and forming the level of prices for works and services for the construction, reconstruction, repair and maintenance of highways is a complex process at road enterprises. This process includes many stages, from the formation of the cost of the work to the agreement of the price in the contract.

In a market economy, enterprises have the opportunity to use different approaches to price formation for their goods and services, if these approaches are not subject to state regulation. The concept of "method of price formation" reflects a certain method or complex of actions that the company carries out in order to determine and justify the price of its goods.

Depending on the type of road works, the stage of implementation of the investment process and availability of source information may be different methods of determining the cost of works (Figure 1).

The resource-index method combines the resource method with a system of price indices, while the basic-index method uses current and forecast indices in relation to the cost determined at the basic or current level of previous periods. The basic-compensation method involves calculating
the basic cost and additional costs associated with an increase in prices and tariffs. The analogous method uses databases of previously constructed or designed similar objects to determine the cost of an object in the early stages of investment projects.

There are other techniques to estimate road work costs such as the unit price method, lump-sum method, and cost-plus method. The unit price method involves determining the cost of individual units of work and multiplying them by the total number of units required. The lump-sum method estimates the total cost of the project as a single sum, and the cost-plus method adds a percentage or fixed fee on top of the actual cost. These methods are used depending on the scope and complexity of the project and the level of uncertainty involved.

It is important to note that the selection of the most appropriate method for determining the cost of road works depends on several factors, such as the size and complexity of the project, the availability and reliability of data, and the level of accuracy required for the estimate.

In addition, when comparing objects of public highways, it is important to consider the importance of each parameter in the cost of the object. The main parameters used for comparison include:

- type of road construction works;
- category of road;
- the meaning of the road;
- the length of the road section;
- weighted average intensity of traffic on the road;
- conditions for carrying out road construction works;
- road and climate zone.

Enterprises use different methods to determine prices, such as cost, market, and normative-parametric methods, which can be used alone or in combination with each other. Due to the specificity of the activities of road management enterprises and legislative regulation, it is possible to use cost and market methods of pricing.

Under the concept of "risk" when performing road works, it is necessary to understand the onset adverse consequences in which one or more participants in road works will suffer additional costs not provided for in the project documentation or not taken into account when agreeing the contract prices. Funds for covering the risks of participants in road works belong to the costs that are taken into account in the cost of road works and are determined not according to norms, but calculated. For settlement the issue of determining the justified amount of funds to cover risks in the execution of road works, the following factors must be taken into account [20]:

- completeness of information about the object of road works;
- a comprehensive assessment of the level of risk when performing road works;
- probability of risk occurrence;
- the degree of influence on the execution of road works.

When drawing up the price for participation in competitive bidding for the construction, reconstruction, major and current repairs, and operational maintenance of public highways, the contractor takes into account the risks associated with the type and duration of the works, the terms of the contract, financing, and the complexity of

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**Figure 1. Methods of determining the cost of road works**

*Source: compiled by the authors based on [18, p. 11]*
the works. One of the main risks is the increase in the cost of material and technical resources during the execution of works. Therefore, funds to cover risks are calculated in the contract price, taking into account the market prices of material and technical resources and possible costs caused by risks. The risk management toolkit includes the definition of types of risks, the assessment of their probability and impact on financial indicators, as well as the calculation of a percentage indicator to determine the amount of funds to cover risks.

In general, the following most common types of risks can be identified [20]:

1. Natural risks such as earthquakes, fires, floods and other natural disasters.
2. General economic risks, such as changes in legislation and the economy, which may negatively affect the cost of the project.
3. Project risks that threaten the implementation of the project, such as structural miscalculations, errors in project documentation, replacement of materials and equipment, which leads to increased costs.
4. Production risks, such as accidental loss or damage of material resources, overspending of resources and failure to meet their delivery deadlines.
5. Technical and technological risks, such as the introduction of new technologies, violations of their implementation, failures and breakdowns of machines and mechanisms involved in the implementation of the project.
6. The risk of changes in the cost of the project caused by changes in regulatory documents, state regulations and standards for materials and structures.
7. Commercial risks associated with incompleteness or inaccuracy of information about the customer's financial condition and solvency.
8. Non-compliance by the customer with contractual obligations.
9. Delay in the commissioning of the project due to non-compliance with the deadlines for the execution of subcontracted works.
10. Increase in the cost of material and technical resources and a number of other risks.
11. Risks of loss of qualified personnel as a result of automation and digitalization processes [2].

The contractor, using his knowledge and experience, determines the types of risks, the probability of their occurrence, the degree of impact, the specific weight and the calculated probability of the occurrence of risks (Table 1).

The contractor, applying the methodology for calculating funds to cover risks, can adjust the cost of road works to the amount of funds to cover risks and, having provided appropriate justification, agree it with the customer and include it in the contract price.

The method of calculating funds to cover risks can be applied not only when calculating the cost of road works at a fixed price based on aggregated cost indicators, but also at a dynamic price.

Several risk management strategies can help reduce the impact of risks on a project [19]:

– Risk avoidance – the strategy is to avoid taking actions that may lead to risk or abandoning a project that has a high risk.

– Risk reduction – the strategy is to reduce the impact of risk on the project by changing plans and implementing additional measures to minimize risks.

– Risk Transfer – The strategy is to transfer the risk to another party, usually an insurance company or contractors who assume the risk for a fee.

– Accepting risk – the strategy consists in accepting the risk and developing an action plan to minimize its impact on the project.

– Risk reserve – the strategy is to create a reserve of funds that can be used to cover unforeseen costs associated with risk.

– Combined strategies are a combination of several risk management strategies with the aim of maximally minimizing the impact of risk on the project [23].

Pricing strategy is an essential aspect of any industry, including the road industry. This strategy involves determining the optimal price for a product or service that will enable a company to achieve its business objectives. In the road industry, pricing strategy can be influenced by various factors such as demand, competition, cost, and regulation.

<table>
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<th>№</th>
<th>Types of risks, R</th>
<th>Probability, VR</th>
<th>Degree of influence, SV</th>
<th>Specific gravity, PV</th>
<th>Estimated risk occurrence probability, RV = VR \cdot PV (3 \cdot 5)</th>
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The total calculated probability of the occurrence of risks during road works, ΣPV ...

Table 1

Source: developed by the authors
Theoretical foundations of pricing strategy in the road industry include microeconomic theories such as supply and demand, cost-benefit analysis, and price elasticity of demand. These theories help in understanding the relationship between price and demand, cost, and revenue. In the road industry, the demand for road services is influenced by factors such as population growth, economic development, and transportation infrastructure.

The cost-benefit analysis theory helps in determining the optimal pricing strategy by comparing the costs and benefits of different pricing options. This theory considers the direct and indirect costs of providing road services and the benefits that customers derive from these services. Price elasticity of demand theory helps in understanding how changes in price affect the demand for road services. This theory considers factors such as the availability of substitutes, customer preferences, and income levels.

Practical aspects of pricing strategy in the road industry involve setting prices that are consistent with the company's business objectives. For example, if the objective is to maximize profits, the company may adopt a pricing strategy that sets prices higher than the cost of providing road services. Alternatively, if the objective is to gain market share, the company may adopt a pricing strategy that sets prices lower than the cost of providing road services.

Other practical aspects of pricing strategy in the road industry include assessing the competition and regulatory environment. The competition may influence pricing strategy by setting prices that are lower than the company’s prices or by offering better quality services. The regulatory environment may influence pricing strategy by imposing price controls or setting minimum prices for road services.

**Conclusions.** The theoretical foundations and practical aspects of the pricing strategy in the road industry were investigated in this paper. The essence of the concepts of "price" and "pricing" at road enterprises was analyzed, the methods of price formation used in this field and the peculiarities of determining funds to cover risks when calculating the cost of road works were considered.

The research findings showed that pricing strategy is an important tool for achieving efficiency and profitability of road enterprises. When forming the price, it is important to take into account many factors, such as the cost of materials, labor resources, equipment, the cost of services and others. It is also necessary to take into account the risks and ensure a sufficient margin to cover unforeseen expenses and profit.

Further research could be aimed at developing and improving pricing strategies in the road industry. One of the possible topics can be the study of the effectiveness of different methods of price formation and their impact on the competitiveness of road enterprises. Additionally, the relationship between pricing and the quality of road works can be studied, as well as the impact of various factors such as inflation, changing technology and market conditions on the pricing strategy in the road industry. In addition, new approaches to identifying risks and covering contingencies in the process of calculating the cost of road works can be explored.

In general, further research is aimed at improving the efficiency and competitiveness of road enterprises by developing and improving the pricing strategy.

**References**


11. Sichnyy S. B. (2023) Upravlinnya vartistyu materialno-tekhnichnykh resursiv pidpryjemstv pry budinvystvstvi obyektiv dlya derzh zamovnyka: dys. ... kand. ekon. nauk: 08.00.04 [Material and technical cost management resources by enterprises during the construction of facilities for the state customer: dis. ... candidate economy Sciences: 08.00.04].


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斯特атегія ціноутворення в дорожній галузі: теоретичні основи та практичні аспекти

Цінова стратегія – важливий аспект будь-якого бізнесу, в тому числі і дорожньої галузі. У статті розглядаються теоретичні основи та практичні аспекти стратегії ціноутворення в дорожній галузі. У дослідженні з’ясовано сутність ціноутворення та стратегію ціноутворення в дорожніх підприємствах, методику визначення ціни дорожніх робіт, особливості оцінки витрат на покриття ризиків при розрахунку вартості дорожніх робіт. Метою даного дослідження є виявлення основних факторів, що впливають на цінову стратегію дорожніх підприємств та запропонувати рекомендації щодо вдосконалення цінової стратегії. Методи дослідження, використані в цій статті, включають огляд літератури, аналіз статистичних даних і тематичні дослідження. Дослідження показало, що на стратегію ціноутворення в дорожній галузі впливають такі фактори, як ринковий попит, конкуренція, собівартість продукції та державне регулювання. Найбільш часто використовувані методи ціноутворення в дорожній галузі включають ціноутворення за принципом «витрати плюс», ціноутворення на основі вартості та калькуляцію. Оцінка витрат на покриття ризиків під час розрахунку вартості дорожніх робіт має вирішальну значення для забезпечення прибутковості та стійкості дорожніх підприємств. Практичне значення даного дослідження полягає в наданні дорожнім підприємствам комплексного розуміння стратегії ціноутворення та її значення в галузі. Результати дослідження можуть допомогти дорожнім підприємствам розробити ефективні стратегії ціноутворення, які збалансують інтереси зацікавлених сторін і сприятимуть розвитку дорожньої галузі. На завершення в даній роботі подано поглиблений аналіз теоретичних основ і практичних аспектів цінової стратегії в дорожній галузі. Дослідження підкреслює важливість стратегії ціноутворення для стійкості та прибутковості дорожніх підприємств та дає рекомендації щодо вдосконалення стратегії ціноутворення. Подальші дослідження можуть бути зосереджені на вивченні впливу нових технологій на стратегію ціноутворення в дорожній галузі та розробці моделей ціноутворення, які враховують екологічну стійкість.

Ключові слова: дорожнє господарство, цінова стратегія, калькуляція собівартості, ризик-менеджмент, ціноутворення.