


“Development of agricultural insurance in Ukraine”

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DEVELOPMENT OF AGRICULTURAL INSURANCE IN UKRAINE

Abstract

Agricultural insurance in Ukraine remains underdeveloped, characterized by fragmented progress and significant reliance on state support, necessitating a systematic, research-based approach for its advancement. The study evaluates the sector's development from 2014 to 2023, employing general scientific methods of cognition. Abstract and logical methods were applied to summarize results and formulate conclusions, while comparative analysis facilitated the assessment of key trends. Graphical techniques were employed to enhance the visualization of data obtained. A monographic approach was adopted to conduct an in-depth analysis of parametric insurance, complemented by a critical review of the legal framework to evaluate its influence on the sector's development.

The study reveals the limited scale of agricultural insurance relative to the agro-industrial sector's growth, with only 3% of agricultural areas insured and agricultural insurance comprising 2% of insurers' portfolios. The average claims payout rate is 50%, with reinsurance levels at 60%. The sector's insurance products are categorized into two main types: classical and parametric. Parametric, index-based insurance demonstrates superior efficiency, achieving a claims ratio of 35% compared to 14% for classical models.

External challenges, including the COVID-19 pandemic, regulatory changes, and Russia's military aggression, have further impeded the sector's progress. Despite these obstacles, the study identifies promising pathways for development. These include fostering social responsibility among stakeholders, integrating digital technologies, and implementing innovative approaches to insurance practices.

The study underscores the necessity to address systemic inefficiencies, adopt tailored strategies, and align insurance practices with Ukraine's agro-industrial sector's unique needs to enhance resilience and promote sustainable development.

Keywords

agrarian insurance, trends, sustainability, insurance sector, insurance products, reinsurance, innovation, risk

JEL Classification

G22, Q13

INTRODUCTION

The agricultural sector is one of the most important industries in Ukraine, providing food security and an appreciable share of export earnings. However, the operations of agricultural producers are fraught with a level of risk that would warrant the need for efficient risk management strategies. In conditions of changing climate and unstable economic and political processes, agrarian insurance proves to be a crucial instrument for supporting the sustainable development of agrarian business.

The development of agricultural insurance faces numerous modern challenges such as the consequences of the COVID-19 pandemic, changes in regulation, and the military aggression of Russia; this has greatly complicated the launch and operation of many of these insurance programs.

The coronavirus pandemic has affected economic activity, as well as the financial capabilities of other agricultural producers, and new changes in regulatory policy have added unpredictability to the work of insurance companies in this segment of the insurance market. Further risks have been caused by Russia's military aggression, whereby there has been large-scale destruction of infrastructure, which sharply reduced business solvency and increased sector riskiness.

Consequently, the study of modern trends and prospects for agrarian insurance development is an urgent task for improving risk management mechanisms and raising the competitiveness of Ukraine's agricultural sector.

However, agricultural insurance in Ukraine is currently only being formed and does not meet the requirements of the agricultural sector. The low demand for insurance products by farmers creates a considerable gap between the development of the agro-industrial complex and the corresponding forms of financial security. Such a situation would go against the world norm, where high levels of agricultural insurance implementation are characteristic of developed agricultural countries. It is required to scientifically substantiate ways of improving theoretical, methodological, and organizational development of agrarian insurance in Ukraine to a level comparable to international agrarian leading countries.

In the current context of agricultural sector development, there is a critical need to develop a comprehensive approach to advancing the agricultural insurance market in Ukraine. This approach should consider the unique characteristics of the national agricultural sector while integrating international best practices and the latest technological advancements. The core scientific challenge of this study lies in identifying strategies to improve insurance mechanisms, particularly by adopting innovative approaches, integrating digital technologies, and customizing insurance products to meet the specific needs of agricultural producers.

The significance of addressing this issue is emphasized by its direct impact on ensuring food security, maintaining economic stability, and promoting the development of agriculture as a strategic sector in Ukraine.

1. LITERATURE REVIEW

In the current context of increased uncertainty and risks in the agricultural sector, agricultural insurance has become a vital mechanism for the financial protection of farms and the stabilization of their operations. Recent research and publications underscore significant trends in the development and functioning of agricultural insurance, such as governmental support for insurance programs, the adaptation of international practices, and the introduction of innovative products designed to address a range of risks.

These developments indicate an expanding scholarly focus on agricultural insurance issues in Ukraine, with a particular emphasis on challenges related to climate change, financial risks, state intervention, and the impacts of the COVID-19 pandemic and ongoing military conflict. The con-

vergence of these challenges has further underscored the critical role of agricultural insurance as a mechanism for stabilizing farmers' economic conditions and reinforcing food security.

Key trends identified by researchers include the advancement of crop insurance programs, the introduction of innovative insurance products, and the expansion of public-private partnerships between the state and private insurance entities. Scholarly literature emphasizes the necessity of enhancing farmers' financial resilience through accessible insurance mechanisms, alongside the imperative of refining the legal framework to enable more effective regulation of the agricultural insurance market. Significant attention is also devoted to analyzing international experiences, which offers valuable insights for adapting best practices to the specific conditions of Ukraine's agricultural sector.

Agricultural insurance, particularly crop insurance, constitutes a fundamental risk mitigation strategy in the agricultural sector. Numerous scholarly studies underscore the critical role of crop insurance in promoting the financial resilience of farms and agricultural enterprises, especially amid escalating challenges related to climate change and heightened economic risks (Morkūnas et al., 2018; Gebeltoová et al., 2020; Zubor-Nemes et al., 2018; Waş & Kobus, 2018).

Researchers are examining various models and frameworks of crop insurance, including publicly funded subsidy programs that have been effectively implemented in numerous countries. For instance, studies by Severini et al. (2019) and Reddy (2020) highlight that government subsidies for crop insurance substantially enhance its affordability for small and medium-sized farmers. Additionally, a significant recent trend is the development of index-based insurance – innovative products that reduce administrative costs and enhance the transparency of insurance payouts (Kocisova et al., 2018; Nesterchuk et al., 2018; Prokopchuk et al., 2018, 2020).

Index insurance has emerged as a critical focus in the contemporary insurance sector, attracting increasing scholarly attention for its effectiveness in mitigating financial risks associated with agriculture, disaster protection, and climate-related hazards. A defining feature of index insurance is that payouts are based not on actual losses but on specific indices – such as weather patterns or crop yields – rather than direct assessments of damage (Beckie et al., 2019; Berg et al., 2022; Santeramo, 2018; Walewicz, 2018). This approach enables a simplified claims process and mitigates the moral hazard often associated with traditional insurance products.

Index insurance demonstrates substantial potential for managing climate change, natural disasters, and crop yield variability risks. Research indicates it can significantly streamline the insurance payout process, enhancing efficiency and accessibility. However, advancing this instrument requires addressing challenges related to index accuracy, securing government support, and facilitating the adoption of emerging technologies (Belasco et al., 2020; Dalhaus et al., 2018; Haile et al., 2020).

An analysis of agricultural insurance models in the EU and US reveals the effectiveness of public-private collaboration in this domain. The state's role as a guarantor of program stability is crucial, as it fosters favorable conditions for the insurance market's development and provides farmers with an enhanced layer of security (Vyas et al., 2021; Hazell & Varangis, 2020; Thangjam et al., 2018).

Government support is crucial for enhancing the accessibility of agricultural insurance. It is important to recognize that different countries adopt various approaches to foster the development of agricultural insurance, such as through subsidies, co-financing, and regulatory reforms. Among these mechanisms, insurance premium subsidies are a key tool for making agricultural insurance more affordable, particularly for small-scale farmers. Studies by Malyovanyi et al. (2018), Pointer et al. (2019), and Sousa et al. (2023) highlight the positive effects of this approach on the financial stability of the agricultural sector. However, they also emphasize the need for targeted subsidy allocation to mitigate the potential financial strain on the state budget.

Moreover, emphasis should be placed on adapting international practices to the unique characteristics of the Ukrainian agricultural insurance market. This adaptation necessitates a flexible approach to designing insurance products that account for the specific climatic and economic conditions across Ukraine's regions (Čop & Njavro, 2022; Grmanová & Strunz, 2017; Meuwissen et al., 2018; Miguel, 2021).

The development of crop insurance programs represents a key area of contemporary research in agricultural insurance. Scholars have proposed various approaches to enhancing existing insurance models, considering the specific characteristics of the Ukrainian agricultural sector. They also highlight the critical role of state support in strengthening the financial stability of farmers and improving the competitiveness of the agricultural sector (Malyovanyi et al., 2018; Prokopchuk et al., 2022).

The development of agricultural insurance in Ukraine has been profoundly influenced by both the COVID-19 pandemic and the ongoing war.

The sector faces significant challenges, including high risks, elevated insurance premiums, reinsurance difficulties, and the pressing need for government support and international assistance, all of which hinder the market's functionality (Marina & Petsenko, 2023; Hrytsyna et al., 2023). Nevertheless, the adoption of innovative approaches, digitalization, and international support has facilitated adaptation to these new conditions, offering a degree of protection to Ukrainian farmers (Khroponiuk & Długopolsky, 2023; Vovk et al., 2023).

Given the identified directions and the broad range of challenges and threats faced by the modern agricultural insurance market in Ukraine, there is an objective need for further development and continued research in this area.

The purpose of the article is to examine the developmental trends of agricultural insurance in Ukraine over the period 2014–2023.

2. DATA AND METHODS

The study's information and factual basis comprised an in-depth review of legislative and regulatory documents related to agricultural insurance; data from the State Statistics Service of Ukraine, the Ministry of Agrarian Policy and Food of Ukraine, and the National Bank of Ukraine; as well as analytical reports from the Development of Agricultural Sector Financing in Europe and Central Asia project (sponsored by the World Bank and IFC) and the online publication *Forinsurer*, covering insurance technologies and news.

The article examines the development of agrarian insurance in Ukraine over the decade spanning 2014 to 2023, with a specific focus on parametric insurance from 2017 to 2023, following its pilot implementation in nine regions of Ukraine in 2016.

The methodological framework of the study is based on applying general scientific methods of cognition and the study of economic phenomena. The abstract-logical method was employed to synthesize the research results and formulate conclusions. The monographic method was ap-

plied to explore the theoretical foundations of the agrarian insurance system and to develop a comprehensive literature review on the subject. The comparative method facilitated the comparison and juxtaposition of key trends in the development of agrarian insurance, including the evaluation of essential quantitative indicators such as collected premiums, insurance payouts, payout ratios, and reinsurance mechanisms. This provided a holistic assessment of the sector's performance. The analysis and synthesis method was instrumental in examining the market's participants (insurers), analyzing insurance legislation, the number of insurance agreements concluded, market concentration characteristics, and the sizes of insurance premiums and payouts, as well as insurers' assets and established insurance reserves. The monographic approach enabled an in-depth exploration of the implementation and operation of parametric insurance, with particular attention to its pilot program and comparative efficiency relative to classical insurance models. The graphical method was used to visually interpret the research results. The methods of scientific generalization and prognostication were applied to formulate prospective vectors for the development of agrarian insurance in Ukraine.

The study provides a comprehensive analysis of the agrarian insurance sector, emphasizing the critical role of parametric insurance in enhancing the resilience and efficiency of the system. The findings offer valuable insights for policymakers, industry stakeholders, and researchers interested in the future development of agrarian insurance in Ukraine.

3. RESULTS AND DISCUSSION

Agricultural insurance is crucial for safeguarding producers against risks that could threaten their income and operational stability. Key principles include applying knowledge transfer methods in product development and service delivery, fostering transparency and information sharing among stakeholders, ensuring consistent policy implementation for all insured parties, and setting actuarially sound premiums based on assessed risk probabilities.

Source: Data from the National Commission for State Regulation of Financial Services Markets, the National Bank of Ukraine, and Forinsurer (n.d.).

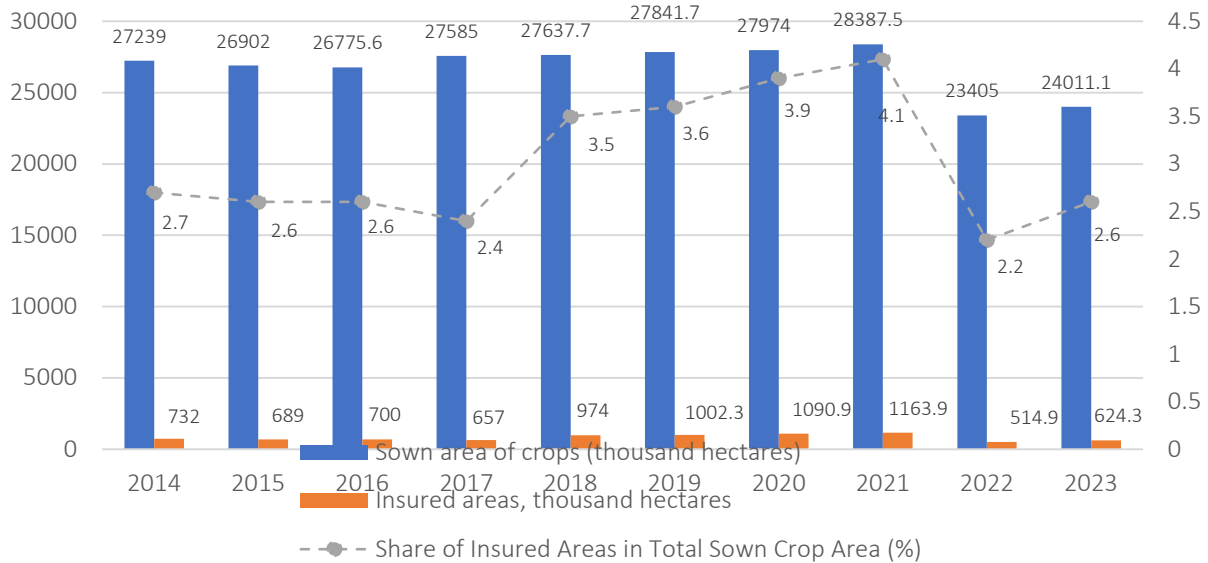


Figure 1. Insured and planted areas (thousand hectares) of agricultural crops, 2014–2023

The low level of insurance coverage among agricultural producers represents a significant issue with potentially adverse effects on the agricultural sector as a whole (Figure 1). This situation arises from several factors, including the high cost of insurance services (with many farmers perceiving insurance as prohibitively expensive, particularly for small-scale operations), a lack of trust in insurance companies (where skepticism toward both insurance in general and insurance providers specifically is common among farmers), and a low level of awareness (with some farmers being insufficiently informed about the benefits of agricultural insurance or lacking access to information about available insurance schemes and products).

On average, the share of insured areas in the total crop area in 2014–2023 was only 3%. In 2022, this indicator reached its minimum and amounted to 2%. The volume of insured agricultural land experienced a substantial reduction in 2022 and 2023, declining by nearly 50% compared to preceding years. Concurrently, the area of planted crops decreased by approximately 20% over the same period relative to prior years.

The Russian Federation’s invasion of Ukraine, along with ongoing hostilities and territorial occupation, has led to significant land contamination, hindering economic activity and like-

ly impacting affected areas for years to come. Agricultural producers face severe obstacles: they operate in fields damaged by shelling or mines, risking health and safety; infrastructure destruction complicates logistics, disrupting the supply of inputs and product transportation; and limited financial resources, unstable markets, and rising production costs diminish farming efficiency. Additionally, labor shortages due to military mobilization and evacuations, alongside delayed harvests and processing, further threaten agricultural productivity.

Conversely, the proportion of agricultural insurance within insurers’ portfolios remains notably low (Figure 2). This is attributable to several key factors: a high level of risk and uncertainty (agricultural insurance involves systemic and accidental risks arising from unpredictable weather conditions, natural disasters, and other challenging factors); low demand among farmers; a lack of specialization (many insurance companies lack the necessary expertise or specialized products for the agricultural sector, favoring less risky insurance areas instead); and low profitability (due to high risks and potentially substantial payouts, agricultural insurance is often less profitable compared to other insurance types, leading insurers to limit its presence in their portfolios).

Source: Data from the National Commission for State Regulation of Financial Services Markets, the National Bank of Ukraine, and Forinsurer (n.d.).

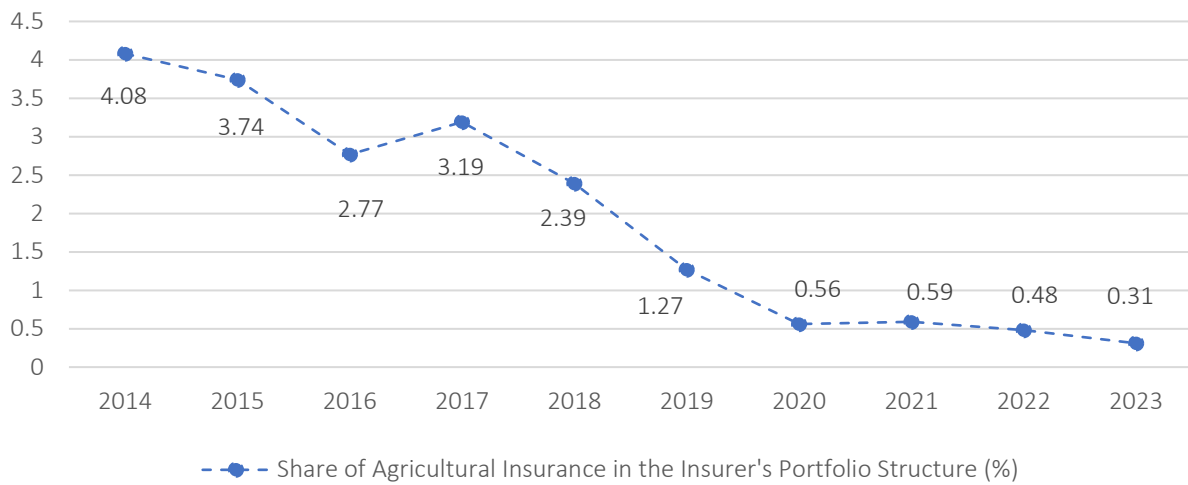


Figure 2. Share of agricultural insurance in insurers' portfolios for 2014–2023, %

Analyzing the data presented in Figure 3, it is notable that the share of agricultural insurance averaged 2% over the ten-year period studied within the portfolios of insurance companies offering this type of coverage. In 2014, this indicator reached a peak of 4.08%, declining to its lowest level of 0.31% in 2023, highlighting the limited development of the agricultural insurance protection system in Ukraine. This inadequacy significantly undermines the sector's financial resilience and its capacity for effective risk mitigation. The constrained scope of insurance coverage is attributed to low demand for insurance products, limited government support, and the insufficient adaptation of insurance solutions to meet the specific needs of farmers, all of which restrict innovation within the sector. In contrast, agricultural insurance represents a significant component of insurance portfolios in countries with advanced agricultural sectors, a difference largely attributed to robust government support. In the United States and Canada, comprehensive government subsidy programs and premium assistance incentivize farmers to insure against agricultural risks. Similarly, in the European Union, support programs facilitate farmers' access to a diverse range of insurance products, including parametric insurance tailored to address weather and climate-related risks. These frameworks ensure high levels of insurance coverage within the agricultural sector, fostering stable agricultural development despite potential risks.

The periods of 2019–2020 (due to the COVID-19 pandemic crisis) and 2022 represented times of encountering new risks, introducing significant turbulence into both personal and business environments. These periods served as critical tests of flexibility, adaptability, and the capacity to swiftly adjust to evolving requirements.

The continuous enhancement of insurance solutions within the agricultural insurance market relies heavily on the regular and systematic analysis of market conditions and the risk scenarios encountered by agricultural insurers.

Analyzing the indicators of collected insurance premiums and insurance payments within the national agricultural insurance market is crucial for several reasons. It aids in ensuring the financial stability of insurance companies, evaluating the effectiveness of current insurance products for the agricultural sector, managing risks, and shaping state policy for this segment of the insurance market (see Figure 3). This study contributes to the sustainable development of the agricultural sector and ensures reliable insurance coverage for Ukrainian farmers.

Analyzing the ratio between premiums collected and claims paid is essential for identifying potential financial risks and vulnerabilities within insurance companies' operations. This analysis is crucial for ensuring the solvency of these companies and their capacity to meet their obligations to policyholders.

Source: Data from the National Commission for State Regulation of Financial Services Markets, the National Bank of Ukraine, and Forinsurer (n.d.).

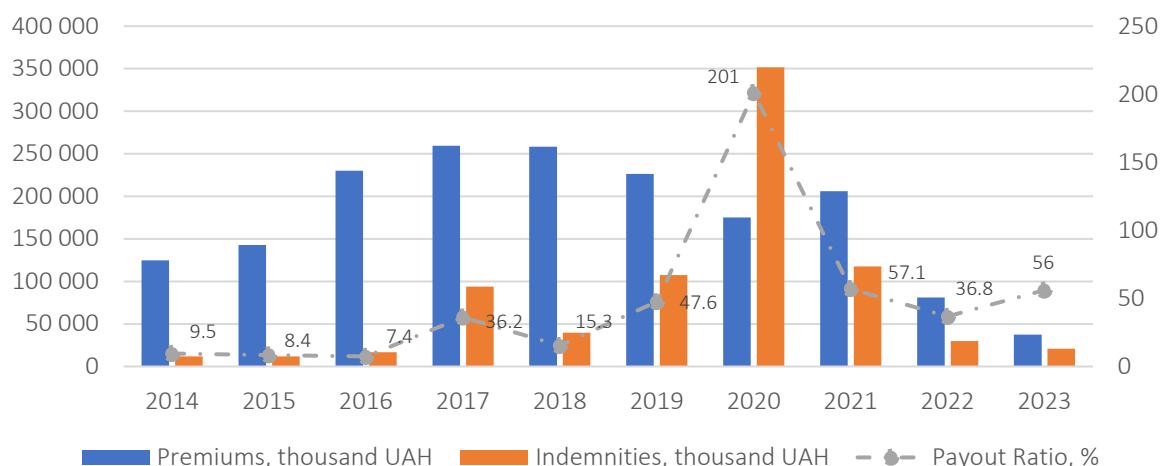


Figure 3. Insurance premiums and claims (thousand UAH) and the claims ratio (%) in the Ukrainian agricultural insurance market for 2014–2023

Based on the data presented in Figure 4, it is noteworthy that the average claims ratio in the agricultural insurance market over the analyzed ten-year period was approximately 50%. However, during specific intervals, notably from 2014 to 2016, the payout ratio did not exceed 10%. The year 2020 represents a significant deviation, with insurers disbursing payouts amounting to twice the premiums collected, resulting in a payout ratio of 201%. This indicates that, apart from the year 2020, insurers consistently collected premiums that exceeded the amount disbursed in claims. Notably, there was a substantial reduction in insurance premium collections in 2022 and 2023 compared to 2021. Specifically, premium collections in 2022 declined by a factor of 2.5 relative to 2021, and in 2023, they further decreased by a factor of 5.5 compared to 2021.

The agricultural sector is one of the most risk-prone industries, necessitating robust reinsurance mechanisms to manage and mitigate financial risks effectively. Reinsurance, which involves the delegation and sharing of financial responsibility in exchange for a fee, is vital for ensuring the stability and reliability of insurance coverage for agricultural producers. The level of reinsurance in the Ukrainian agricultural insurance market over the ten-year period is illustrated in Figure 4.

Effective reinsurance facilitates risk distribution, including partial transfers to the international market, stabilizes the financial performance of in-

surance companies, and enhances farmers' confidence in insurance services. Globally, this practice is common. However, in Ukraine, the reinsurance system was temporarily disrupted in 2022 due to the inability of domestic insurers to pay for services provided by foreign reinsurers. To protect the Ukrainian economy and optimize foreign aid, the National Bank of Ukraine temporarily restricted insurance companies from making foreign currency payments abroad under existing international reinsurance agreements. This situation posed additional challenges to the development of Ukraine's agricultural insurance system, as reinsurance is a fundamental principle underpinning the system.

The average reinsurance rate in the market over the analyzed period was 57.9%. In 2020, agricultural insurance services reached a peak reinsurance level of 68.1%, whereas in 2023, the reinsurance level declined to a low of 37.9%.

However, starting in 2023, the regulator eased these restrictions, allowing insurers to resume payments under reinsurance contracts abroad, thereby restoring the previous reinsurance practices.

The average reinsurance level in the Ukrainian agricultural insurance market remains below 60%, reflecting a relatively low level of financial security for insurance companies and a limited willingness among reinsurance providers to assume agricultural risks in Ukraine. This low level of

Source: Data from the National Commission for State Regulation of Financial Services Markets, the National Bank of Ukraine, and Forinsurer (n.d.).

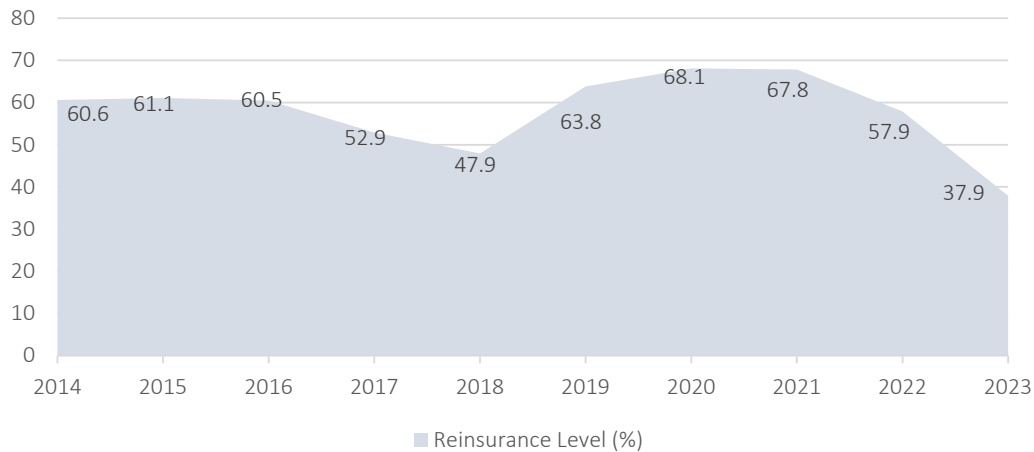


Figure 4. Reinsurance level in the agricultural insurance market, 2014–2023 (%)

reinsurance restricts insurers’ financial capacity, particularly in cases of large-scale losses resulting from natural or economic crises, thereby weakening the resilience of the entire agricultural insurance system.

The primary components of the insurance market are insurance companies, which, following the licenses they hold, are obligated to cover losses or pay out insurance sums to policyholders in the event of unforeseen circumstances. The full-scale russian aggression, which began on February 24,

2022, posed a significant challenge for Ukraine. This situation necessitated the development and implementation of state measures in response to the russian invasion, as well as the identification of priority areas for transforming the country’s economic and business processes.

The total number of insurers in the Ukrainian insurance market, as well as those licensed to conduct insurance activities in the agricultural insurance market from 2014 to 2023 is presented in Figure 5.

Source: Data from the National Commission for State Regulation of Financial Services Markets, the National Bank of Ukraine, and Forinsurer (n.d.).

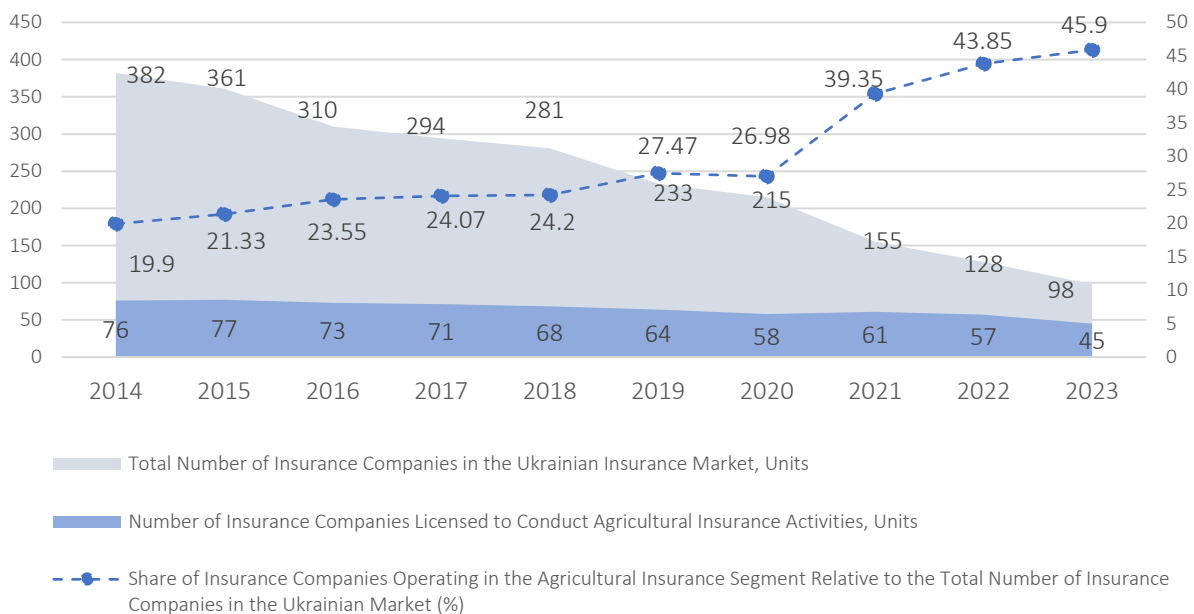


Figure 5. Number of insurers (IC) in the national insurance market overall and in the agricultural insurance market specifically, 2014–2023

As a result, Ukrainian insurance companies faced fundamentally new challenges. The occupation of territories, destruction of real estate, and relocation of businesses significantly reduced the number of customer service centers.

The analysis of a ten-year period of the national insurance market's operation reveals a significant quantitative reduction in the number of insurers, particularly a sharp decline over the past six years (from 281 insurance companies in 2018 to 98 in 2024, nearly a threefold decrease). This trend reflects substantial transformational processes within the insurance market, driven in part by the COVID-19 pandemic and Russian armed aggression against Ukraine. The share of insurance companies engaged in the agricultural insurance segment averaged 30% over the analyzed period. Notably, from 2021 to 2023, this share more than doubled compared to 2014. This increase is primarily attributed to the substantial reduction in the total number of insurance companies within the Ukrainian insurance market, contrasted with a relatively stable number of insurers in the agricultural insurance sector.

The functioning of the Ukrainian insurance market as a whole, and its agricultural insurance segment in particular, has been significantly influenced by the change in the regulator of the non-banking financial market (from the National Commission for State Regulation of Financial Services Markets to the National Bank of Ukraine as of July 1, 2020). Additionally, the impact of regulatory changes, such as the new edition of the Law of Ukraine "On Insurance" in 2021, which replaced the 1996 legislation and came into effect at the beginning of 2024, has been considerable.

After the *National Bank of Ukraine* assumed the role of regulator, it began to strictly monitor companies for solvency, transparency, compliance with licensing requirements, and reliability. This led to some companies voluntarily exiting the market, while others were forced to leave due to non-compliance with the requirements, license revocations, or opaque ownership structures. The COVID-19 pandemic also introduced challenges, as not all insurers were able to adapt

to the new conditions. The next significant test for the national insurance market was the full-scale Russian military aggression on Ukrainian territory.

Figure 6 shows that the share of insurance companies (ICs) holding licenses to provide agricultural insurance services constitutes roughly one-third (averaging 29.7%) of the total number of insurers in the Ukrainian insurance market over the ten-year study period. The number of insurance companies licensed to operate in the agricultural insurance sector fluctuated from 76 in 2014 to 45 in 2023.

Therefore, in 2023, 45 insurance companies were licensed to conduct voluntary agricultural insurance, which is nearly half the number compared to 2014.

At the same time, drawing a comparison between the numbers of insurance companies licensed to operate in the agricultural sector and those actually engaging in such activities, it should be noted that the proportion of the latter is only 6%.

Agricultural insurance is a crucial risk management tool that enables farmers to mitigate the impact of adverse events on their operations. The use of various insurance products helps to ensure income stability, protect investments, and support the economic security of the agricultural sector as a whole. It encompasses a broad range of insurance products designed to safeguard farmers' investments from various risks, offering both traditional insurance products and parametric ones, each with its own distinct features and advantages.

The combination of traditional and parametric insurance schemes, along with the corresponding product offerings within these frameworks, allows farmers to select the most effective tools for risk protection, thereby ensuring stability and development within the agricultural sector. This approach enables the optimization of insurance costs and effective risk management. The classification characteristics of insurance products available in the Ukrainian agricultural insurance market are grouped and illustrated in Figure 6.

Source: Author's compilation based on Belasco et al. (2020), Čop and Njavro (2022), Dalhaus et al. (2018), Forinsurer (n.d.), and Marina and Petsenko (2023).

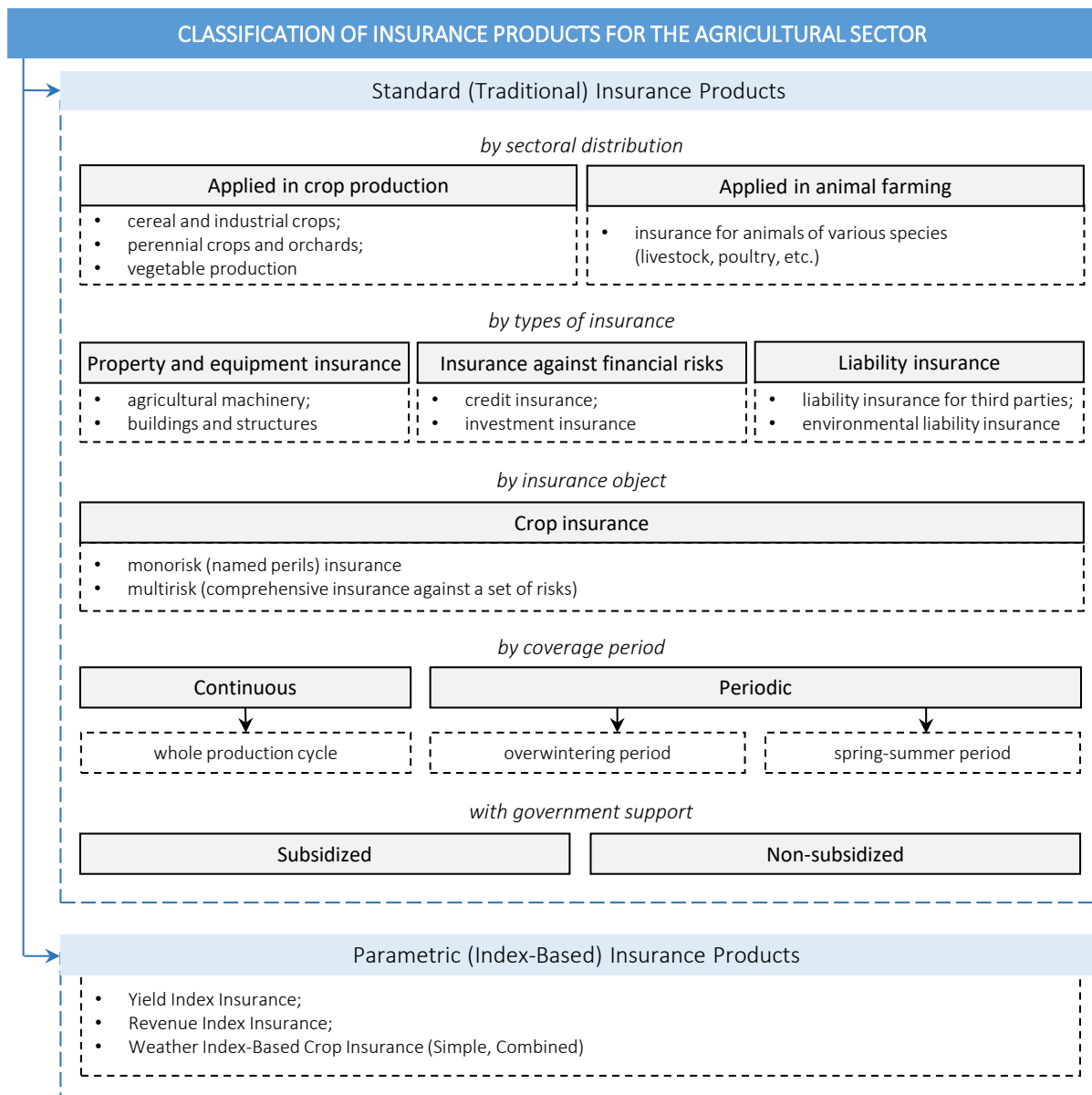


Figure 6. Classification characteristics of insurance products in the Ukrainian agricultural insurance market

After examining the classification characteristics of insurance products under both traditional and parametric insurance schemes for the agricultural sector, a quantitative comparison of these schemes follows. Specifically, the study will analyze the total amounts of insurance payouts (Figure 7) and those calculated per concluded agreements (Figure 8), payout ratios (Figure 7), and the overall number of insurance agreements concluded (Figure 8).

The payout ratio is a critical indicator in agricultural insurance. It reflects the relationship between the amount of insurance claims paid and the premiums collected. This ratio provides insight into how effectively an insurance company meets its obligations to agricultural producers.

A high level of claims payouts is indicative of an insurer's reliability and commitment to providing compensation in the event of an insured loss,

Source: Data from the National Commission for State Regulation of Financial Services Markets, the National Bank of Ukraine, and Forinsurer (n.d.).

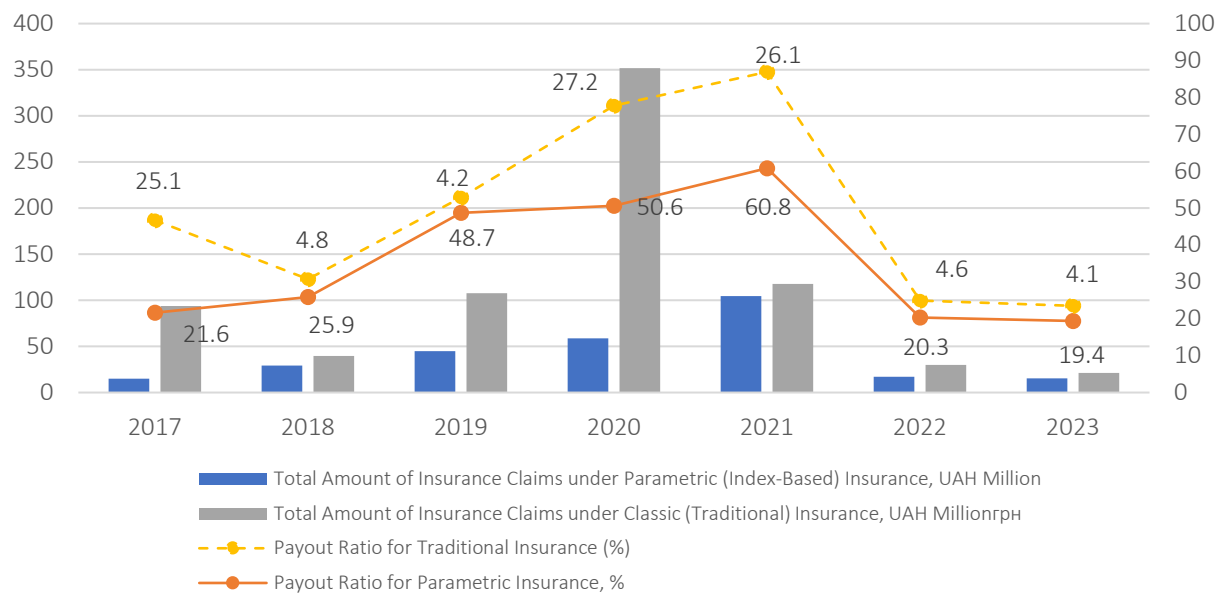


Figure 7. Amount of indemnities (UAH million) and payout rate (%) by insurance protection schemes in Ukraine's agricultural insurance market, 2017–2023

which is a critical factor in fostering farmers' confidence in insurance. However, an excessively high payout level may signal potential risks to the financial stability of the insurance company, necessitating careful monitoring and analysis. Consequently, the payout ratio serves as a key metric that assists farmers in selecting an appropriate insurer and policy, while also reflecting the stability and efficiency of insurance companies within the agricultural insurance market.

Figure 7 shows that, on average, during the period from 2017 to 2023, the payout ratio under the parametric (index) insurance scheme significantly exceeded that of the classical (traditional) insurance scheme – by nearly threefold. Specifically, the average payout ratio for parametric insurance in the Ukrainian agricultural insurance market stands at 35.4%, while for the classical insurance scheme, it is 13.7%.

When analyzing the amount of indemnities per insurance contract under classical and parametric insurance schemes, it is noteworthy that the payouts are substantially higher under the latter. Specifically, in 2017, the indemnities were 13 times greater, 8 times in 2019, 3 times in 2021, and 11 times in 2023. Conversely, the number of concluded agreements tends to be higher under the

classical insurance scheme, except for 2021, when the number of parametric insurance agreements exceeded classical ones by a factor of three.

The current state of Ukraine's agricultural insurance system falls short of its primary goal as an effective risk management mechanism to stabilize production and income for farmers. Systemic challenges, including a low level of trust in insurers, have impeded the development of the agricultural insurance sector and require urgent reform. Addressing these issues calls for a systematic approach, particularly in defining and legislating the roles of agricultural producers, insurers, the state, and supporting organizations. Given the current trust deficit and early development stage of agricultural insurance in Ukraine, the state must lead in coordinating efforts and aligning stakeholders' interests.

Agricultural insurance often depends on government financial support for long-term viability, given the systemic risks of agriculture that lead to concurrent losses across the sector. Without such support, private insurers may lack the financial capacity to cover large-scale losses, especially in cases of natural disasters, making agricultural insurance unaffordable for farmers. Government involvement is essential to ensure targeted and effective

Source: Data from the National Commission for State Regulation of Financial Services Markets, the National Bank of Ukraine, and Forinsurer (n.d.).

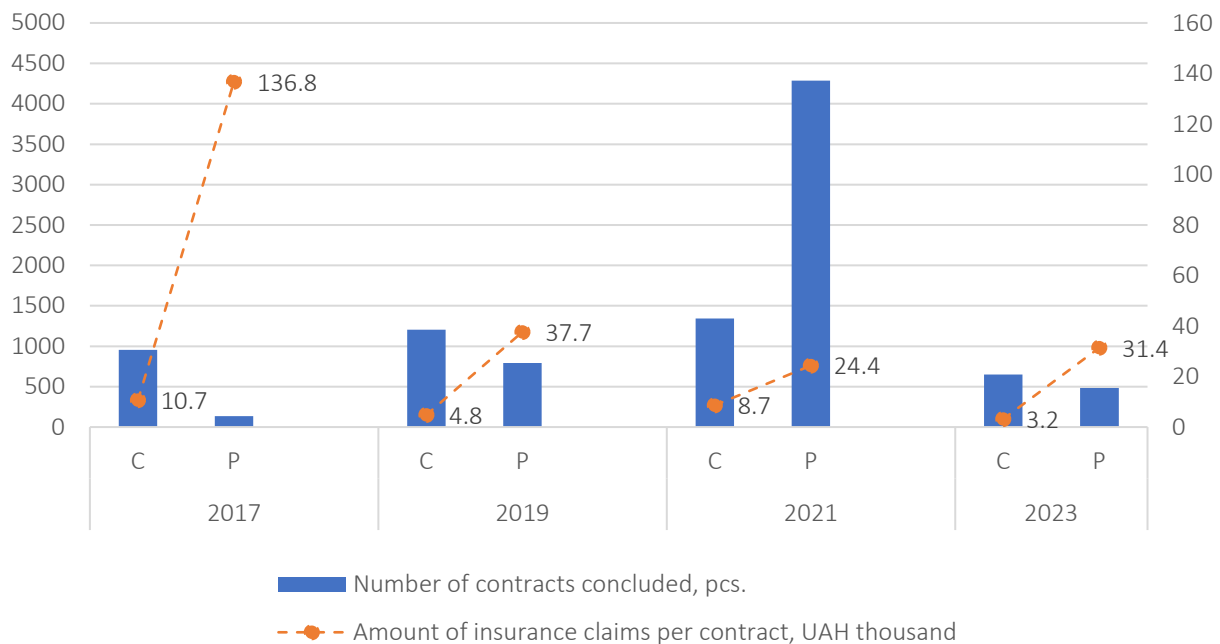


Figure 8. Number of insurance contracts and average indemnity per contract (UAH thousand) by insurance protection schemes in Ukraine's agricultural insurance market, 2017–2023

tive financial support for agricultural risk management, fostering a stable and accessible insurance system for Ukraine's agricultural producers.

Globally, agricultural insurance is recognized as an essential instrument for supporting agricultural production, as it has the capacity to:

- offer targeted assistance to those in need;
- respond swiftly to production-related disasters;
- facilitate access to credit resources for the operation and modernization of the industry;
- serve as a platform for risk-sharing across borders.

Agricultural risk insurance offers substantial benefits to the agricultural sector. However, its implementation is technically complex, requiring extensive reliable data and close collaboration among the four key stakeholders (see Figure 9).

For Ukraine, where enhanced transparency, swift decision-making, and active knowledge exchange among key stakeholders are crucial for increas-

ing local expertise and experience, it is advisable to examine international best practices in agricultural insurance.

In this context, it is essential to arrange a strategy for the development of the Ukrainian agricultural insurance system that thoroughly addresses the needs and interests of all stakeholders, including agricultural producers as consumers of insurance services, insurance companies as providers of these services, the state, and support organizations offering ancillary services.

The primary approaches to establishing an effective agricultural insurance system are as follows:

- establishing the institutional framework for the operation of agricultural insurance systems (developing an institutional structure that fosters proactive engagement among stakeholders during its implementation);
- stakeholder involvement in various processes related to insurance coverage in the agricultural sector (engaging key stakeholders – agricultural producers, government agencies, and insurance companies – in the

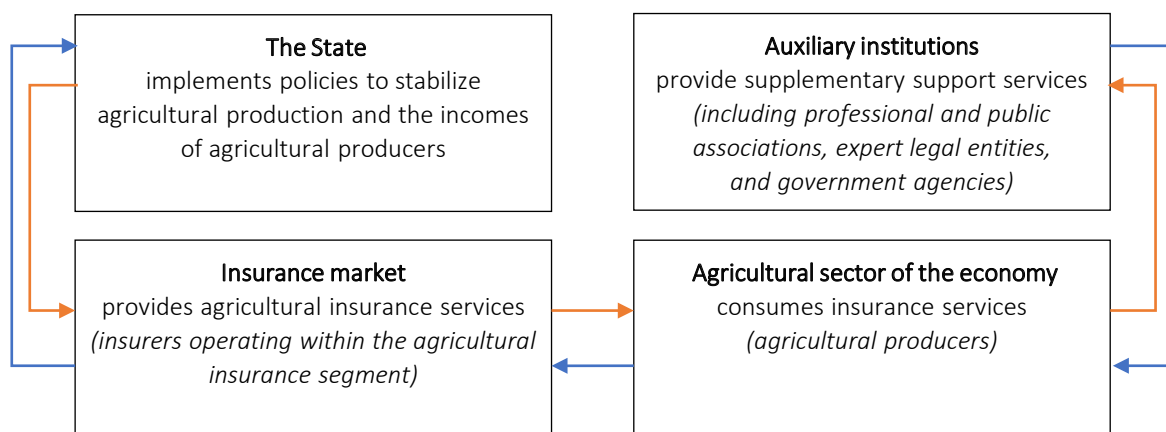


Figure 9. Stakeholders in agricultural insurance

review, development, and improvement of new and existing insurance products and operational processes);

- providing education on agricultural insurance (promoting and advertising insurance mechanisms for the agricultural sector, explaining how they function, and disseminating successful practices from international experience in agricultural insurance);
- engaging representatives from insurance organizations, government agencies, suppliers, financial institutions, and the academic community in training sessions and seminars;
- developing and distributing informational materials and organizing platforms for information exchange with agricultural producers, the media, financial institutions, and companies involved in agricultural value chains.

Such approaches will enhance mutual understanding among all stakeholders involved in agricultural insurance and ensure the effective implementation of agricultural insurance as a crucial component of risk management in the agricultural sector.

It is crucial to ensure that agricultural insurance is widely acknowledged as an effective risk management tool by both agricultural producers (consumers of agricultural insurance services) and governmental bodies.

4. DISCUSSION

The findings on the development of agrarian insurance in Ukraine reveal significant divergences from the conclusions drawn in prior studies, such as those by Grmanová and Strunz (2017), Dalhaus et al. (2018), Hazell and Varangis (2020), and Berg et al. (2022). While these studies predominantly emphasize the role of digitalization in advancing the insurance sector, including its application in agrarian contexts, this study contends that this narrow focus on digital tools overlooks the multifaceted nature of challenges faced by agrarian insurance in Ukraine. A more holistic approach is necessary to address structural inefficiencies, regulatory hurdles, and market dynamics that extend beyond the scope of digital innovations.

The effective development of agrarian insurance should be anchored in three key components.

- 1) The consistent monitoring of trends and risks in the agrarian sector is paramount. Continuous assessment of changes in climatic conditions, market fluctuations, and other risk factors is essential to adapt insurance products effectively to the needs of agricultural producers.
- 2) The establishment of a social responsibility model is critical. Insurance companies should not only provide services but also actively support agricultural producers through training programs, consulting, and the implementation of innovative solutions.

- 3) Integrating innovative approaches and digital technologies is imperative. The adoption of information and communication technologies can streamline insurance processes, reduce costs, and enhance service quality, particularly in regions with limited access to conventional insurance services.

The results of this study partially align with the findings of Kocisova et al. (2018) and Meuwissen et al. (2018), who underscore the importance of leveraging international experience in developing insurance markets. Their methodologies for comprehensive risk evaluation and the implementation of digital solutions hold significant potential for adapting and improving Ukraine's agrarian insurance system. Specifically, addressing climatic risks and incentivizing active policyholder participation in insurance programs are critical measures. On the contrary, the obtained results are at odds with the views of Pointer et al. (2019)

and Grmanová and Strunz (2017), who assert that prior negative experiences in insurance have fostered low trust among farmers towards contemporary insurance services. In the current estimation, modern agricultural producers are increasingly open to constructive collaboration, contingent on the transparency, accessibility, and efficacy of insurance programs. Moreover, the integration of digital technologies within agrarian insurance processes is poised to bolster trust and enhance user convenience for policyholders.

Currently, agrarian insurance in Ukraine is in a transformative phase. Key trends include prioritizing sustainable development, incorporating innovative solutions, leveraging risk forecasting technologies, and fostering a supportive framework for the agrarian business sector. Implementing these strategies is expected to improve the efficiency of agrarian insurance while facilitating its widespread adoption among agricultural producers.

CONCLUSIONS

The study explores the development of agrarian insurance in Ukraine over ten years (2014–2023). It reveals that the level of insurance coverage in Ukraine's agrarian sector remains critically low, averaging only 3% of the total sown area. Additionally, the share of agrarian insurance in insurers' portfolios does not exceed 2%. The primary challenges include a lack of trust among agricultural producers towards insurance companies, the high cost of insurance products, inadequate adaptation of these products to the needs of agricultural producers, limited awareness of insurance opportunities, and the absence of governmental support.

The findings underscore that this domain is pivotal for ensuring the stability of the agrarian sector, particularly amidst heightened risks associated with climate change, economic instability, and geopolitical challenges. The adoption of innovative approaches, digital technologies, and the development of an effective model of social responsibility are identified as essential elements for the sustainable development of the agrarian insurance market. However, achieving the desired outcomes necessitates the consideration of not only international best practices but also the unique characteristics of Ukraine's agrarian sector.

Thus, the development of agrarian insurance in Ukraine requires a systematic approach that integrates modern technologies, incentivizes investments, and ensures transparent conditions for all market participants. Only under such conditions can an efficient system be established that not only mitigates risks for agricultural producers but also contributes to the overall advancement of Ukraine's agricultural sector.

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