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Legal paternalism in the activities of public authorities as a conceptual framework for the greening of agricultural policy

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Abstract

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The study aimed to establish the patterns of influence of paternalistic mechanisms of state regulation on the processes of greening agricultural policy in Ukraine. The study was based on a comprehensive methodological strategy that combined theoretical and legal analysis of the concept of legal paternalism with empirical methods for assessing its practical implementation, including the development of an integral index of the intensity of paternalistic environmentalisation measures, statistical analysis of the dynamics of key environmental indicators of the Ukrainian agricultural sector for the period 2015-2024, and systematic comparative legal analysis of regulatory practices of leading European countries. The developed index of paternalistic greening mechanisms for Ukraine showed an increase from 0.35 in 2015 to 0.62 in 2024, which showed a gradual increase in state intervention in the environmental regulation of agricultural activities, mainly through regulatory transformation. Statistical testing of the hypotheses revealed a significant negative correlation between the level of paternalistic regulation and the intensity of mineral fertiliser use at minus

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0.72 with a significance level of less than 0.01, and a positive relationship with the spread of organic farming with a correlation coefficient of 0.65 with a significance level of less than 0.05. The regression analysis confirmed the positive and statistically significant impact of paternalistic mechanisms on the aggregate index of environmental and economic efficiency of the agricultural sector, with a coefficient of 0.43. The comparative analysis showed that Ukraine was in the phase of active convergence with European standards of paternalistic regulation, demonstrating indicators of 0.54-0.62, close to the countries of Central and Eastern Europe during their adaptation to the requirements of the Common Agricultural Policy, while the countries of old Europe reached the level of 0.75-0.8. The findings conceptually substantiated the objective necessity and practical effectiveness of state intervention in the formation of sustainable production practices in the agricultural sector, and practical recommendations included strengthening the conditionality of budget support through the implementation of the green conditionality principle, integrating digital monitoring and automated metering to improve control efficiency, introducing regulatory sandboxes for eco-innovation, and harmonising paternalistic policies with the polluter pays principle through the development of market-based

Keywords: state regulation; agricultural activities; environmental control; sustainable development; environmental legislation

Introduction

The environmental crisis and the need for transition to sustainable development of the agricultural sector raise the issue of the role of the state in ensuring the greening of agricultural activities. In the context of Ukraine's European integration and simultaneously overcoming the consequences of military actions, the formation of an effective legal model of public intervention in the agricultural sector is of particular importance. The concept of legal paternalism as a theoretical basis for the activities of public authorities justify the need for state regulation of environmental aspects of agriculture, even in cases where economic freedom of business entities is restricted. A theoretical notion of this problem is critical for developing a balanced agricultural policy that combines economic efficiency with environmental safety. The practical significance of the study is determined by the need to improve the regulatory framework for greening the agricultural sector in line with European standards and principles of sustainable development.

In the context of the structure of regulatory and legal support for the greening of agriculture, K. Marych (2023) revealed the need to improve the legal instruments for regulating environmental management in the agricultural sector, especially in the context of the introduction of organic production and agricultural waste management. The study emphasised the importance of strategic documents in formulating environmental policy goals and established the critical role of internal acts of agricultural entities in ensuring the effectiveness of environmentalisation of the industry. The evolution of EU legislation in the field of agriculture was studied by M. Kopytsia (2023), identifying the main trends in the development of the Union's agricultural policy, including the strengthening of the environmental component, diversification of rural areas, and attention to socio-ethical issues. The researcher determined that the current reform of the Common Agricultural Policy is aimed to achieve climate neutrality and biodiversity conservation, which reflects

a paternalistic approach to protecting the long-term environmental interests of society.

The regulatory framework for the transformation of Ukraine's state agricultural policy after the signing of the Association Agreement with the EU was analysed by I. Zghara (2024), identifying the key areas of sustainable development of the agricultural sector in the context of European integration. The study substantiated the need to balance social, economic and environmental aspects of agricultural development as the basis for the future agricultural policy of the state and identified the need to develop a long-term strategy for the development of the agricultural sector, incorporating the principles of inclusiveness. The peculiarities of the evolution of EU legislation on state support for agriculture were traced by K. Hryhorieva (2024), identifying three main trends in its development: decentralisation, greening and preservation of small farming. The researcher found that the current stage is characterised by a transition from mandatory measures to mandatory results while maintaining environmental priorities, which reflects the evolution of paternalistic approaches from direct regulation to result-oriented management.

The objective need for state regulation of the agricultural sector of Ukraine under martial law was substantiated by I. Konovalchuk and V. Kovalov (2023), identifying the specifics of its implementation. The study determined that state regulation should act as a mediator in the relations between the state, business entities and the population, especially in the context of food security. The researchers identified the main areas for ensuring sustainable development of the agricultural sector in the post-war period, including the restoration of human capital and technological development. The process of implementing the Green Deal policy into Ukrainian legislation was studied by I. Sopilko *et al.* (2025), identifying numerous practical problems in adapting

European standards to national realities. The researchers found that the successful implementation of environmental policy requires a comprehensive approach and international cooperation. The study emphasised the critical importance of the temporary relaxation of environmental requirements under martial law, which makes it difficult to collect the necessary data to develop a detailed roadmap for the implementation of the Green Deal. The issue of adaptation of agricultural production to climate change was studied by O. Gafurova and V. Shovkun (2024), determining that legal norms in this area are scattered and inconsistent. The study justified the need to create a holistic concept of climate-smart agriculture based on organic production. The researchers found that there are no mechanisms for implementing the measures envisaged in strategic documents, which makes their implementation optional.

The legal basis of grant support for agribusiness as a direction of the state agricultural policy under martial law was analysed by T. Kurman (2023), identifying priority areas of state regulation of the agricultural sector. The study emphasised the importance of moving to direct grant support for agricultural producers as a form of financial assistance to domestic agribusiness and identified the importance of grant support in ensuring the financial stability of agribusinesses at the national and international levels. The legislation on agroecological development of Ukraine was described by T. Novak *et al.* (2024), defining the category of agroecological development as the qualitative growth of the agricultural and food sector, incorporating environmental requirements. The researchers identified the need to revise strategic documents of economic development and develop a comprehensive concept of agroecological development, considering military realities and prospects for the post-war period.

The consequences of the retreat from environmental commitments in European agricultural policy as a result of the Russian-Ukrainian war were analysed by M. Morales *et al.* (2022), concluding that the disproportionate negative impact of cultivating fallow land on biodiversity, compared to a slight increase in production, was observed. The study substantiated the position that it is unacceptable to sacrifice long-term environmental sustainability for short-term economic benefits. A comprehensive analysis of the potential environmental ambitions of the new EU Common Agricultural Policy was conducted by N. Röder *et al.* (2024), determining significant shortcomings in the system of guarantees minimise environmental obligations of member states. The researchers found that the lack of clear protective mechanisms leads to uneven implementation of environmental goals and emphasised the critical importance of political and economic factors in achieving the environmental goals of agricultural policy. The study by L. Zachmann *et al.* (2023) complements this scientific perspective with significant conclusions about the effectiveness of paternalistic approaches. Information interventions as tools of soft paternalism were addressed, determining that they have an ambiguous impact on the environmental behaviour of producers. The study identified a boomerang effect when providing personalised information on the use of toxic fungicides to winegrowers. The researchers proved the need to incorporate individual perceptions of business entities when developing information campaigns.

Given the ambiguous preliminary results, the issue of theoretical substantiation of legal paternalism as a conceptual basis for the greening of agricultural policy and mechanisms for its practical implementation through the activities of public authorities remains relevant. The problems of balancing paternalistic approaches with the principles of economic freedom in the agricultural

sector are also insufficiently studied. Therefore, the study aimed to determine the role of legal paternalism in the activities of public authorities as a basis for the greening of agricultural policy.

Materials and Methods

The study was based on a comprehensive methodological strategy that combined theoretical and legal analysis of the concept of legal paternalism with empirical methods of assessing its practical implementation in the greening of Ukraine's agricultural policy. The conceptual framework of the study was formed within the framework of the doctrine of balancing public and private interests, formulated in the Decision of the Constitutional Court of Ukraine No. 4-p(II)/2022 (2022). The theoretical basis was also provided by the principles of international environmental law enshrined in the Rio Declaration on Environment and Development (1992) and the case law of the European Court of Human Rights in *Fredin v. Sweden* (1993), *Mătăsar v. the Republic of Moldova* (2019), *Haraszthy and Others v. Hungary* (2016) and *Denysyuk and Others v. Ukraine* (2024).

The methodological framework included a systematic analysis to consider legal paternalism as an integral system of public administration decisions in the field of environmentalisation of agricultural activities. The formal-dogmatic method was used to analyse the content of constitutional and legal provisions based on the official texts of the Constitution of Ukraine (1996), Law of Ukraine No. 1877-IV "On State Support of Agriculture of Ukraine" (2004) and Law of Ukraine No. 2059-VIII "On Environmental Impact Assessment" (2017).

The key methodological innovation of the study was the development of an integral index, *PI_ECO_Score*, to quantify the intensity of paternalistic environmentalisation measures. The index was calculated using the following formula:

$$PI_{ECO_score} = 0,35 * RegDensity + 0,35 * Green-Budget + 0,20 * Enforce-Index + 0,10 * Organic-Share, (1)$$

where *RegDensity* reflects the share of basic GAEC/SMR environmental standards in national legislation (normalised on a scale of 0-1); *Green-Budget* depicts the share of state support for agriculture conditional on environmental requirements (0-1); *Enforce-Index* characterises the level of enforcement activity in the field of environmental control, calculated as the ratio of sanctions imposed to the total area of agricultural land (0-1); *Organic-Share* determines the share of organic agricultural land in the total area (0-1). The weighting factors reflect the structure of the CAP 2023-2027 environmental conditionality, where regulatory requirements and financial conditionality together account for 70% of the paternalistic impact. The data sources used to calculate the index components were official reports of the Ministry of Environmental Protection and Natural Resources of Ukraine (Ministry of Environmental..., 2024), Eurostat statistics (2024), and data from the Research Institute of Organic Agriculture (2025).

The timeframe of the study covered the period of 2015-2024, due to the start of the implementation of key environmental reforms in Ukraine and the introduction of the CAP 2014-2020 (European Commission, 2010) with the greening programme in the European Union. The empirical basis of the study was the official statistical data of the State Statistics Service (2022; 2023), reports of the State Judicial Administration of Ukraine (2025), data of the Ministry of Environmental Protection and Natural Resources of Ukraine (2024a; 2024b) and reports of the State Institution "Institute of Soil Protection of Ukraine" (2024) on the state of soil resources degradation.

The dynamics of mineral fertiliser use were analysed based on official data from the State Statistics Service of Ukraine for 2010-2022 (physical

weight of the product in active ingredient). Since the official data of the State Statistics Service for 2023-2024 have not yet been released, a proportional conversion from the total nutrient consumption ($N + P_2O_5 + K_2O$) from the Short-Term Fertiliser Outlook 2024/25 (International Fertiliser Association, 2025) to the total revised sown area was applied to provide the most recent reproduced estimates using the formula:

$$Kg/ha = \frac{nutrient\ consumption, million\ tonnes \times 10^6 t \times 10^3 kg/t}{sown\ area, million\ hectares}, (2)$$

where nutrient consumption – total consumption of nitrogen, phosphorus and potassium in the country per year (million tonnes); 10^6 t – conversion factor for converting million tonnes to tonnes; 10^3 kg/t – conversion factor for converting tonnes to kilograms; sown area – total area of agricultural land under crops (million hectares). For 2023: 1.5 million tonnes / 19 million hectares \approx 79 kg/ha. For 2024: 1.7 million tonnes / 19 million hectares \approx 89 kg/ha. The value of 19 million hectares corresponds to the estimate of the total production area used by the United States Department of Agriculture, Foreign Agricultural Service (Sobolev, 2024) as a basis for MY 2024/25. Additionally, data on greenhouse gas emissions from the agricultural sector from the national cadastre of Ukraine's greenhouse gas inventory 1990-2022 (Ministry of Environmental Protection and Natural Resources of Ukraine, 2024) were used.

Statistical analysis was carried out using SPSS version 28.0. Pearson's correlation coefficients were calculated to establish the relationship between the level of paternalistic regulation (*PI_ECO_Score*) and key environmental indicators of the agricultural sector, including the intensity of mineral fertiliser use (kg of active ingredient per hectare), the share of organic land in the total agricultural area, greenhouse gas emissions from agriculture (CO_2 -equivalent) and soil degradation indicators for the period 2015-2024 for Ukraine

and comparative indicators for France, Germany and Poland as representative EU countries with different levels of development of paternalistic mechanisms. To test the main hypothesis of the study, a regression analysis was performed with the dependent variable as a composite index of environmental and economic efficiency of the agricultural sector, composed of normalised productivity per unit of greenhouse gas emissions, the share of organic products in exports, and the soil resource condition index based on humus content. The control variables were GDP per capita and the urbanisation rate to consider the level of economic development and structural features of the economies of the countries under study. The level of statistical significance was set at $p < 0.05$.

Results

The conceptual and theoretical basis of legal paternalism and its significance for the greening of agricultural policy. Legal paternalism in public administration is a concept of state intervention that justifies the restriction of private autonomy to achieve the public good or protect the interests of the regulated entities themselves (Tregger, 2023). Etymologically, the term “paternalism” comes from the Latin “pater” (father) and reflects the model of “paternal” care of the state over its citizens. The doctrine of legal paternalism distinguishes between two main types of intervention: “hard” paternalism, which involves the use of direct imperative prohibitions or orders, and “soft” paternalism, which aims to delicately guide behaviour through economic incentives, information campaigns, and nudging mechanisms, while maintaining formal choice for regulated entities. In the context of agricultural activities, examples of hard paternalism include direct restrictions on the use of certain pesticides, setting fertiliser limits, and banning stubble burning, while soft paternalism is implemented through subsidies to farmers for implementing environmentally

friendly practices and the creation of environmental certification systems with preferences for participants. In the context of this study, narrow legal paternalism is considered a system of public administration decisions that restricts the freedom of entrepreneurship or property rights of agricultural production entities to achieve environmental goals and ensure sustainable agricultural development (Dworkin, 2020). The constitutional and legal justification for restricting private initiative in a state governed by the rule of law requires a clear regulatory framework and adherence to the rule of law.

The principle of environmental protection and ecological safety is enshrined in Articles 16 and 50 of the Constitution of Ukraine (1996), which define ecological safety as one of the priority duties of the state. When the activities of private agricultural producers pose a threat to the environment through nitrate pollution of water resources or soil degradation, the state not only has the right but also the obligation to take restrictive measures. Preventive environmental paternalism finds its justification in the principle of precautionary approach enshrined in the Rio Declaration on Environment and Development (1992), principle 15 of which states that in cases of threatened serious or irreversible damage, the lack of full scientific certainty should not be used as a pretext for postponing measures to prevent environmental degradation.

The principle of balancing public and private interests, developed in the case law of the European Court of Human Rights and the Constitutional Court of Ukraine, establishes the criterion of proportionality of state interference with private rights and requires that restrictions on the rights of agricultural producers for environmental purposes be necessary, justified by a legitimate aim and constitute the least burdensome means of achieving the goal. The Constitutional Court of Ukraine developed this doctrine in its decision

No. 4-p(II)/2022 (2022). This position was further developed in the decision of 6 September 2023 No. 6-p(I)/2023 (2023), which states that “the right to property is not absolute, but interference with this right may be conducted only following the law in compliance with the principle of proportionality, which requires achieving a reasonable balance between the interests of the individual and society”.

The case law of the European Court of Human Rights has developed and specified the principles of balancing public and private interests through landmark judgments that are directly relevant to the justification of paternalistic mechanisms for greening agricultural policy. In Case No. 18928/91 “Fredin v. Sweden” (1993), the ECtHR established the fundamental principle of broad discretionary powers of states in the field of environmental protection, recognising the legitimacy of restricting the right to ownership of land plots for environmental purposes. The case demonstrated the critical importance of ensuring the right to a fair trial in accordance with Article 6 of the Convention for the Protection of Human Rights and Fundamental Freedoms (1950) in the judicial review of administrative decisions on environmental management.

In the case of *Mătăsar v. the Republic of Moldova* (2019), the ECtHR considered the issue of balancing freedom of expression with public interests in the context of environmental activism. The case of *Haraszthy and Others v. Hungary* (2016) illustrates the application of the principle of proportionality in the taxation of property rights, demonstrating the limits of permissible state interference with private economic interests. In *Denysyuk and Others v. Ukraine* (2024), the ECtHR confirmed the importance of observing reasonable time limits for court proceedings, which is of particular relevance for paternalistic regulation. These decisions have shaped the international legal standards for the application of

paternalistic approaches, which require states to provide a convincing justification for the need to interfere with private rights for public environmental purposes and to ensure adequate procedural guarantees.

The evolution of agricultural policy demonstrates a gradual shift from the concept of food security to a model of sustainable development, which is reflected in the transformation of the European Union’s Common Agricultural Policy. Introduced in 1962, the CAP was primarily aimed to increase productivity through a paternalistic mechanism of guaranteed purchases (European Council, n.d.). The 1992 McSharry reforms introduced the concept of “cross-compliance” as a mechanism for mandatory compliance with environmental requirements as a condition for receiving budget payments. The current stage of CAP 2023-2027 is characterised by an increase in green conditionality through the establishment of mandatory eco-schemes and stricter requirements for compliance with EU environmental legislation, including 13. Directive of the European Parliament and of the Council No. 2000/60/EC (2000), Directive of the Council of the European Communities No. 91/676/EEC (1991) and Directive of the European Parliament and of the Council No. 2009/128/EC (2009).

As part of its efforts to integrate into the European Union, Ukraine is also gradually changing the focus of its agricultural policy from production maximisation to sustainable development and environmental protection. Historically, state support for the agricultural sector, as defined by Law of Ukraine No. 1877-IV (2004), prioritised price regulation, lending and subsidies for the production of products without significant environmental requirements, but in the period 2020-2024, several strategic documents were adopted that reorient Ukrainian agricultural policy towards sustainability and greening of production. In particular, the State Strategy for Agricultural

and Rural Development until 2030 (2024) envisages the implementation of approaches similar to the CAP, including the principle of “green” conditional financing and adaptation of European standards of good agro-environmental conditions to Ukrainian realities, and plans to establish minimum requirements for scientifically sound crop rotation, soil erosion protection, preservation of landscape elements and biodiversity as basic conditions for receiving state support, which demonstrates Ukraine’s gradual transition to the European model of paternalistic regulation.

Empirical analysis of administrative and legal mechanisms of ecologisation of agricultural activity through the prism of paternalism. The study analysed the dynamics of key environmental indicators of the agricultural sector in Ukraine, including the intensity of agrochemical use, the state of soil degradation, and greenhouse gas emissions from agricultural activities. The dynamics of mineral fertiliser use in the Ukrainian agricultural sector demonstrate a characteristic trajectory of change, reflecting both economic processes and the impact of external factors on agricultural production practices (Fig. 1).

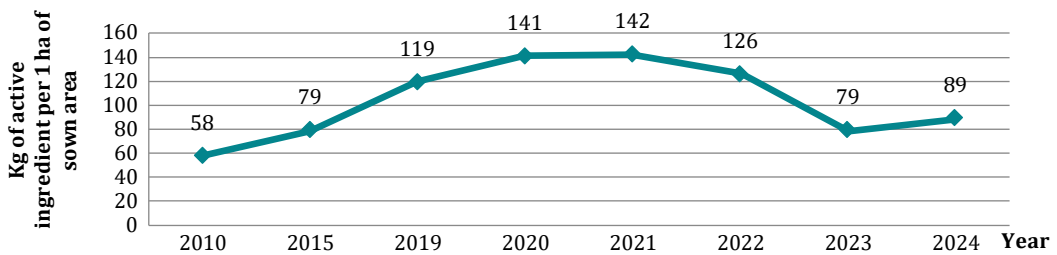


Figure 1. Use of mineral fertilisers in Ukraine

(kg of active ingredient per 1 ha of sown area), 2010-2024

Note: data for 2010-2022 are based on official statistics of the State Statistics Service of Ukraine on the application of mineral fertilisers in active substance (physical weight of the product). Figures for 2023-2024 are calculated based on nutrient intake ($N + P_2O_5 + K_2O$) according to IFA and USDA FAS data, which may lead to methodological differences in comparability. The conversion factor from nutrients to active substance is approximately 2.0-2.5, which partly explains the relatively lower estimated values. Regional statistics for 2023-2024 have not been officially published due to martial law

Source: compiled by the author based on State Statistics Service (2022; 2023), D. Sobolev (2024), I.E. Werner (2024), International Fertiliser Association (2025)

The dynamics of mineral fertiliser use in Ukraine in Figure 1 shows three distinct periods: a gradual increase in intensity of use in 2010-2021 due to technological modernisation of the agricultural sector and focus on export markets, a dramatic reduction in 2022-2023 due to the destruction of supply chains and restricted access to resources as a result of military operations, and the beginning of recovery in 2024 due to the industry’s adaptation to new conditions and partial normalisation of supply. This pattern of changes confirms the high dependence of agricultural

production intensity on external factors and indicates the need to develop sustainable mechanisms to ensure food security in an unstable geopolitical environment.

Based on the data from the Statistical Yearbook of Ukraine for 2023 (State Statistics..., 2023), the environmental performance of the agricultural sector shows trends that justify the need for stronger paternalistic regulation. The use of fresh water in agriculture for irrigation decreased from 1,453 million cubic metres in 2020 to 192 million cubic metres in 2023,

reflecting structural problems with water use in the agricultural sector. The discharge of polluted wastewater into surface water bodies remains at 376 million cubic metres in 2023, with 62 million cubic metres discharged without treatment. Ukraine has more than 1.1 million hectares of degraded, unproductive and technologically contaminated land that needs to be conserved. Over the past 20 years, the humus content of Ukrainian soils has decreased by an average of 0.22% in absolute terms, which is a significant deviation from the natural processes of fertility restoration (State Institution..., 2024). These indicators demonstrate the objective need to apply paternalistic mechanisms to ensure the rational use of natural resources and minimise the negative environmental impact of agricultural activities.

Greenhouse gas emissions from the agricultural sector of Ukraine, mainly due to livestock and soil ploughing, account for 13.3% of national CO₂-equivalent emissions, which indicates a significant contribution of agriculture to the national carbon footprint (Ministry of Environmental Protection..., 2024). At the same time, the agricultural sector demonstrated a significant reduction in emissions intensity by 63.8% compared to 1990 and by 22.8% compared to 2022 due to the introduction of best practices and modern technologies, in particular, precision farming systems at large agricultural enterprises. A comparative analysis of the European experience, based on aggregated data from the European Commission and Eurostat, shows that paternalistic approaches are effective in achieving environmental goals. In 2015-2020, the average nitrogen losses from mineral fertilisers in the EU gradually decreased as a result of the implementation of the sustainable fertiliser policy and the implementation of Directive of the Council of the European Communities No. 91/676/EEC (1991), which set mandatory restrictions on the application of nitrogen-containing substances by agricultural

producers. The share of organic farmland in the EU increased from 6.2% in 2015 to 9.1% in 2020, and according to the goals of the Farm to Table strategy (European Commission, 2020), it should reach 25% by 2030 (Food and Agriculture Organisation..., 2020). Such positive developments are largely driven by government support programmes, which are classic paternalistic economic measures: subsidies for organic production, compensation for certification costs, and targeted investments in sustainable infrastructure. The EU has spent around 6.5 billion EUR on supporting organic producers under the CAP 2014-2020, which demonstrates the scale of financial incentives to change the behaviour of the agricultural sector.

The activities of Ukrainian public authorities in environmental control and enforcement in the agricultural sector demonstrated a significant increase from 2020 to 2024. According to the Ministry of Environmental Protection and Natural Resources of Ukraine, since the beginning of 2024, the State Environmental Inspectorate has identified 353 unauthorised landfills on an area of 50 hectares, of which 17% or 61 landfills were eliminated through work with local authorities (Ministry of Environmental Protection and Natural Resources of Ukraine, 2024). In 2024, the environmental inspectorate resumed inspections of water polluters, conducting 5 unscheduled inspections of utilities, which resulted in 1.4 million UAH in water damage. According to an international assessment by the IMPEL Review Initiative (2024), as of August 2024, the State Environmental Inspectorate of Ukraine recorded more than 4,800 crimes committed by Russia against Ukrainian nature with damages of more than 2.4 trillion UAH. Typical violations found during inspections included unauthorised ploughing of coastal protection zones of water bodies, use of banned chemical plant protection products, violation of the rules for storage and disposal of livestock

waste, and non-compliance with requirements to prevent soil and water pollution. The increase in control activities coincided with the adoption of new regulations, including the Law of Ukraine No. 2059-VIII (2017), which extended the environmental impact assessment procedure to livestock farms and other agricultural facilities that were not previously subject to such regulation, contributing to an increase in environmental control and a reduction in the number of systemic violations of environmental legislation in the long term.

The calculations show an increase in paternalistic environmental regulation in Ukraine: The *PI_ECO_Score* increased from around 0.35 in 2015 to 0.62 in 2024, reflecting a predominantly regulatory transformation of the state's approach to environmental regulation of the agricultural sector. This increase in the index measures the formal intensity of paternalistic measures according to regulatory and institutional criteria but does not necessarily correlate with their practical effectiveness or real impact on the environmental state of agricultural production due to the objective resource constraints of the Ukrainian environmental control system. Changes in the regulatory component made the biggest contribution to the index growth due to a significant expansion of mandatory environmental requirements for agricultural producers. While in 2015, agricultural legislation contained virtually no direct environmental regulations, five key regulations with environmental requirements were adopted during the period under review. These documents include the State Sanitary Rules for Transportation, Storage and Application of Pesticides in the National Economy (1998), Resolution of the Cabinet of Ministers of Ukraine No. 1026-2017-p (2017) and Resolution of the Cabinet of Ministers of Ukraine. No. 179 "On Approval of the National Economic Strategy for the Period up to 2030" (2021). The growth of the *PI_ECO_Score* indicates the initial stage of development of a paternalistic

environmental regulation system, when the legislative framework is actively developing, but its practical implementation requires further institutional strengthening and resource provision.

The financial component of the index has also undergone structural changes that reflect the evolution of state support from unconditional subsidies to environmental conditionality mechanisms. Environmental conditionality provides for the provision of budgetary payments only if the Good Agricultural and Environmental Condition (GAEC/SMR) standards are met and participation in eco-schemes is ensured, which is the basis of the CAP 2023-2027 architecture, to which Ukraine is gradually moving closer (European Commission, 2023a). In 2021-2023, several pilot instruments of environmentally related support were introduced: The EU-supported Production Grant Scheme of the Ministry of Agrarian Policy with fixed payments per hectare for small producers, subject to compliance with basic environmental standards; a programme to compensate for the costs of organic certification for micro and small operators through the Organic Initiative platform, which has benefited 75 producers; and subsidies of up to 25% of the cost of irrigation systems as a form of green investment in water conservation (Coalition for Organic Ukraine, 2023; The Netherlands Initiative, 2023). These programmes illustrate the emergence of a fundamentally new model of state support in Ukrainian agricultural policy, where environmental criteria are becoming crucial for access to budget funding, although their share remains limited compared to EU approaches.

The control and sanctioning component demonstrates the intensification of law enforcement practice and the increased inevitability of liability for environmental offences. In the first half of 2023, the State Environmental Inspectorate drew up 5,186 reports on administrative offences and imposed penalties on 4,697 offenders, which

is 91% of the prosecution rate, registered 220 criminal proceedings, accrued 16.5 million EUR in environmental damage and filed claims worth 7.6 million EUR (European Network..., 2023). As of 31 August 2024, environmental inspectors recorded 5,448 cases of military-related environmental damage, requiring 6,593 damage calculations, and the budget of the State Environmental Inspectorate was increased by 58% to strengthen technical capacity through the modernisation of laboratories and the introduction of digital control tools (IMPEL Review Initiative, 2024; Environmental Policy Institute, 2024). Normalisation of the losses for the first half of 2023 to the total area of agricultural land in Ukraine (41.3 million hectares) yields a value of 0.40 million EUR per million hectares for six months, which is an annual equivalent of 0.80 million EUR (European Parliament, 2024).

Comparative analysis with the European Union countries shows that the average PI_ECO_Score for France is 0.77 and for Germany, -0.81 in 2024, which is explained by the long-standing functioning of a developed cross-compliance system and environmental conditions for receiving state support. According to estimates by the European Court of Auditors and the Institute for European Environmental Policy, Central and Eastern European countries, in particular Poland, have a score of 0.64, close to the current Ukrainian level, as they started the process of greening their agricultural policies later and have not yet fully reached the level of the old EU members (Institute for European..., 2023; European Court..., 2024). Thus, Ukraine is currently on a similar development path as Poland was in the 2010s when adapting to the requirements of the EU's Common Agricultural Policy (Table 1).

Table 1. Comparative Characteristics of the Index of Paternalistic Mechanisms of Greening Agricultural Policy in the EU and Ukraine (2022-2024)

| State | RegDensity (share of GAEC/SMR core standards, 0-1) | Green-Budget (% of direct CAP support reserved for eco-schemes) | Enforce-Index (share of areas/recipients with reduced payments for breach of conditionality) | Organic-Share (% of organic land in UAA) | PI_ECO_Score (0-1) |
|---------|---|--|--|--|--------------------|
| France | 0.94 – 15 of 16 mandatory GAECs + national GAEC-10-FR | 25% of the Pillar 1 budget in 2023-27 will be allocated to eco-schemes | 3-4% of space with reduced payments | 10.4 % UAA (2023) | 0.79 |
| Germany | 0.88 – 14 GAEC/SMR + regional soil protection regulations | 22% of the CAP-2023-27 budget for eco-schemes | ≈3.7% of areas with reduced payments | 9.8 % UAA (2022) | 0.75 |
| Poland | 0.69 – 11 GAEC; part of SMR implemented in a simplified manner | 25% of the CAP budget for eco-schemes (full requirement) | 1.9% of the area under sanctions | 5.0 % UAA (2022) | 0.64 |
| Ukraine | 0.63 – ≈10 mandatory environmental regulations (EIA, national GAEC counterpart) | ~10% of state support for the agro-industrial complex with “green” conditions (pilots 2022-24) | ≈ 2.1 million UAH in fines per 1 million hectares (≈2.5% of the area under sanctions) | 1.1 % UAA (2023) – 471 thsnd. hectares of organic matter | 0.54 |

Note: The various indicators are presented for available years according to official statistics from national agencies and international organisations. Differences in years are due to the peculiarities of national reporting and publication cycles of EU agricultural policy statistics

Source: compiled by the author based on data from the Institute for European Environmental Policy (2023a; 2023b; 2023c; 2023d; 2023e), European Parliamentary Research Service (2024), European Commission (2023b), Ecologic Institute (2023), Eurostat (2024), European Court of Auditors (2024), Research Institute of Organic Agriculture (2025)

The empirical data presented in Table 1 show a natural correlation between the institutional maturity of paternalistic mechanisms and the integrated level of greening of agricultural policy, which confirms the central hypothesis of the study about the effectiveness of government intervention in shaping sustainable production practices. The composite index PI_ECO_Score demonstrates a gradation of levels of institutionalisation of green conditions in state support systems for agriculture, where the highest values correspond to countries with a long history of implementing cross-compliance principles and a developed architecture of eco-schemes within the Common Agricultural Policy of the European Union. Ukraine, being at the stage of forming domestic model of environmentally oriented regulation of the agricultural sector, demonstrates indicators comparable to those of the candidate countries and new EU members of the 2004-2007 enlargement period, which indicates the natural nature of the evolution from traditional mechanisms of supporting farm incomes to a multifunctional paradigm of sustainable rural development. The differentiation of the composite index values reflects objective differences in the speed of adaptation of national legislation to the requirements of the European Green Deal and the level of readiness of the agricultural sectors to accept restrictive environmental standards as a prerequisite for access to budgetary funding.

A comparative analysis of European experience is demonstrated by the Carbon Farming eco-scheme in France under the new CAP 2023-2027 (Institute for European..., 2023), which provides payments to farmers who voluntarily implement practices to increase carbon sequestration by soils and biomass, including growing cover crops, zero tillage, planting forest belts and hedges, and maintaining meadows and pastures. Farmers can choose between two levels of participation: basic, which requires a minimum set of practices, or

advanced, with more ambitious commitments and the potential for greater CO₂ sequestration, with rewards differentiated according to the level of effort (Institute for European..., 2023). This eco-scheme is an example of conditional state care, where the state, through EU mechanisms, offers significant financial resources in France, with a budget of approximately 300 million EUR per year in exchange for a specific behavioural change in favour of the environment. The popularity of the programme has been high: in the first year of the programme's implementation in 2023, more than 80% of French farms applied to participate, covering approximately 9 million hectares of agricultural land. However, an analysis by the Institute for European Environmental Policy showed that the scheme's effectiveness may be lower than expected, as a significant number of farms had already been following similar practices before the programme was introduced, meaning that the novelty of environmental commitments is limited (Institute for European..., 2023).

To rigorously test the hypothesis, a regression analysis was performed, with the aggregate index of environmental and economic efficiency of the agricultural sector, composed of normalised indicators of productivity per unit of emissions, the share of organic products in exports and the state of soil resources, as the dependent variable, and the independent variables PI_ECO_Score, GDP per capita and urbanisation rate as control variables. Based on data for 15 countries, including EU countries and Ukraine, the regression analysis showed a positive and statistically significant coefficient for PI_ECO_Score ($\beta \approx 0.43$, $p < 0.05$), which indicates that, *ceteris paribus*, countries with a higher index of "environmental paternalism" demonstrate better indicators of sustainable agricultural development.

An analysis of Ukraine's environmental law enforcement case law shows the formation of a stable law enforcement doctrine that supports

the prevalence of public environmental interests over private commercial interests of business entities. A study of selected exemplary court decisions for the period 2018-2024 demonstrates the tendency of administrative courts to support the positions of state environmental supervision authorities in cases of proper compliance with the procedural requirements of the law. Typical examples of this approach are the Judgement of the Kyiv District Administrative Court in Case No. 640/20326/18 (2022), where the court upheld the claim of the State Environmental Inspectorate for a temporary ban on the activities of Agroscope International LLC due to violation of the requirements for the storage of pesticides without an environmental impact assessment, and the Judgement of the Economic Court of Ivano-Frankivsk Region No. 129087688 (2025), which recovered almost five million hryvnias of environmental damage from the Kalush Energy Company for unauthorised water use (Economic Court of Ivano-Frankivsk Region, 2025). At the same time, court practice shows that the procedural rights of business entities are protected in cases where regulatory authorities violate the established procedure for conducting inspections or do not sufficiently substantiate their claims. This law enforcement position reflects a balanced approach to resolving the conflict between the economic and environmental interests of society, where the judiciary acts as arbitrators in ensuring compliance with both substantive environmental regulations and procedural guarantees of business activity. The formation of such a judicial doctrine contributes to the legitimisation of paternalistic mechanisms of environmental regulation of the agricultural sector by creating a predictable legal environment for all participants in legal relations.

In some cases, the claims of enterprises were satisfied solely due to procedural violations by state supervisory authorities, and not

as a result of challenging substantive environmental regulations. The Judgement of the Odesa District Administrative Court No. 111914810 in Case No. 540/7516/21 (2023), where the court partially cancelled the order of the State Environmental Inspectorate to LLC Production and Commercial Enterprise Ecology Plus due to the failure to prove the actual use of stationary emission sources, and the order to PJSC Black Sea Fuel Terminal was completely cancelled due to the groundlessness of the requirements of the supervisory authority, are illustrative. The analysis of court practice confirms the trend towards the formation of a stable law enforcement doctrine, according to which courts protect public environmental interests while ensuring that supervisory authorities comply with the established procedural guarantees of the rights of business entities, reflecting a balanced approach to resolving the conflict between the economic and environmental interests of society.

At the level of the European Union, Judgement of the European Court of Justice in Case No. C-616/17 (2019), which concerned the interpretation of the regulation of the use of agrochemicals and the limits of national regulation, is illustrative. The Court confirmed the right of Member States to set stricter environmental protection requirements for the use of chemicals than the European standard, even if this restricts business activities, provided that there is a scientific justification and no contradiction with the basic EU regulations. Another judgment, No. C-528/16 (2018), concerned the recognition by the EU Court of Justice that new methods of genetic engineering in agriculture should be subject to the restrictions of the genetically modified organisms directives, even if they are technologically novel, based on preventive environmental protection considerations and the precautionary principle. These judgments signal that European legal doctrine supports the priority of

environmental safety, effectively legitimising paternalistic measures, including bans and moratoriums against risky agricultural technologies in the name of the public good.

Efficiency and prospects for improving paternalistic instruments in the context of sustainable development of the agricultural sector. The analysis shows a differentiated perception of environmental requirements in the Ukrainian agricultural sector: large agro-industrial enterprises demonstrate a higher level of adaptation to new regulatory standards due to the availability of financial and organisational resources, while small and medium-sized farms require additional state support for the effective implementation of environmental practices. This pattern highlights the need for a differentiated approach to the development of paternalistic policies that incorporates the specific capabilities and constraints of different categories of farmers to achieve an optimal balance between environmental goals and the economic viability of the agricultural sector.

A comparative analysis of the effectiveness of Ukrainian and European paternalistic mechanisms reveals both common features and significant differences in approaches and results. The advantages of the Ukrainian system are the flexibility and efficiency of implementing new measures: pilot programmes can be introduced by resolutions of the Cabinet of Ministers of Ukraine quite quickly, while in the EU, the process of approving changes to the Common Agricultural Policy is long and complicated due to the need to reach consensus among the 27 member states. Ukraine can selectively adopt the best European practices, including the introduction of electronic farmland monitoring systems using satellite technology, which is only beginning to be widely used in the EU. The main vulnerabilities of the Ukrainian system are the low level of resources for environmental control, including underfunding of the State Environmental Inspectorate, lack of

specialised laboratories and qualified human capital, as well as the risk of corruption in the administration of complex environmental requirements, when unclear rules increase the discretionary powers of officials.

In contrast, the EU countries are much better resourced for environmental policy due to well-developed institutional structures and stable funding, but the problem is the excessive complexity and bureaucracy of the mechanisms. Often, farms comply with environmental requirements formally without changing the essence of technological processes, for example, by diversifying crops by sowing technical intermediate crops to meet a formal quota, which are then ploughed over anyway without significant environmental effect (European Court of Auditors, 2017). In other words, the efficiency in terms of the final environmental impact may be lower than calculated due to the gap between formal compliance and actual changes in production practices. The Ukrainian experience should take this European problem into account and try to avoid “reporting indicators” without real environmental content, instead prioritising measurable results, such as actual reduction of greenhouse gas emissions, improvement of soil resources, confirmed by laboratory tests.

The projected scenarios for the development of paternalistic approaches until 2030 (FAO, 2018) are based on the analysis of the FAO’s Towards Sustainability – TSS, Business as Usual – BAU and Stratified Societies – SSS scenario models on possible trajectories of agricultural development in the context of growing environmental challenges. According to FAO estimates, this scenario would result in a significant improvement in food security: undernutrition would decline to 3.4% by 2030, compared to 7.6% under the BAU scenario, more than halving the number of chronically undernourished people compared to 2012. At the same time, agricultural production will grow at a slower but more stable pace, with

an emphasis on innovative and sustainable processes through increased investment, including improved resource efficiency and more sustainable use of natural resources and food (FAO, 2018).

The scenario of maximum paternalism with a *PI_ECO_Score* of approximately 0.9 implies strict state regulation of almost all aspects of agricultural activity through quotas on fertiliser use, taxes on greenhouse gas emissions, and the forced conversion of some land to environmental and biodiversity funds. According to UNEP estimates, this approach would provide the greatest environmental benefit: virtually zero growth in emissions from agriculture, restoration of biodiversity over large areas, and cessation of soil degradation (European Commission, 2021). However, economically and socially, this scenario carries significant risks, including a possible reduction in the gross value added of the agricultural sector by up to 10%, mass protests by farmers' organisations against restrictive measures, and the need for large budgetary compensation for lost income. This is a radical path that is unlikely to be taken in democratic societies without extraordinary circumstances, such as environmental disasters or international sanctions for failing to meet climate commitments.

A rollback scenario with a *PI_ECO_Score* of less than 0.5 could occur in the event of political or economic crises, when the state would weaken environmental controls and incentives for the sake of short-term economic growth. The agricultural sector may return to extensive production methods for quick profits, which will result in a short-term increase in output, but by 2030 will lead to accelerated degradation of natural resources. According to the draft of the seventh Global Environment Outlook, the continuation of the business-as-usual model in agriculture threatens to lose up to 20% of land productivity globally due to soil and water depletion (Dittmar, 2023). For Ukraine, given its role as one of the leading food exporters, such a scenario is unacceptable

both in terms of national interests and international commitments to food security.

Based on the analysis, the most realistic and balanced scenario is a moderately high paternalistic intervention with elements of flexibility and adaptation to specific conditions. This is in line with global trends: even large-scale international financial initiatives, such as NextGenerationEU with a budget of 1.8 trillion EUR, one third of which is aimed to implement the European Green Deal (European Commission, 2019), assume that the future belongs to green economic modernisation rather than deregulation of environmental requirements. The development of specific proposals for improving legislation and governance should consider both positive international experience and specific Ukrainian conditions and constraints.

The priority measure is to strengthen the conditionality of budget support through the implementation of the "green conditionality" principle in Ukrainian agricultural legislation. The Law of Ukraine No. 1877-IV "On State Support of Agriculture of Ukraine" (2004) should be amended to include an article on environmental conditions for state support, correlating with Regulation of the European Parliament and of the Council No. 2021/2115 (2021) on strategic plans for the Common Agricultural Policy and Regulation of the European Parliament and of the Council No. 2021/2116 (2021) on the financing, management and monitoring of the Common Agricultural Policy, which set out the Good Agricultural and Environmental Condition (GAEC) standards and the requirements for legislative management (SMR). Starting from 2025, it is advisable to introduce a minimum set of standards for good agro-environmental conditions, including compliance with scientifically based crop rotations, prohibition of crop residue burning, and allocation of a set percentage of land for environmentally significant areas. Violation of these basic requirements should be punishable by a proportional reduction

or complete withdrawal of budget payments. The integration of digital monitoring and automated accounting is critical to increasing efficiency and reducing corruption risks. In 2023, the European Union adopted a regulation on the use of satellite surveillance data to monitor compliance with agri-environmental requirements, which can be used for automated inspections and reduced subjectivity. Ukraine should develop a similar agro-monitoring system based on satellite imagery and geographic information systems to track compliance with environmental requirements, including pasture preservation, winter cover crops, and crop rotation. This will significantly reduce opportunities for corruption and increase the likelihood of control over environmental violations.

The mechanism of “regulatory sandboxes” for eco-innovations can be used for flexible adaptation of legal regulation to the rapid development of agro-technologies, including biological plant protection products, precision farming technologies, and genetically modified crops with improved environmental characteristics. A “regulatory sandbox” refers to a temporary permission to test innovative technologies in a limited area or circle of participants with special scientific supervision without immediate application of general regulations. For example, carbon credit systems for farms could be tested voluntarily, or new biotechnologies that potentially reduce chemical burdens on agro-ecosystems could be tested under the supervision of scientific institutions.

Harmonising paternalistic policies with the “polluter pays” principle and developing market mechanisms will ensure an optimal combination of state regulation and economic incentives. An effective system of environmental liability insurance for agricultural enterprises should be introduced, with higher insurance premiums for those with higher environmental risks. The development of the ecosystem services market can provide payments from industrial enterprises or

special funds for preserving carbon in soils, water purification, and biodiversity conservation. In this way, the state will stimulate environmentally responsible behaviour, but market mechanisms will also contribute to the financing of environmental services. At the same time, it is necessary to update the sanction tariffs for violators of environmental legislation so that fines are economically proportionate to the damage caused to the environment and are inevitably collected through simplified court procedures, for example, the introduction of writ proceedings similar to tax debt collection.

Educational and advisory support and public involvement in environmental control will significantly increase the effectiveness of paternalistic measures by ensuring that the recipients of regulation are aware of their appropriateness. Programmes to raise farmers’ awareness of sustainable production practices and mandatory training on environmental compliance are needed as a condition for obtaining certain permits or state support. Civic environmental monitoring through the involvement of non-governmental environmental organisations and local communities in identifying violations can be an effective element of “bottom-up” control that fits into the concept of “smart regulation”, which combines traditional state control and public pressure. This approach would also help to build environmental awareness and responsibility among agricultural producers by demonstrating public support for environmental goals.

Discussion

The findings confirm the fundamental role of paternalistic mechanisms in shaping environmentally oriented agricultural policy and demonstrate the objective need for government intervention to adjust the behaviour of agricultural producers to achieve sustainable development goals. The growth of the PI_ECO_Score in Ukraine from 0.35 in 2015 to 0.62 in 2024 correlates with

international studies on the effectiveness of various types of government interventions in the agricultural sector, which indicates a gradual transformation of national agricultural policy towards European environmental regulation standards. The conceptual basis for a multi-level approach to environmental regulation is supported by A. Chalabi (2023), who used the NIC (Needs, Interests, Capabilities) theory to rethink the right to the environment as a multilevel concept that operates at the individual, collective and global levels. This approach correlates with the concept of differentiated paternalistic mechanisms developed in this study, as both works move away from a one-size-fits-all approach and demonstrate the evolution from strict regulatory prohibitions to a complex toolkit that combines imperative mechanisms with incentives through the concept of soft paternalism.

The theoretical foundations of paternalistic regulation were substantiated by E. Saunders-Hastings (2024), developing a new denotation of paternalistic disrespect by analysing its two dimensions. The study defined paternalism as attempts to limit, circumvent, manipulate or influence an agent's choices or behaviour, where these attempts express a judgement that the agent is not capable of acting effectively independently. This definition is consistent with the developed typology of paternalistic mechanisms in the agricultural sector, where "soft" paternalism acts as a tool for correcting behaviour without completely restricting the autonomy of agricultural producers, as reflected in the growth dynamics of the PI_ECO_Score. The European context of implementing the green architecture of agricultural policy was analysed by H. Guyomard *et al.* (2023), examining the new five-year Common Agricultural Policy through the prism of three fundamental instruments: conditionality, eco-schemes, and agri-environmental measures. Their conclusions that conditionality criteria represent minimum

requirements and eco-schemes provide rewards for efforts above and beyond the basic requirements are fully consistent with the proposed gradation of paternalistic mechanisms from hard to soft instruments, where the PI_ECO_Score increases precisely because of the combination of mandatory standards and incentive programmes.

Empirical evidence of the effectiveness of the educational and informational components of paternalistic measures was provided by P. Ataei *et al.* (2022) through a detailed analysis of the environmental sustainability behaviour of farmers in Kermanshah Province, Iran. The results convincingly showed that five key variables had a statistically significant impact on personal norms, which had a statistically significant impact on farmers' sustainable behaviour. Particularly relevant for the validation of the developed approach is the finding that 81.2% of farmers did not participate in educational and promotional classes, which correlates with the findings that information and advisory mechanisms need to be strengthened as part of paternalistic regulation, as reflected in the increase in the PI_ECO_Score. The methodological justification for the use of "nudges" as an alternative to strict regulatory measures was presented by M. Santos Silva (2021) in a comprehensive analysis of European and American environmental sustainability practices. The results of the statistical analysis revealed a positive correlation between the introduction of paternalistic mechanisms and the growth of environmental performance of the agricultural sector, which confirms the author's conclusions about the lack of effectiveness of traditional regulatory techniques. The researcher's three key theses on the importance of transparency, consideration of moral inclinations, and the complementarity of green incentives with traditional measures are directly reflected in the structure of the PI_ECO_Score, where each component of the index considers different types of government interventions.

The strategic challenges of the European carbon farming policy were investigated by S. Van Hoof (2023), determining a paradoxical situation of limited adoption of relevant policies despite the significant emission reduction potential. The conclusion that governments refrained from using laws and regulatory instruments, preferring strategies and plans, confirms the feasibility of the developed approach to paternalistic mechanisms, where soft instruments demonstrate higher efficiency than hard regulatory prohibitions, as reflected in the positive dynamics of the PI_ECO_Score. The practical effectiveness of eco-schemes as a tool for paternalistic regulation is illustrated by a multidisciplinary study by S. Colombo *et al.* (2024), employing Andalusian olive groves to assess the environmental and economic effects of the Common Agricultural Policy's green architecture. Their findings of a significant increase in soil organic carbon and a cost-benefit ratio above one are directly correlated with the PI_ECO_Score component, which reflects the effectiveness of economic incentives as part of paternalistic mechanisms, demonstrating that incentives can provide both environmental and economic benefits.

Ukrainian realities of environmental efficiency were studied by O. Halytsia *et al.* (2024), for the first time empirically assessing the environmental efficiency of crop producers using panel data at the farm level. Their average environmental efficiency of 0.84, with room for improvement, correlates with the initial values of the PI_ECO_Score (0.35 in 2015) and confirms the validity of the developed methodology for assessing paternalistic mechanisms as a tool for improving the environmental efficiency of the Ukrainian agricultural sector. The legal basis for the harmonisation of environmental standards was analysed by N.P. Nikolaidis *et al.* (2025) conducted a comparative analysis of the contrasting approaches of the Nitrate Directive and the Water Framework Directive to assess the status of eutrophication for

the first time. The study found significant inconsistencies in the criteria for assessing nutrients between the two directives, finding that nitrogen is often linked to less stringent drinking water standards rather than ecologically relevant criteria. Their conclusion that the criteria need to be harmonised confirms the feasibility of a unified approach to assessing paternalistic mechanisms through a single PI_ECO_Score index, which can be used for the comparison of the effectiveness of different regulatory instruments.

The scientific basis for differentiating agro-ecological practices was provided by T. Petersson *et al.* (2025) through a systematic review of the climate change mitigation potential of carbon farming practices on European arable land. The conceptual framework of carbon farming was validated through an analysis of more than 700 records of soil organic carbon change rates for 12 different practices. The identified diverse carbon storage potential for different practices confirms the need for a differentiated approach to paternalistic mechanisms, which is reflected in the multi-component structure of the PI_ECO_Score, where each element considers the specifics of different agro-environmental measures. Crisis aspects of agricultural regulation were studied by M. Nehrey and R. Finger (2024), who analysed the initial impact of the Russian invasion on Ukrainian agriculture, finding a reactive nature of government measures that included tax simplification, affordable credit, and deregulation. This experience contrasts with the developed systematic approach to paternalistic mechanisms, demonstrating the benefits of planned long-term interventions over crisis measures, as evidenced by the stable positive dynamics of the PI_ECO_Score in peacetime compared to potential losses during wartime.

The French context was analysed by M. Las-salas *et al.* (2024) in an assessment of the ambition of the Common Agricultural Policy 2023-

2027, finding that 99.9% of farms reach the standard level of eco-schemes without changing practices, and 84.9% reach the higher level. These results confirm the critical findings of the lack of ambition of current European measures and justify the need for more effective paternalistic mechanisms, which is reflected in the PI_ECO_Score calculation methodology by incorporating not only formal compliance with standards but also real environmental results. In general, international experience convincingly confirms the validity of the developed approach to assessing paternalistic mechanisms through the PI_ECO_Score index and demonstrates the universality of the principles of combining hard and soft regulatory instruments. Confirmation of the main hypotheses of the study by various international experiences shows that European practices can be adapted to Ukrainian realities, incorporating specific national conditions and limitations, while significantly expanding the theoretical notion of paternalistic mechanisms through empirical evidence of their positive impact on the environmental performance of agricultural production.

Conclusions

The study was conducted using a comprehensive methodological strategy that combined theoretical and legal analysis of the concept of paternalism with empirical methods of assessing its practical implementation in Ukrainian realities. The conceptual and theoretical justification of legal paternalism was provided by analysing its etymological foundations, distinguishing between hard and soft types of intervention, and establishing constitutional and legal grounds for restricting private autonomy for environmental purposes. The empirical analysis included the development of an integral index PI_ECO_Score to quantify the intensity of paternalistic environmentalisation measures, a study of the dynamics of key environmental indicators of the Ukrainian agricultural

sector over the period 2015-2024, and a comprehensive comparative analysis with the experience of the European Union. Hypothesis testing confirmed the existence of a positive correlation between the level of paternalistic regulation and environmental outcomes. The regression analysis using the composite index of environmental and economic efficiency of the agricultural sector showed a positive and statistically significant coefficient for PI_ECO_Score, which indicates better sustainability performance in countries with a higher level of environmental paternalism. The analysis of court practice has shown the formation of a stable law enforcement doctrine of a balanced approach to resolving conflicts between environmental and economic interests, with the prevalence of the public interest in environmental protection, subject to procedural guarantees of the rights of business entities.

The results obtained provide a conceptual basis for the objective necessity and practical effectiveness of state intervention in the formation of sustainable production practices in the agricultural sector using paternalistic mechanisms of varying degrees of intensity. The study proves the evolutionary nature of the transformation of agricultural regulation from the traditional productivist paradigm to an environmentally based model of state intervention through the regulatory transformation of the state's approach to environmental regulation. The comparative analysis shows that Ukraine is in the phase of active convergence with European standards of paternalistic regulation, demonstrating indicators close to those of the countries of Central and Eastern Europe during the period of their adaptation to the requirements of the EU Common Agricultural Policy, which creates favourable prospects for further strengthening the environmental component of the national agricultural policy, provided that the relevant legal and financial instruments are systematically implemented. A natural corre-

lation has been established between the institutional maturity of paternalistic mechanisms and the integral level of greening of agricultural policy, which confirms the central hypothesis of the study on the effectiveness of government intervention in the formation of sustainable production practices.

A limitation of the study is the relatively short observation period for assessing the long-term effects of paternalistic measures and the limited availability of detailed statistical data on the real impact of regulatory changes on the ecological state of agroecosystems under martial law. A promising area for further research is the development of sectoral indices of paternalism

for different agricultural sectors and the study of mechanisms for integrating market-based environmental regulation instruments with traditional paternalistic approaches in the context of Ukraine's European integration.

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Conflict of Interest

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Правовий патерналізм у діяльності органів публічної влади як концептуальна основа екологізації аграрної політики

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Анотація

Метою дослідження було встановлення закономірностей впливу патерналістських механізмів державного регулювання на процеси екологізації аграрної політики в Україні. Дослідження ґрунтувалося на комплексній методологічній стратегії, що поєднувала теоретико-правовий аналіз концепції правового патерналізму з емпіричними методами оцінки його практичної реалізації, включаючи розробку інтегрального індексу інтенсивності патерналістських заходів екологізації, статистичний аналіз динаміки ключових екологічних показників українського аграрного сектору за період 2015-2024 років та систематичний порівняльно-правовий аналіз регуляторних практик провідних європейських держав. Розроблений індекс патерналістських механізмів екологізації для України продемонстрував зростання з 0,35 у 2015 році до 0,62 у 2024 році, що засвідчило поступове посилення державного втручання в екологічне регулювання сільськогосподарської діяльності переважно через нормативно-правову трансформацію. Статистична перевірка гіпотез виявила значущу негативну кореляцію між рівнем патерналістського регулювання та інтенсивністю використання мінеральних добрив на рівні мінус 0,72 при значущості менше 0,01, а також позитивний зв'язок із поширенням органічного землеробства з коефіцієнтом кореляції 0,65 при рівні значущості менше 0,05. Регресійний аналіз підтвердив позитивний та статистично значущий вплив патерналістських механізмів на зведений індекс еколого-економічної ефективності агросектору з коефіцієнтом 0,43. Порівняльний аналіз засвідчив, що Україна перебувала у фазі активної конвергенції до європейських стандартів патерналістського регулювання, демонструючи показники на рівні 0,54-0,62, близькі до країн Центрально-Східної Європи періоду їх адаптації до вимог Спільної аграрної політики, тоді як країни старої Європи досягли рівня 0,75-0,8. Отримані результати концептуально обґрунтували об'єктивну необхідність та практичну ефективність державного втручання у формування сталих виробничих практик аграрного сектору, а практичні рекомендації включали посилення умовності бюджетної підтримки через імплементацію принципу зеленої умовності, інтеграцію цифрового моніторингу та автоматизованого обліку для підвищення ефективності контролю, запровадження регуляторних пісочниць для еко-інновацій та гармонізацію патерналістської політики з принципом забруднювач платить через розвиток ринкових механізмів екологічного регулювання.

Ключові слова: державне регулювання; сільськогосподарська діяльність; екологічний контроль; сталий розвиток; природоохоронне законодавство