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THE IMPACT OF EU ENVIRONMENTAL POLICY ON SAWMILL OPERATIONS IN POLAND – A DECADE IN REVIEW

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Purpose: This study aims to assess the impact of EU environmental policy on the activities of Polish sawmill companies in the period 2014-2024.
Design/methodology/approach: The study's objective was achieved through a review of Polish and English-language literature on the domestic and international sawmill industry, as well as a statistical analysis of primary data obtained directly from sawmilling companies and secondary data from publicly available online sources. The study examined three sawmilling industry entities during the 2014-2024 research period, producing pulp products (including paper), hardwood and softwood lumber, and mainly wood biomass.
Findings: Throughout the study, it was established that the European Union's environmental policy, implemented through policy instruments, did not negatively impact the economic situation of sawmill companies in Poland during the review period. These instruments inadvertently led to investments in green technologies and long-term development. The economic situation of sawmill enterprises is primarily related to market factors.
Research limitations/implications: The research was limited by the partial lack of confidential financial data from the surveyed companies and the limited availability of literature describing the state of the Polish sawmill industry during the review period. Future research should include an analysis of the impact of EU environmental policy instruments on the supply of wood raw materials. It could also involve an econometric analysis of the data.
Social implications: Sawmill companies operating in the sawmill industry should focus on long-term sustainable development goals, as they not only deliver socially beneficial outcomes but also economic benefits. A lack of patience with the dictates of EU environmental policy can lead to unnecessary conflicts in negotiations with decision-makers and hinder the economic development of the business entity.
Originality/value: This article is aimed at entities in the sawmill industry to guide strategic thinking toward social responsibility based on empirical data. Previous studies of the Polish timber industry have not relied on primary data obtained directly from sawmill companies.
Keywords: Sustainable development, environmental policy, European Union, sawmill industry, timber market.
Category of the paper: Research paper.

Introduction

The period of key political and structural changes for the Polish sawmill industry began in 1993, when the Maastricht Treaty, signed on February 7, 1992, was ratified (Dashwood, 2004; Marx *et al.*, 2015). Under its authority, the European Union was established, which has since influenced economic processes in member states, with particular attention paid to environmental protection and the social responsibility of economic entities (Stein, 2015). Care for the environment, biodiversity and ecosystems was to be achieved by implementing the principles of sustainable development defined on June 3-14, 1992, at the second UN conference in Rio de Janeiro, known as UNCED (United Nations Conference on Environment and Development) and the proper name "Earth Summit 1992" (Grubb *et al.*, 2019). Among other things, the Rio Conference adopted the Rio Declaration and Agenda 21, which influenced the development of the European Union's future environmental policy in the spirit of sustainable development (Doyle, 1998). In Rio, the UN called for mutual conditioning of trade and environmental protection efforts through the implementation of political and economic measures on a macroeconomic scale. The effects of these efforts are noticeable in the Polish economy and environmental protection data from the last decade of the 21st century. The share of electricity from renewable sources in gross final energy consumption increased by nearly 52%, reaching 25.8% in 2023, while the primary energy intensity of GDP decreased to 230 kgoe/1000 euros, a decrease of less than 24% since 2015 (Główny Urząd Statystyczny, 2025). These effects were observed against the backdrop of steady growth in industrial processing and industrial output.

The sawmill/wood industry in Poland includes sectors of the economy represented by companies involved in sawmilling, but also in the processing of wood raw materials into materials, semi-finished products or finished wood products (Lazurow, 1999; Ratajczak, 2003). As a result of wood processing, wood market products are produced, such as sawn timber, veneer, plywood, plywood shapes, lignofol, chipboard, OSB (Oriented strand board), fiberboard (HDF/MDF - Medium-density fiberboard/High-density fiberboard), wood pulp, cellulose, paper, cardboard, LVL (Laminated Veneer Lumber), glulam or CLT (Cross Laminated Timber) (Kaputa, 2004; Balkissoon, Andrew, Sithole, 2023; Romero, Odenbreit, 2023; Olejnik, Stefańska, 2025). In 2023, according to data from the Polish Central Statistical Office (GUS), the share of wood product manufacturing in Poland's GDP was 0.60%, representing a decrease of 0.04% since 2014 (Główny Urząd Statystyczny, 2016, 2024b). As of September 30, 2024, according to the Polish National Business Registry Number (REGON), there were 35,098 entities in the wood industry on the Polish market. There were 8938 entities producing sawn timber products in Poland, and 422 entities producing veneer sheets and wood-based panels. The largest group of entities in this industry at that time were companies producing other joinery and carpentry products for the construction industry,

numbering 11,269 units. Corrugated paper and corrugated cardboard were produced by 2050 entities on the Polish market (Główny Urząd Statystyczny, 2024a). Employment dynamics in the Polish sawmill industry showed an upward trend during the period analysed in the study. Production of items manufactured within the wood industry remained at an almost constant level over the last decade. Data indicate that the timber industry is a significant component of the Polish economy. The European Union, in line with its sustainable development principles, generates numerous factors that influence the sawmill industry, but their impact is not fully understood. Ignorance of the impact of environmental policy can harm economic practices across entire industries that play a significant role in the economy.

The effects of European Union actions that have influenced the Polish timber industry over the last decade stem from the use of environmental policy instruments by state administration bodies, adapted to EU requirements for environmental management. These instruments are divided into decentralised instruments, command and control instruments (CAC) and market-based instruments (MBI) (Graczyk, 2015; Wasiuta, 2015; Field, Field, 2017). The first two instruments are administrative and legal in nature, while market instruments are based on indirect action on entities responsible for environmental damage. CAC instruments are subject to inspection mechanisms, monitoring and judicial action, and primarily consist of environmental and emission standards. Environmental standards include the EUDR (European Union Deforestation Regulation), EUTR (European Union Timber Regulation), MEPS (Minimum Energy Performance Standards), ESPR (Ecodesign for Sustainable Products Regulation) and LLCC (Least Life-Cycle Cost) (European Union, 2013, 2024; Köthke, Lippe, Elsasser, 2023). This group of tools also includes specification instruments such as OECD CLEG, FSC, PEFC or ISO 14001 certification (Michal, Sujová and Březina, 2018; dos Santos and e Aguiar, 2019; Boubacar and Sissoko, 2025). The MBI tools of the European Union's environmental policy are mainly based on CO2 pollution charges (Solberg *et al.*, 2014), tradable emission permits under the EU ETS (European Union Emissions Trading System) (Gulbrandsen, Stenqvist, 2013) and subsidies (Stavins, 2010; Fischer, 2016; Domaracká *et al.*, 2025).

Research on the Polish timber industry has not yet addressed the direct impact of European Union environmental policy instruments on economic entities in the sawmill sector. Research has been limited due to a lack of literature on the subject and similar studies of the sawmill industry in Poland. This study aims to assess the impact of EU environmental policy on the activities of Polish sawmill companies in the period 2014-2024, and within this aim, the following research hypothesis has been formulated: In the period 2014-2024, the European Union's environmental policy led to a weakening of the economic performance of entities in the sawmill industry in Poland.

Methods

To demonstrate the impact of the European Union's environmental policy on the activities of sawmills and sawmill sector companies in Poland during the research period 2014-2024, a detailed review of English-language and Polish-language literature was conducted. Statistical analysis of quantitative primary and secondary data from the research period was used to verify the research hypotheses. The data obtained was annual and standardised. The quantitative primary data were obtained directly from three economic entities distinguished by their significant share of the domestic timber market in terms of total timber product production during the research period. The entities were anonymised using the symbols X, Y and Z. Entity X specialised in the production of paper goods, entity Y in the production of hardwood and softwood sawn timber, and entity Z had a large share of wood pellet production in its total production. Secondary quantitative data were obtained from publicly available online sources such as the Statistical Yearbooks of the Republic of Poland, the Small Statistical Yearbook of Poland, and quarterly information on national economy entities registered in the REGON (National Official Register of National Economy Entities in Poland). The data from the research period had justified gaps due to reasons such as the lack of annual reports from entities. The variables used in the study were standardised for comparison purposes.

Results

The average share of wood products production in Poland's GDP during the period under review was 0.66%, and for paper products, 0.57%. In 2021, the share of wood products production in Poland's GDP reached a maximum of 0.82% (Figure 1). The share of paper products production in Poland's GDP did not exceed 0.59%.

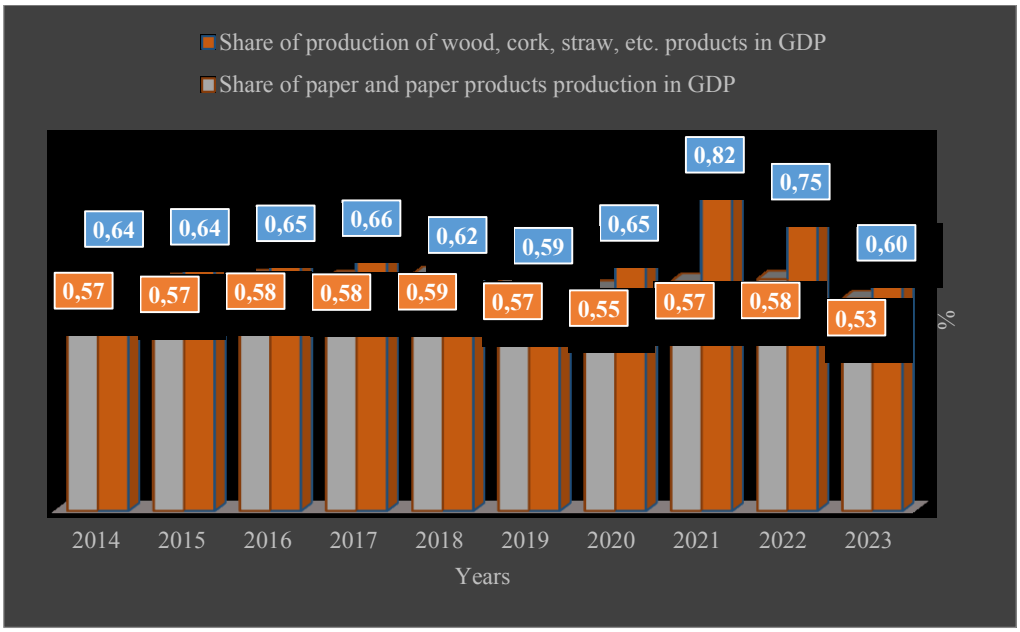

Figure 1. Share of wood and paper product manufacturing in the Polish GDP during the period under review.

Source: Główny Urząd Statystyczny (2025, pp. 297, 377, 294); Główny Urząd Statystyczny (2024, pp. 229, 434, 492, 664, 668); Główny Urząd Statystyczny (2022, pp. 248, 456, 519, 697, 713); Główny Urząd Statystyczny (2020, pp. 247, 453, 513, 695, 711); Główny Urząd Statystyczny (2018, pp. 246, 454, 514, 696, 712); Główny Urząd Statystyczny (2016, pp. 246, 453, 513, 694, 710).

During the period under review, sawn timber production remained stable regardless of the type of wood. Particle board production grew until 2021, after which it began to decline (Figure 2).

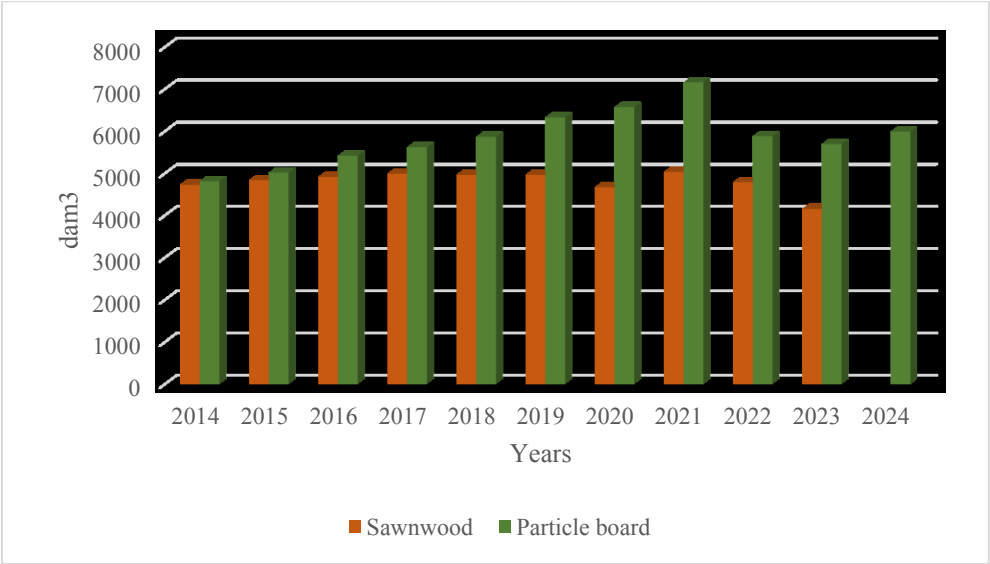

Figure 2. Production of sawn timber and particle boards in the period under review.

Source: Główny Urząd Statystyczny (2025, pp. 297, 377, 294); Główny Urząd Statystyczny (2024, pp. 229, 434, 492, 664, 668); Główny Urząd Statystyczny (2022, pp. 248, 456, 519, 697, 713); Główny Urząd Statystyczny (2020, pp. 247, 453, 513, 695, 711); Główny Urząd Statystyczny (2018, pp. 246, 454, 514, 696, 712); Główny Urząd Statystyczny (2016, pp. 246, 453, 513, 694, 710).

Pulp production remained stable (Figure 3). Paper, cardboard, and corrugated paperboard production peaked in 2021. Sacks and bags of paper production continued its stable trend.

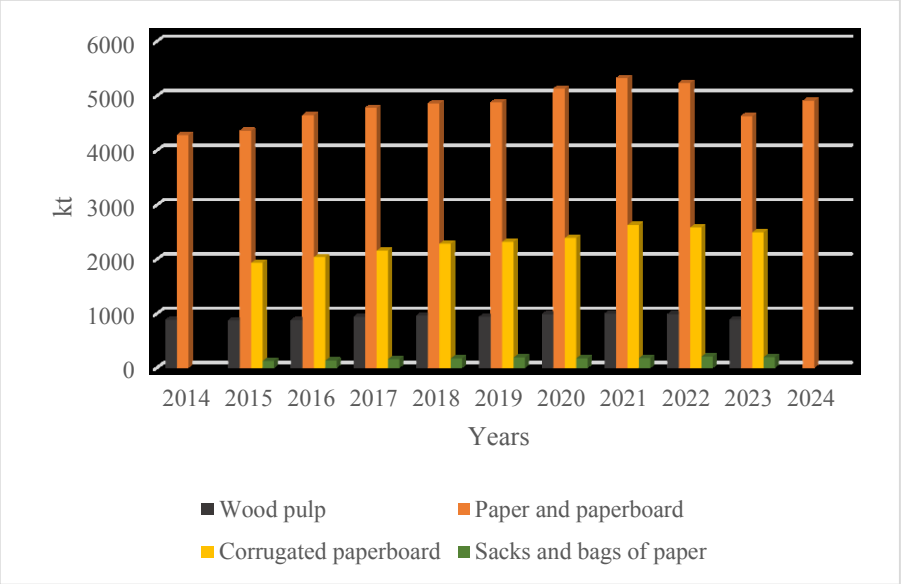

Figure 3. Production of cellulose goods in the period under review.

Source: Główny Urząd Statystyczny (2025, pp. 297, 377, 294); Główny Urząd Statystyczny (2024, pp. 229, 434, 492, 664, 668); Główny Urząd Statystyczny (2022, pp. 248, 456, 519, 697, 713); Główny Urząd Statystyczny (2020, pp. 247, 453, 513, 695, 711); Główny Urząd Statystyczny (2018, pp. 246, 454, 514, 696, 712); Główny Urząd Statystyczny (2016, pp. 246, 453, 513, 694, 710).

In the Polish wood industry, entities employed the most people in 2021 (Figure 4). Employment maintained an upward trend among companies producing paper goods, while among companies producing solid wood goods, it grew until 2021, after which it began to decline.

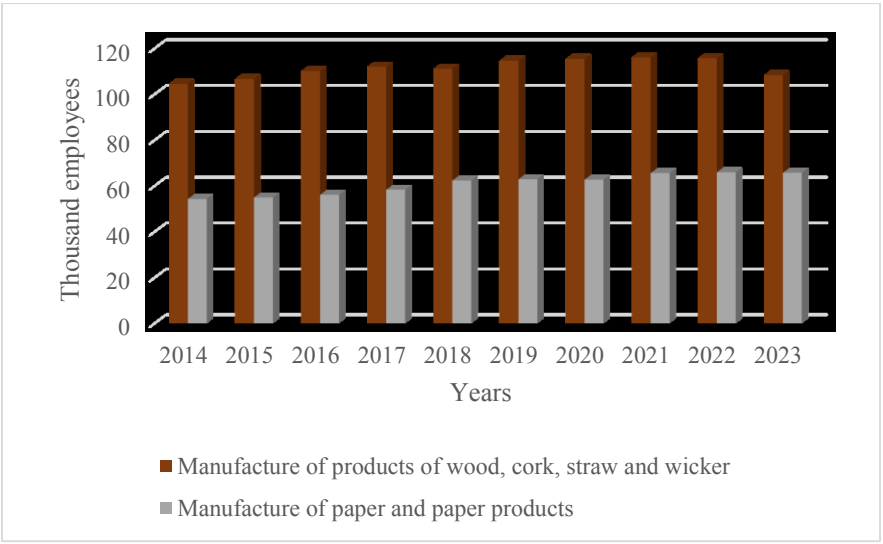

Figure 4. Employment in the Polish wood industry, depending on the production profile, in 2014-2023.

Source: Główny Urząd Statystyczny (2025, pp. 297, 377, 294); Główny Urząd Statystyczny (2024, pp. 229, 434, 492, 664, 668); Główny Urząd Statystyczny (2022, pp. 248, 456, 519, 697, 713); Główny Urząd Statystyczny (2020, pp. 247, 453, 513, 695, 711); Główny Urząd Statystyczny (2018, pp. 246, 454, 514, 696, 712); Główny Urząd Statystyczny (2016,p p. 246, 453, 513, 694, 710).

The output price index rose in 2018, then declined to reach its maximum value for both production profiles in 2022 (Figure 5). For the production of solid wood products, it reached 120.2 compared to the previous year, and for the production of paper products, it reached 122.3 compared to the previous year. After that year, prices declined until the end of the study period, and the producer price index reached lower values year on year.

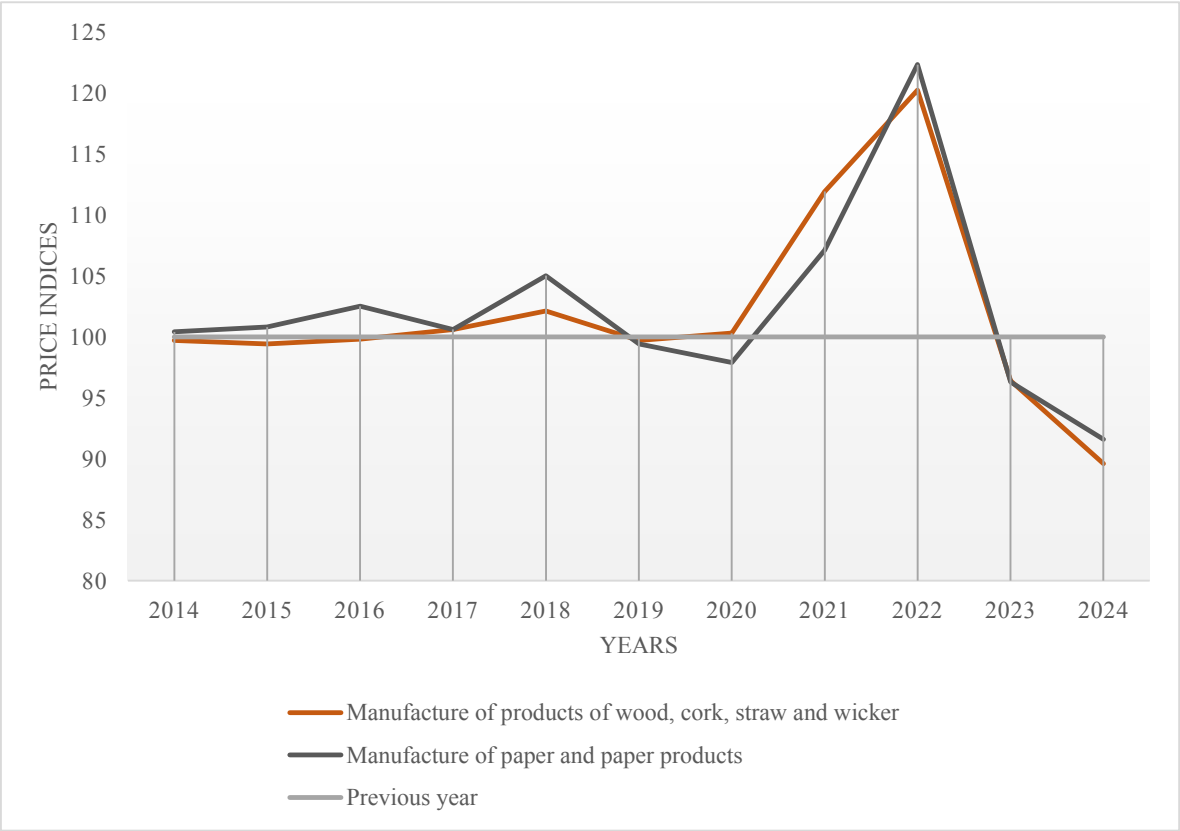

Figure 5. Price index of the sold production of the Polish sawmill industry in the period under review.

Source: Główny Urząd Statystyczny (2025, pp. 297, 377, 294); Główny Urząd Statystyczny (2024, pp. 229, 434, 492, 664, 668); Główny Urząd Statystyczny (2022, pp. 248, 456, 519, 697, 713); Główny Urząd Statystyczny (2020, pp. 247, 453, 513, 695, 711); Główny Urząd Statystyczny (2018, pp. 246, 454, 514, 696, 712); Główny Urząd Statystyczny (2016, pp. 246, 453, 513, 694, 710).

Entity X achieved average sales revenue of 3,303,007.09 k PLN (Table 1). Throughout the entire research period, operating costs did not exceed sales revenue. The entity received subsidies from the European Union budget for investments in environmentally friendly production technologies in 2019, 2020 and 2024. EU subsidies equalled almost 4% of revenues from the sale of wood products in 2024. On average, EU subsidies during the study period amounted to 0.43% of revenues from the sale of paper products. The entity has been investing continuously in ecological technologies since 2017, with the largest such investment occurring in 2024 and amounting to 169,600.00 k PLN. On average, investments in green technologies amounted to 1.11% of entity X's revenue. The costs of tradable EU ETS emission allowances averaged 45,903.86 k PLN throughout the entire period under review. The company paid the costs of internally generated CO_2 emissions annually.

Table 1.
Main financial data of entity X related to the EU environmental policy for the period under review

Years	Sales revenues	Operating costs	EU Environmental subsidies	Investments in ecological technologies	EU ETS costs
	[k PLN]				
2014	3099364	3064089	0	0	10965,00
2015	2900460	2859866	0	0	10965,00
2016	2966972	2908486	0	0	38250,00
2017	2952806	2886905	0	29 000,00	38505,00
2018	3158210	3074930	0	29 000,00	37357,50
2019	3117118	3003807	16 392,07	40 278,00	35275,00
2020	2847450	2754488	8 343,57	4 000,00	27455,00
2021	3412576	3241755	0,00	57 000,00	74417,50
2022	4894276	4137075	0,00	35 000,00	73227,50
2023	3549153	3321482	0,00	40 000,00	89165,00
2024	3434693	3382454	133 900,00	169 600,00	69360,00
Average	3303007,09	3148667,00	14421,42	36716,18	45903,86

Source: Own work based on primary data.

Entity X achieved an average paper production of 611,041 tonnes and an average water consumption in the production process of 5,007,600.75 m³ during the period under review (Table 2). Water consumption did not increase proportionally to paper production, but decreased at the end of the period under review, along with production volume. The volume of hazardous waste generated was not dependent on the volume of paper production and reached the highest value in 2020.

Table 2.
Key environmental data related to the production of entity X from the study

Years	Paper production volume	Water consumption	Mass of hazardous waste	CO2 emissions from production	Internally generated biomass energy	Electricity consumption, regardless of purpose
	[t]	[m^3]	[t]	[t]	[GWh]	[GWh]
2014					234,5	1475,0
2015	671000				234,8	1510,0
2016	654821	4976640		195385	235,7	1440,6
2017	658645	4962506	107,1	185517	243,7	1508,9
2018	639073	5080163	202,2	187019	236,5	1547,8
2019	601564	4997543	117	178803	216,6	1380,1
2020	587364	5023811	269,7	156605	94,0	1311,6
2021	636613	5218369	85,5	149941	229,2	1419,7
2022	626472	5233104	191	160962	219,3	1393,5
2023	423817	4568670	164,5	129085	139,9	1079,4
2024						
Average	611041	5007600,75	162,4285714	167914,625	208,42	1406,66

Source: Own work based on primary data.

CO2 emissions from paper production were not proportional to the EU ETS contributions paid and were decreasing from the beginning of the study period (the first two years of data were unavailable). Electricity consumption at the end of the study period was approximately 27% lower than at the beginning of the study period. The average share of internally produced

biomass burned during the study period was less than 15%. The share of internally produced biomass had no impact on CO2 emissions from the production of cellulose-based goods. Entity X reported revenues from the sale of paper goods higher than operating costs throughout the entire research period (Figure 6). The highest revenues and costs were observed in 2022. After this year, revenues and operating costs decreased and levelled off in the last year of the study period. Paper production did not reach its peak in this year, nor did the mass of hazardous waste, CO2 production from production, and energy consumption, regardless of its purpose (Table 2).

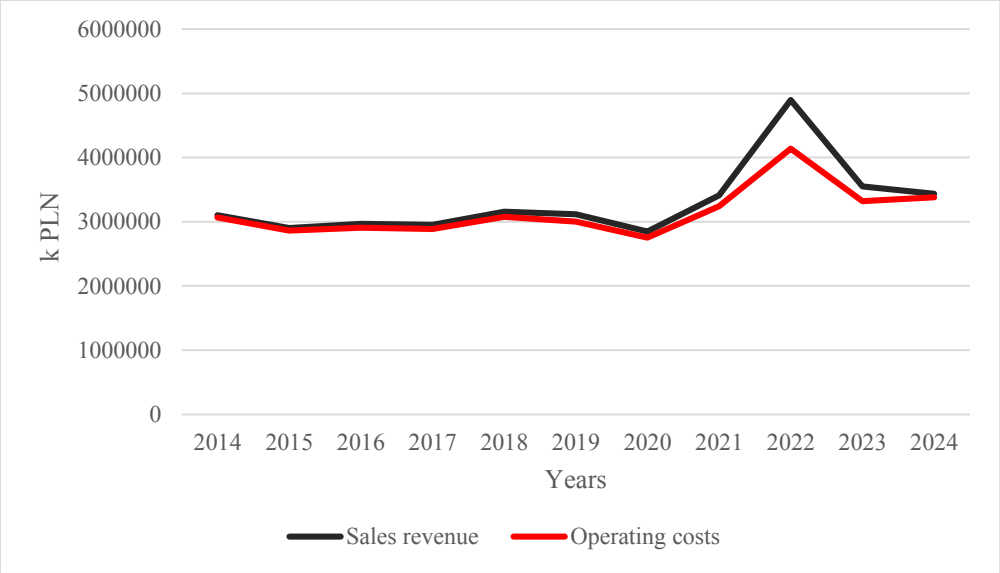

Figure 6. Sales revenues and operating costs of entity X in the audited period.

Source: Own work based on primary data.

Entity X incurred EU ETS costs throughout the entire research period, and these costs increased from the beginning (Figure 7). Since 2017, the entity has been investing in green technologies. In the last year of the research period, EU subsidies covered part of the investment and the entire cost of the EU ETS. Subsidies and costs related to EU environmental policy instruments did not correlate with the increase in entity X's revenues and operating costs at the end of the study period (Figure 6).

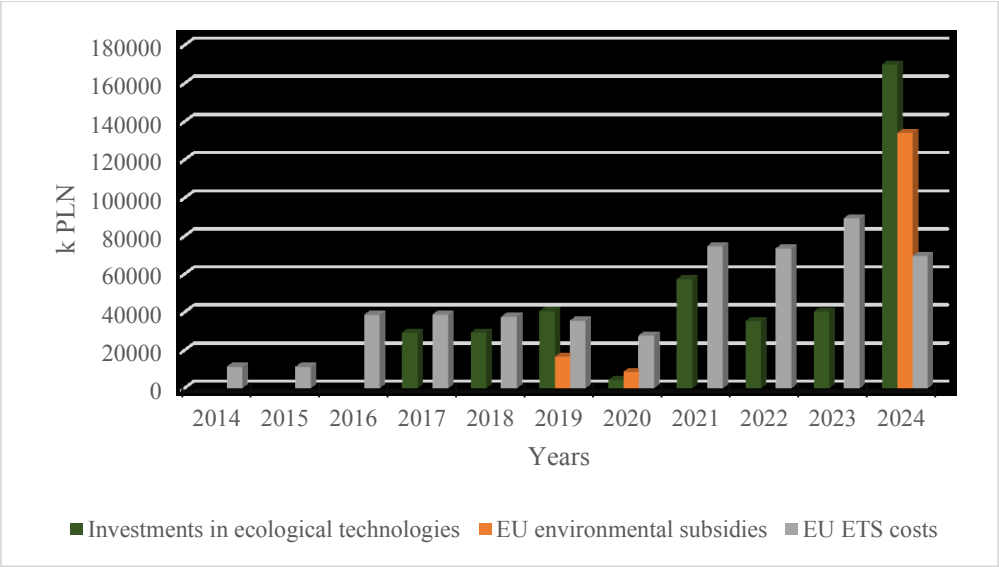

Figure 7. Subsidies and costs related to EU environmental policy instruments of entity X in the period under review.

Source: Own work based on primary data.

Employment at entity X grew until 2023 (Figure 8). It decreased by 48 people in the last year of the study period.

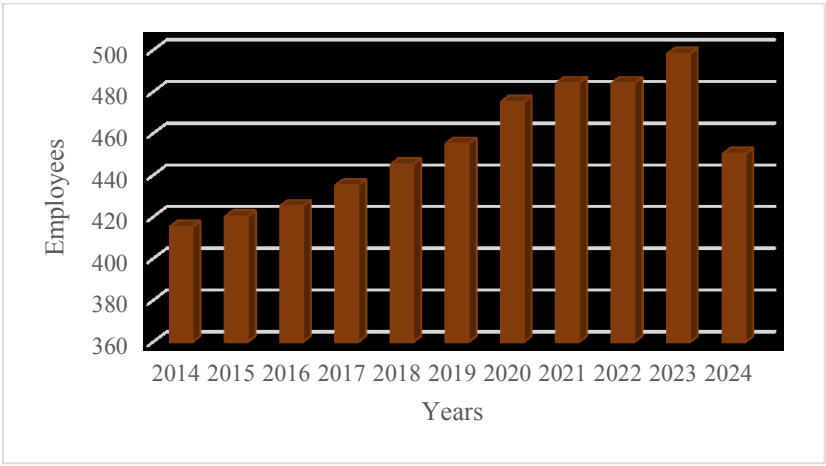

Figure 8. Employment in entity X in the period under review.

Source: Own work based on primary data.

Entity Y reported average revenues from the sale of sawn timber, regardless of its species, in the amount of 324,351.09 k PLN (Table 3). Operating costs exceeded sales revenues in 2023 and remained higher until the end of the research period. This entity received smaller subsidies from entity X during the research period, and its share in annual revenues was smaller, averaging 0.04% in the research period. Total capital expenditure averaged 5% of annual operating costs, with investments in environmental technologies accounting for less than 0.5%. Entity Y invested less than entity X, with significantly lower sales and operating costs. Operating costs increased by nearly 30% between 2014 and the end of the study period, with environmental fees and investments in green technologies accounting for a small share of this percentage.

Table 3.
Main financial data of entity Y related to the EU environmental policy for the period under review

Years	Revenues from sales of sawn timber	Operating costs	Environmental subsidies from the EU	Total investment outlays	Investments in ecological technologies	Fees for using the environment
	[k PLN]					
2014	263936	259243	0		136	
2015	258614	256824	0		13	
2016	265023	261675	136,27		800	
2017	290707	287169	218,576	9 800	1300	72,5
2018	302204	292493	321,878	13 000	0	83,7
2019	297731	294394	203,788	16 000	0	88
2020	317280	312694	120,68	6 000	1377	86
2021	415888	374962	0	27 500	300	77
2022	474016	411688	182,26821	24 800	2230	73,9
2023	356000	378223	0	21 000	2521	72,3
2024	326463	368470	122,358			
Average	324351,09	317985,00	118,71	16871,43	867,70	79,06

Source: Own work based on primary data.

Sawn timber production, regardless of its type, grew until 2021 for entity Y, after which it began to decline, reaching its lowest value for the period under review in 2023 (Table 4). Water and energy consumption during this period followed trends similar to those of sawn timber production. Energy consumption was highest in the period under review, one year before peak production in 2021.

Table 4.
The main ecological data related to the production of subject Y in the period under study

Years	Timber production volume	Water consumption	Electricity consumption, regardless of purpose
	[t]	[m^3]	[GWh]
2014	138500	36000	55,0
2015	139000	37000	55,0
2016	139500	36500	55,5
2017	139940	35683	54,8
2018	139940	40344	54,5
2019	139940	29728	59,7
2020	147260	34612	65,5
2021	158326	41115	60,6
2022	147213	36520	55,5
2023	119504	23338	51,4
2024			
Average	140912,3	35084	56,75

Source: Own work based on primary data.

Entity Y showed an increase in revenues from the sale of sawn timber and operating costs in the period under review until 2022, followed by a decline in these values until the end of the study period (Figure 9).

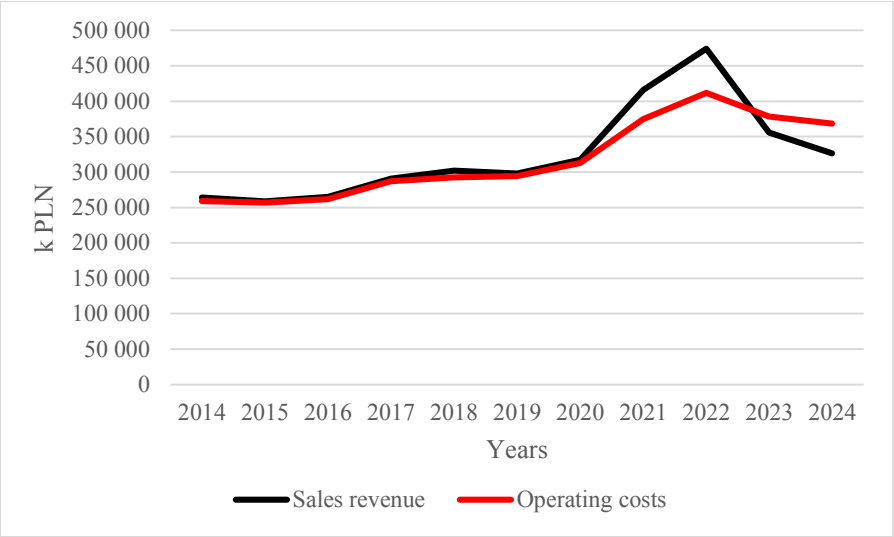

Figure 9. Sales revenues and operating costs of entity Y in the period under review.

Source: Own work based on primary data.

Subsidies and costs related to the implemented EU environmental policy instruments were more frequent in entity Y than in entity X during the research period (Figure 10). At the end of the research period, entity Y's total expenditure on environmental protection increased. This increase was not accompanied by an increase in the company's operating costs (Figure 9). Subsidies and costs related to EU environmental policy tools did not increase in line with entity Y's revenues and operating costs.

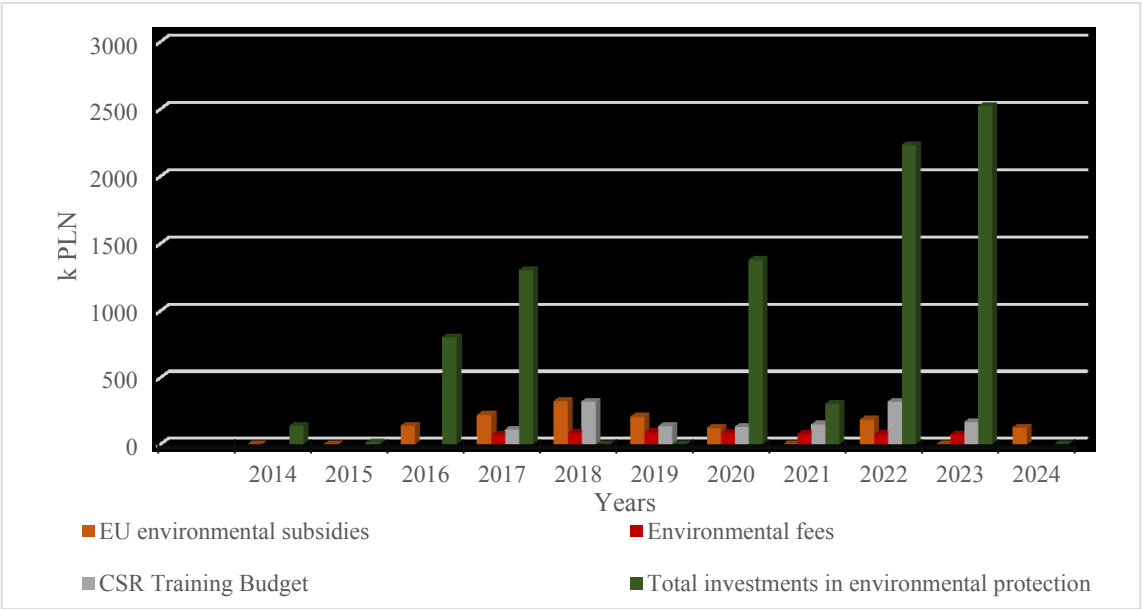

Figure 10. Subsidies and costs related to EU environmental policy instruments for entity Y during the period under review.

Source: Own work based on primary data.

Employment in entity Y remained almost constant until 2022 (Figure 11). It decreased in the last two years of the study period.

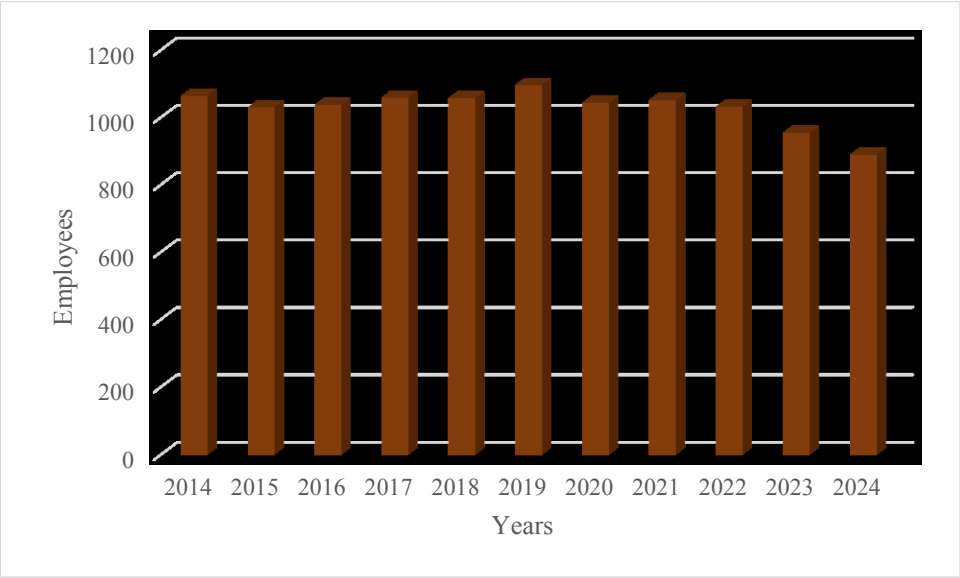

Figure 11. Employment in entity Y in the period under review.

Source: Own work based on primary data.

Entity Z experienced a sudden increase in operating costs in 2018 (Table 5). The increase in operating costs was not related to the volume of wood pellet sales, which peaked in 2022. Entity Z received EU subsidies only in 2016–2017. No investments in ecological technologies, fees for the use of the environment, or a budget for employee training in the field of CSR were reported despite the production of environmentally hazardous waste and CO2 emissions amounting to 38,473 tons in 2019.

Table 5.
Key financial data of entity Z related to EU environmental policy for the period under review

Years	Revenues from pellet sales	Operating costs	EU Environmental subsidies	Investments in ecological technologies	Fees for using the environment
	[k PLN]				
2014					
2015					
2016	56451	19127	3000	0	0
2017	68310	21222	20000	0	0
2018	88813	362983	0	0	0
2019	100792	410831	0	0	0
2020	93141	411910	0	0	0
2021	102858	461048	0	0	0
2022	174375	485274	0	0	0
2023	149768	634349	0	0	0
2024	86355	561029	0	0	0
Average	102318,11	374197,00	2555,56	0,00	0,00

Source: Own work based on primary data.

Employment in entity Z remained almost constant until 2022 (Figure 12). It decreased in the last two years of the study period.

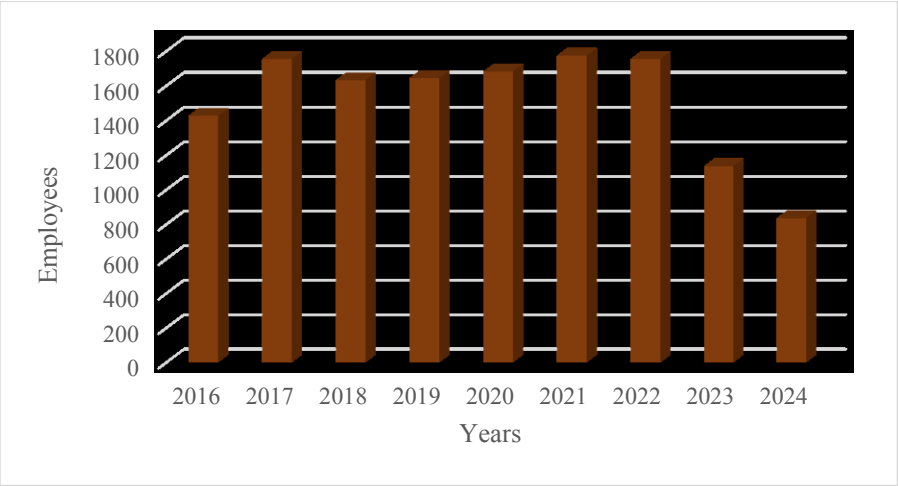

Figure 12. Employment in entity Z in the period under review.

Source: Own work based on primary data.

Discussion

European Union initiatives related to environmental management have an impact on international markets. Research on the Polish timber industry has not yet addressed the direct impact of European Union environmental policy instruments on economic entities in the sawmill sector. This impact is less noticeable on domestic markets than on the global market, but it does occur in the form of companies' responses to certification requirements imposed on entities through regulations such as the EUTR (Europe, 2007; Holopainen, Toppinen, Perttula, 2015). Companies focus primarily on short-term response to requirements in order to reduce costs rather than on the environmental goal of the implemented policy (Holopainen, Toppinen, Perttula, 2015). The use of subsidies by the governments of countries with environmental policies on renewables reveals inaccuracies, as the use of subsidies for renewable energy producers can lead to an increase in the price of raw materials and wood items or, in some cases, to an increase in the demand for raw materials, which contributes to increased deforestation. Deforestation is occurring indirectly through the import of raw materials from countries not covered by EU restrictions (Solberg *et al.*, 2014). Tradable emission permits under the EU ETS and other Union environmental policy instruments are leading to a loss of competitiveness for the European sawmill industry by forcing costly technological adaptation (Gulbrandsen, Stenqvist, 2013). However, such adaptation does not have to be solely at the expense of the company, and in the long run, it can bring tangible profits in relation to the outlays.

The results of the study show that environmental policy instruments can have an impact on the sawmill industry by influencing the actors within it. Companies such as entity X, producing cellulose goods and entity Y trading in sawn timber in the form of lumber, show the impact of EU environmental policy instruments by receiving environmental subsidies, investing in green

technology or keeping records of real consumption of natural capital in the form of CO2 emissions, water and electricity consumption. Entity X was a purchaser of tradable EU ETS permits, but this had no impact on the company's operating costs, which reported higher revenue from lumber sales than its operating costs for lumber production throughout the study period. This entity complied with the requirements for the use of biomass in energy production processes throughout the entire research period. Sawmill industry operators, due to the nature of their production activities, have a wood waste base that constitutes energy biomass without adaptation requirements. Biomass is therefore a required fuel, but it also generates energy without the need to incur additional significant costs (Zalewski, 2017). The use of biomass by the sawmill industry in Poland is proof of the financial benefits of the circular economy (Cainelli, D'Amato, Mazzanti, 2020).

Entity Y discharged environmental damage penalties, which also did not have a significant impact on operating costs. The largest environmental technology investment expenditures for Entities X and Y overlapped the last two years of the study period, where operating costs in both cases did not reach the highest values. However, the relationship is noticeable in employment. Each entity saw a decline in employment in 2024, which did not coincide with the decline in employment across the entire Polish sawmill industry. In the case of entities X and Y, this may have been related to an increase in investment in green technologies, but entity Y's total investment was significantly higher than that of the green ones. In the case of entity Z, despite the lack of interventions in the form of the impact of ecological instruments visible in the data, employment decreased in 2024, and operating costs increased. The study proves that the measures related to EU environmental policy instruments present in the data did not have a significant impact on the economic state of the sawmill industry operators in Poland in the years 2014-2024, and, as data from the Central Statistical Office of Poland (GUS) show, this may have been influenced by the decreasing prices of wood commodities such as wood materials and semi-finished products market items in the last two years of the decade. The economic condition of enterprises has improved, but also deteriorated in recent years. Factors influencing this condition remain a matter for further research, with a focus on market factors such as the supply of wood raw material and its prices. The wood raw material market as a whole is likely to be most affected by EU environmental policy due to the potential for loss of natural capital. The impact of EU policy instruments on the Polish wood industry in the last decade is therefore primarily indirect, as no direct financial impact has been identified based on the available primary and secondary data.

The European Union's environmental policy is constructed in a directional manner, and the lack of a holistic view of the economic and, in part, social aspects of wood commodities may lead to negative economic consequences and economic isolation in the area of the wood industry of countries such as Poland, which have great potential for using wood as a strategic raw material (Köhl *et al.*, 2021). However, the study shows that such conclusions are unfounded. The Polish sawmill industry is struggling with revenue and cost liquidity, a result

of the market situation. High operating costs lead to inaction in capital modernisation efforts. The lack of financing for technological investments in ecological technologies is not only due to the lack of finances, but also to the lack of awareness and approach to long-term changes in image and ergonomics. Polish lumber industry shows one of the highest rates of accidents at work (Polek-Duraj, 2016). The European Union, through its environmental subsidies, creates an environment conducive to the development of CSR. Entities X and Y, examined in this study, had the resources to conduct CSR training for their employees. It was an investment not only in the safety of the subject but also in the safety of the environment. Implementing investments in CSR training can have a positive impact on the economic performance of sawmill companies in the long term, with funding available from EU sources. Companies operating in the wood industry are struggling with new difficulties, adapting production technology to the expanding green standards of the European Union. The green transition generates both a planning and financial problem, but also opportunities in terms of social responsibility, image and promotion of green goods. The development of the wood industry, driven by EU requirements, is leading to an expansion of the available green products, such as secondary fuels from wood biomass. Technological innovations lead to decreasing energy costs and a clear decrease in industry, which also brings a vision of benefits for the industry in the future (Popp, 2019). Creating new business models and working to improve the value chain of wood items can lead to increased competitiveness of sawmill industry operators (Söderholm, Bergquist, Söderholm, 2019). Paper companies, as exemplified by entity X, have adapted to the environmental policy instruments used by the EU without limiting their competitiveness in the wood market and without excessive adaptation costs. However, this process is still ongoing, and time is required to adjust the long-term strategy of action. The next study should include an analysis of the Union's environmental policy recommendations to forest management operators in order to try to demonstrate the impact of this policy on the beginning of the production chain, which has a market impact on the entire sawmill industry.

Summary

This article presents the impact of EU environmental policy instruments on the operations of sawmill companies in Poland between 2014 and 2024. A literature review and statistical analysis of primary and secondary data indicate that EU environmental policy did not have a negative impact on the economic situation of Polish sawmill companies during the period under review. The sawmill industry in Poland is primarily driven by market forces, and environmental policy instruments foster technological development initiatives.

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