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ANALYSIS OF THE INFLUENCE OF ECONOMIC GROWTH, INDUSTRY AND FOREST AREA ON CO_2 EMISSION IN INDONESIA 1993-2022

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Abstract

Developments in industrial development for economic growth often have an impact on environmental sustainability. This has a very negative impact on environmental sustainability in the long term. Indonesia, as the country with the third largest tropical forest area, is facing threats of deforestation, increased greenhouse gas emissions, and environmental degradation. This study aims to analyse the influence of economic growth, industry, and forest area on CO2 emissions in Indonesia using a descriptive approach and multiple linear regression with data from 1993 to 2022. The variables used in this study are economic growth, industry, forest area, and CO2 emissions. The theory used is the Environmental Kuznets Curve (EKC) theory. The results of the study indicate that economic growth does not have a significant impact on CO2 emissions. However, forest area has a significant impact on CO2 emissions. Furthermore, the industrial sector has been proven to have a significant impact on CO2 emissions. Therefore, policymakers must prioritise industrial awareness in sustainable development and the planting of CO2-absorbing trees. Global incentives for forest conservation in developing countries, as well as effective implementation of REDD+. Policies to reduce emissions through investment in forestry. Maximise the forestry sector through reforestation and sustainable management. Finally, encourage long-term investment in clean and renewable energy in industry.

Keywords: CO2 emissions, economic growth, industry, forest area, environmental sustainability.

INTRODUCTION

In the modern era and the accelerated transformation of development that is taking place around the world. The environment is one aspect that is important to prioritize for its stability. The world is currently facing significant problems in environmental aspects to achieve sustainable development. Recently, the impacts of rapid development transformation have increased, especially related to climate change and land degradation. One of the causes is the earth's increasingly dense population and the lack of public awareness in preserving the environment.

Asia is one of the most polluted continents in the world with a dense population. According to data from the United Nations Population Division (UNPD), the population of Asia on February 24, 2025 is estimated to reach around 4,825,376,317 people, which is equivalent to 59.05% of the total world population (Worldometer, 2025). The large population has increased the demand for land. This results in the high development of residential areas and also other infrastructure needed to accommodate the rapid population growth.

Indonesia is known as one of the lungs of the world because it has large areas of tropical forests, especially on the islands of Kalimantan, Papua and Sumatra. These forests act as carbon dioxide (CO2) sinks and produce oxygen (O2) for the atmosphere. Indonesia plays an important role in implementing REDD+ policies that aim to protect forest climate protection through sustainable forest management and the conversion and enhancement of carbon stocks (United Nations

Framework Convention on Climate Change, 2023). Yoshikura et al. (2018) explained that REDD+ effectively prevents global warming by conserving forests, reducing carbon gas emissions from deforestation, and forest degradation with forest management in Indonesia. Indonesia also has extensive peatland forests with the largest carbon stock in the tropics. Between 2010 and 2015, these forests experienced significant deforestation, with an estimated 684,000 hectares of forest loss. Timber extraction activities and the expansion of oil palm plantations were identified as the main drivers of this phenomenon (Edwards et al., 2012). The destruction of carbon-rich peatlands accounts for approximately 69% of greenhouse gas (GHG) emissions, with Indonesia ranked as the ninth largest GHG emitter in the world (Carlson et al., 2012; Matthews et al., 2014).

Development focused on the transformation of industrial areas will have a major impact on changes and land use around industrial areas. This is characterized by the migration of labor from the agricultural sector to the industrial sector, which in turn will have an impact on the consumption of productive land such as agricultural land and plantations, which even includes protected forest areas around it (Israyanti et al., 2024). The process of industrialization in Indonesia has started since 1969, which was accompanied by the Five-Year Development Program I (PELITA I). Until, in the 1990s the World Bank included Indonesia as one of the New Industrializing Economies (A. Pratama, 2022). Industrialization in Indonesia then succeeded in causing a structural transformation from relying on the agricultural sector to the industrial sector. However, the positive progress of economic growth in Indonesia due to the shift in sectors is also inseparable from the issue of environmental sustainability. The link between economic and environmental issues has been a long-debated topic (Lean & Smyth, 2013). Naudé (2011) argues that industrialization has a positive relationship with CO2 emissions through the contribution of GDP growth.

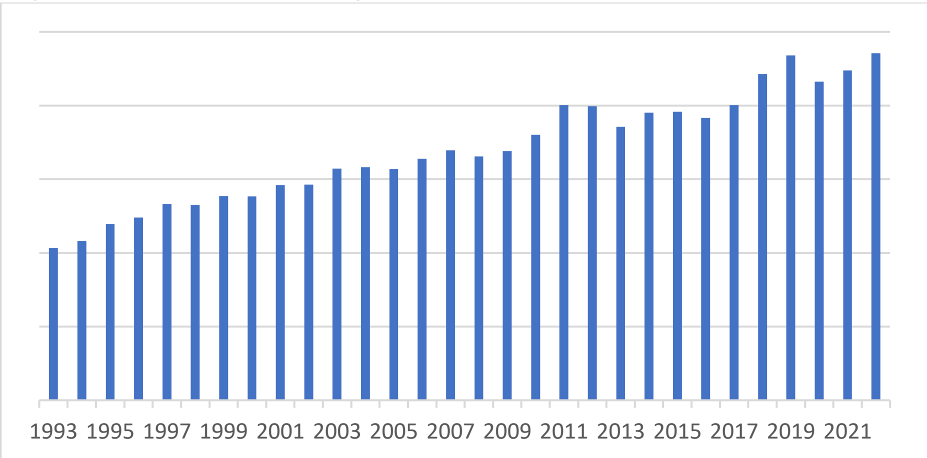

Figure 1. Number of CO2 Per Capita In Indonesia (1993-2022)

Economic growth has a negative effect on CO2 emissions, but has a positive effect if economic growth is high. Thus, Aye & Edoja (2017) argue that the Environmental Kuznets Curve (EKC) theory does not fit their research. They argue that the relationship is U-shaped. When viewed from the data on the amount of CO2 per capita in Indonesia, the upward trend continued throughout 1993-2022. This shows the potential for environmental damage caused by the transformation of industrial development, reduction of forest area, and higher economic growth which ultimately increases carbon emissions. This prompted us to conduct research on the development of the influence of economic growth, industry, and forest area on CO2 emissions in Indonesia in the period 1993-2022.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Environmental Kuznet Curve

The Environmental Kuznet Curve (EKC) theory is a theory described by Grossman and Krueger (1991) that explains the relationship between environmental degradation and economic growth. This theory suggests that increased economic growth will be directly correlated with the level of environmental degradation. The level of environmental degradation will decrease along with economic growth. This environmental quznet curve is often depicted in a graph in the form of a *U-inverted* curve (Y. P. Pratama, 2020). The statement of the EKC theory can be seen based on the figure below.

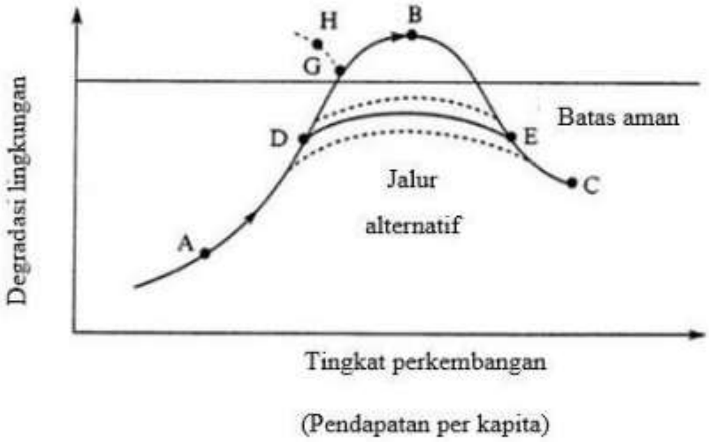

Figure 2. *Environtmental Kuznet Curve*

Environmental Degradation

According to Abdullah (2019), environmental degradation is environmental damage that occurs due to a decrease in resource quality, ecosystem damage, habitat destruction and pollution. Environmental degradation can occur due to the utilization of new chemicals that are not natural ingredients from environmental components, be it solid or liquid materials.

CO2 Emissions

Emissions, as defined by the National Development Planning Agency (BAPPENAS) (2014), refer to the release of greenhouse gases into the atmosphere. This process encompasses a variety of mechanisms, including microbial decomposition of organic matter, which produces CO_2 or CH_4, combustion of organic matter resulting in the production of CO_2, and nitrification and denitrification processes, which release N_2O.

Economic Growth

Professor Simon Kuznets defines economic growth as an increase in a country's capacity to produce diverse economic goods and services, with a primary focus on the role of technology, entrepreneurship, organization, and innovation. This capacity, according to Kuznets, is driven by technological progress and the necessary institutional and ideological adjustments. This definition consists of three fundamental components: First, national economic growth is characterized by a sustained expansion in the supply of goods; second, technological progress acts as an important determinant in enhancing the capacity to provide diverse goods to the population; and third, the effective and widespread adoption of technology requires appropriate adaptations in institutional and ideological frameworks to ensure optimal utilization of the resulting innovations (Jhingan, 2013).

H1: There is a significant effect of economic growth variables on CO_2 emissions

Forest Area

According to the Minister of Environment and Forestry (2021), a forest area is an area selected by the government to be maintained as a permanent forest, in order to maintain ecological, economic and social functions for environmental sustainability and the sustainability of human welfare.

H2: There is a significant effect of the variable forest area on CO2 emissions

Industry

Malayu & Hasibuan (2000) suggest that the term industry has a broad scope. At the micro level, industry can be defined as a collection of companies that produce homogeneous products or have high substitutability. From a macroeconomic perspective, which focuses on revenue generation, industry refers to economic activities that produce added value.

H3: There is a significant effect of industry variables on CO2 emissions

RESEARCH METHODS

The scope of this study covers the analysis of CO2 emissions in Indonesia, during the period 1993-2022. This research explores the relationship between economic growth, population, Industrial sector structure, and forest area on CO2 emissions. This type of research is quantitative, a quantitative approach is a systematic approach used to collect and analyze numerical data or data that can be measured (Stockemer et al., 2019). Using time series data, the data used is sourced from the World Bank. The variables used include the dependent variable, namely the total CO2 emissions (Mt) variable. The independent variable consists of three variables, namely the economic growth variable (%), the industry variable (including construction), and the forest area variable (Km2).

The analytical tools in this study used Microsoft Excel and Eviews 12 software through descriptive statistics and multiple linear regression approaches. The equation/model is carried out by analyzing the effect of the independent variable on the dependent variable through four good model requirements (multicollinearity test, heteroscedasticity test, normality test, and autocorrelation test).

The stages of analysis in this study are first, analyzing data processed in Microsoft Excel using a descriptive statistical analysis approach. Second, making hypotheses based on theory and previous research. Third, process data with Eviews 12. Fourth, interpret the data that has been processed with Eviews 12. Finally, conclude the data that has been interpreted by comparing it to the theory and hypothesis that has been determined.

RESULT AND DISCUSSION

Descriptive Analysis

The data below is excel data taken from the World Bank website which will be described based on the phenomenon of 4 variables, namely, CO2 emissions as the dependent variable, then economic growth, forest area, and industry as independent variables.

Table 1. Indonesia's CO2 Emission Rate 1993-2022

Decade 1		Decade 2		Decade 3	
Year	Emisi CO_2	Year	Emisi CO_2	Year	Emisi CO_2
1993	1.033875	2003	1.571392	2013	1.856458
1994	1.082167	2004	1.580179	2014	1.951328
1995	1.196185	2005	1.570602	2015	1.957253
1996	1.240226	2006	1.638945	2016	1.916191
1997	1.334088	2007	1.695257	2017	2.00383
1998	1.326134	2008	1.654231	2018	2.213271

Decade 1		Decade 2		Decade 3	
Year	Emisi CO_2	Year	Emisi CO_2	Year	Emisi CO_2
1999	1.386229	2009	1.691367	2019	2.338844
2000	1.384188	2010	1.801445	2020	2.162414
2001	1.458635	2011	2.00412	2021	2.237794
2002	1.463222	2012	1.995547	2022	2.355084

Source: World Bank, 2025

Between 1993 and 2022, Indonesia's CO_2 emissions increased significantly. CO_2 emissions increased from 1.033875 to 1.463222 during the first ten years (1993-2002), most likely due to economic and industrial expansion. Emissions increased from 1,571392 to 1,995547 during the second decade (2003-2012), continuing this pattern and reflecting the growing economy. Emissions increased further during the third decade (2013-2022), reaching 2.355084, while the COVID-19 epidemic caused a small decrease in 2020. Overall, the increase in CO_2 emissions shows that fossil fuels continue to be a major part of industrialization and energy use.

Table 2. Indonesia's Economic Growth Rate 1993-2022

Decade 1		Decade 2		Decade 3	
Year	Economic Growth	Year	Economic Growth	Year	Economic Growth
1993	6.496408	2003	4.780369	2013	5.557264
1994	7.539971	2004	5.030874	2014	5.006668
1995	8.220007	2005	5.692571	2015	4.876322
1996	7.818187	2006	5.500952	2016	5.033069
1997	4.699879	2007	6.345022	2017	5.069786
1998	-13.1267	2008	6.013704	2018	5.174292
1999	0.791126	2009	4.628871	2019	5.019288
2000	4.920068	2010	6.223854	2020	-2.06551
2001	3.643466	2011	6.169784	2021	3.702886
2002	4.499475	2012	6.030051	2022	5.307419

Source: World Bank, 2025

From 1993 to 2022, Indonesia's economic growth showed a cyclical trend. The economy expanded rapidly in the first ten years until 1996, but the Asian financial crisis caused a sharp decline in 1998 (-13.1267%). The economy then recovered gradually. The second decade, which reflected the post-crisis period of economic recovery and boom, saw more stable growth in the 4-6% range. The third decade saw the economy remain stable until 2019, then shrink in 2020 (-2.06551%) due to the COVID-19 pandemic, before rebounding in 2021 and 2022.

Table 3. Indonesia's Forest Area Level 1993-2022

Decade 1		Decade 2		Decade 3	
Year	Forest Area	Year	Forest Area	Year	Forest Area
1993	-1.5001	2003	-0.16055	2013	-0.94703
1994	-1.52295	2004	-0.1608	2014	-0.95609
1995	-1.5465	2005	-0.16106	2015	-0.96532
1996	-1.57079	2006	-0.16132	2016	0.256661

Decade 1		Decade 2		Decade 3	
Year	Forest Area	Year	Forest Area	Year	Forest Area
1997	-1.59586	2007	-0.16158	2017	-1.38761
1998	-1.62174	2008	-0.16184	2018	-0.64453
1999	-1.64848	2009	-0.16211	2019	-0.64872
2000	-1.67611	2010	-0.16237	2020	-0.65294
2001	-0.16003	2011	-0.92943	2021	-0.65724
2002	-0.16029	2012	-0.93815	2022	-0.66158

Source: World Bank, 2025

Over the past three decades, Indonesia's forest land area has been shrinking, a sign of continued deforestation. The rate of forest loss was significant during the first ten years, with a decline each year. Although the rate of deforestation slowed slightly in the second decade, the downward trend continued. Despite a slight increase in forest area in 2016, the general trend in the third decade remained downward. This emphasizes how difficult it is for Indonesia to manage forest resources and preserve the environment.

Table 4. The Level of Indonesian Industry 1993-2022

Decade 1		Decade 2		Decade 3	
Year	Industry	Year	Industry	Year	Industry
1993	39.6805	2003	43.74957	2013	42.63568
1994	40.64204	2004	44.62762	2014	41.92834
1995	41.80084	2005	46.54106	2015	40.04786
1996	43.45578	2006	46.94356	2016	39.30844
1997	44.32896	2007	46.79914	2017	39.37915
1998	45.22777	2008	48.06074	2018	39.72974
1999	43.36006	2009	47.65212	2019	38.95177
2000	41.96907	2010	42.77587	2020	38.23839
2001	47.8935	2011	43.91342	2021	39.84482
2002	47.74533	2012	43.59374	2022	41.43005

Sumber: World Bank, 2025

In the first two decades, Indonesia's industrial sector grew, but in the third decade, growth began to slow down. Industry grew in line with economic expansion throughout the first ten years, increasing from 39.6805 (1993) to 47.74533 (2002). After reaching a peak of 48.06074 in 2008, industry began to decline gradually in the second decade. The industrial sector shrank in the third decade, falling from 42.63568 (2013) to 41.43005 (2022). A number of causes, including shifts in the economic structure, the increasing importance of the services sector, and the COVID-19 pandemic in 2020, could account for this decline.

Analysis Results

1. **Classical Assumption Test**

   In linear regression, there are some basic assumptions that must be met for the resulting estimates to be valid. These assumptions are known as Classical Assumptions and include:

   a) Normality of Residuals

b) Homoskedasticity
c) No Autocorrelation
d) No Multicollinearity

Importance of Classical Assumption Test

- If these assumptions are violated, the regression results may become biased, inefficient, or inconsistent.
- Therefore, after estimating the regression, we must perform a classical assumption test to ensure that the model meets the requirements.

1) Multicollinearity Test

Objective:

Multicollinearity occurs if the independent variables are highly correlated with each other. This can cause difficulty in estimating the correct regression coefficients.

Table 5. Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
ECONOMIC_GROWTH	0.000200	2.516842	1.042933
AREA_FOREST_AREA	0.009193	3.252070	1.200834
INDUSTRY	0.000360	245.8227	1.167267
C	0.740445	270.9405	NA

It is known that the VIF value of the Independent Variable is <10.00, so it can be concluded that the Multicollinearity Test assumption has been met or passes the multicollinearity test.

2) Normality Test

Objective:

This test is used to ensure that the residuals (prediction errors) are normally distributed. The assumption of normality is important for the validity of statistical tests such as the t-test and F-test

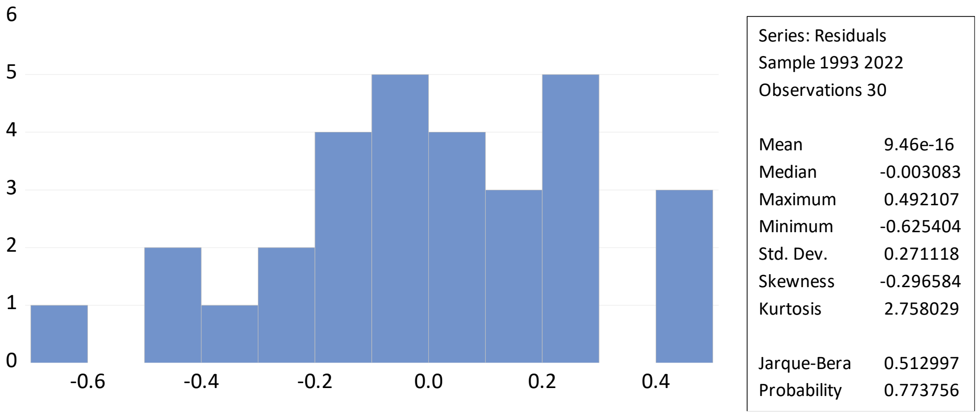

Figure 3. Normality Test

It is known that the Probability jarque-bera value is 0.512997> 0.05, so it can be concluded that the data is normally distributed (passes normality).

3) **Heteroscedasticity Test**

Objective:

This test is used to ensure that the residual variance is constant (homoscedasticity). If the residual variance changes, heteroscedasticity occurs which can lead to inefficient regression coefficients.

Table 6. Heteroscedasticity Test

F-statistic	2.615051	Prob. F(3,26)	0.0724
Obs*R-squared	6.953863	Prob. Chi-Square(3)	0.0734
Scaled explained SS	4.591201	Prob. Chi-Square(3)	0.2043

It is known that the Probability Obs * R-Squared value is 0.0734> 0.05, so it can be concluded that the Heteroscedasticity Test assumption has been met or the data has passed the Heteroscedasticity Test.

4) **Autocorrelation Test**

Objective:

This test is used to determine whether there is autocorrelation (correlation between residuals) in the regression model. Autocorrelation problems often occur in time-series data and cause inefficient coefficient estimates.

Table 7. Autocorrelation Test

F-statistic	2.130849	Prob. F(3,22)	0.1253
Obs*R-squared	6.529315	Prob. Chi-Square(3)	0.0885

It is known that the Probability Obs * R-Squared value is 0.0885> 0.05, so it can be concluded that the Autocorrelation Test assumption passes the test or there is no autocorrelation problem.

Because the classical assumption test passed, it can be concluded that Blue - (Best Linear Unbiased Estimator).

2. **Statistical Test**

The following are the results of multiple linear regression analysis using the Eviews 12 program

Table 8. Statistical Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ECONOMIC GROWT				
AREA_FOREST	-0.011957	0.014146	-0.845261	0.4057
AREA	0.382929	0.095881	3.993807	0.0005
INDUSTRY	-0.075227	0.018983	-3.962904	0.0005
C	5.296431	0.860491	6.155127	0.0000
R-squared	0.469322	Mean dependent var		1.703350
Adjusted R-squared	0.408090	S.D. dependent var		0.372171
S.E. of regression	0.286332	Akaike info criterion		0.460237
Sum squared resid	2.131638	Schwarz criterion		0.647063
Log likelihood	-2.903553	Hannan-Quinn criter.		0.520004
F-statistic	7.664646	Durbin-Watson stat		0.831245
Prob(F-statistic)	0.000788			

3. **T-test (t-Statistic)**
   a) Economic Growth Prob. = 0.4057
   Due to Prob. Economic Growth 0.4057 > 0.01, 0.05, 0.1. This means that the Economic Growth variable has no significant effect on CO2 Emissions at the 1%, 5%, and 10% significance levels. The coefficient of -0.011957 indicates that for every 1 unit increase in the level of Economic Growth, the level of CO2 Emissions will decrease by -0.011957 units, assuming other variables are constant. However, this value is not statistically significant Prob. = 0.4057).
   b) Forest Area Prob. = 0.0005
   Due to Prob. Forest Area 0.0005 < 0.01, 0.05, and 0.1. This means that the Forest Area variable has a significant effect on CO2 Emissions at the 1%, 5%, and 10% significance levels. The coefficient of 0.382929 means that for every 1 unit increase in Forest Area, CO2 Emissions increase by 0.382929, this value is significant Prob. = 0.0005).
   c) Industry Prob. = 0.0005
   Due to Prob. Industry 0.0005 < 0.01, 0.05, 0.1. This means that the Industry variable has a significant effect on CO2 emissions at the 1%, 5%, and 10% significance levels. The coefficient of -0.075227 indicates that an increase in Industry by 1 unit will reduce CO2 Emissions by -0.075227 units. This coefficient is significant Prob. = 0.0005).
   d) Coefficient C Prob. = 0.0000
   Prob. 0.0000 < 0.05, The constant in the model is also significant at the 1%, 5%, and 10% significance levels. dependent variable (CO2 Emissions) when all independent variables (Economic Growth, Forest Area, and Industry) are zero. In

this case, the constant coefficient C is 5.296431, which means the level of CO2 Emissions is predicted to be around 5.296431 units (the value depends on the scale of the CO2 Emissions variable used).

4. F Test (F-statistic)

The F test is used to test the overall significance of the regression model. With the amount of Prob, F statistic 0.000788 <0.5, it meets the standardization and can be said to be goodness of fits.

The F-statistic value of 7.664646 with a probability of 0.000788 indicates that the regression model is significant overall. This means that the variables of Economic Growth, Forest Area, and Industry jointly affect CO2 Emissions. Thus, this model demonstrates goodness of fit, where all independent variables are able to significantly explain variations in the dependent variable (CO2 Emissions).

5. Determination Coefficient (R-Squared)

R-squared: 0.469322, meaning the model only explains about 46.93% of the variation in CO2 emission levels.

Adjusted R-squared: 0.408090, which shows after adjusting, the model only explains 40.8% of the variation in CO2 emissions. This indicates that the model has a poor fit..

6. Regression Result

Regression Equation:
Yt = 5.296431 - 0.011957 X1t + 0.141014 X2t + 0.055820 X3t + e
Description:
Y = CO2 emission
X1 = Economic Growth X2 = Forest Area
X3 = Industry

7. Interpretation Result

Economic Growth:
Coefficient: -0.011957. This means that every one unit increase in the level of Economic Growth will decrease CO2 Emissions by -0.011957, assuming other variables remain constant. This suggests that well-managed Economic Growth will suppress CO2 Emissions.

Forest Area:
Coefficient: 0.382929. This means that every one unit increase in forest area will increase the level of CO2 emissions by 0.382929, assuming other variables remain constant. This shows that the area of forest that can be controlled will suppress CO2 emissions and even reduce them.

Industry:
Coefficient: -0.075227. This means that every one unit increase in Industry will decrease the level of CO2 Emissions by -0.075227, assuming other variables remain constant. This indicates that Forest Area will reduce CO2 Emissions.

Discussion

Economic Growth and CO2 Emissions

Based on the results of the regression analysis above, economic growth has no significant effect on CO2 emissions. This effect is not in line with the hypothesis proposed, namely H1: There is a significant effect of economic growth variables on CO2 emissions. Based on the economic growth variable, there is a supporting research where the results of the research partially show that economic growth has a negative and insignificant effect on CO2 emissions. This means that Indonesia's economic structure is still dependent on the primary sector. In the EKC curve, Indonesia's economy is still in the first stage, namely the pre-industrial stage (Lesmana et al., 2024).

Forest Area to CO2 Emissions

Based on the results of the regression analysis above, the size of the forest area has a significant effect on CO2 emissions. This effect is in line with the hypothesis proposed, namely H2: There is a significant effect of the Forest Area variable on CO2 emissions. Related to this result there is research that supports these results. This study shows the result that Forest Area (FA) has a significant positive effect on CO2 Emissions, this is likely due to ecological stress on forest areas, including climate change, pest attacks, and diseases, reducing the ability of forests to store carbon. Deforestation can also cause massive releases of carbon dioxide into the atmosphere (Tashim, 2024).

Industry on CO2 Emissions

Based on the results of the regression analysis above, industry has a significant effect on CO2 emissions. This effect is in line with the hypothesis proposed, namely H3: There is a significant effect of industry variables on CO2 emissions. Related to this result, there is research that supports these results. This study shows the same result that the industrial sector has a significant negative effect on CO2 emissions. This is the result of the Indonesian government's efforts to build an environmentally friendly industry. One of them is PP RI No.14 of 2015 concerning the National Industrial Development Master Plan 2015-2035 (A. Pratama, 2022).

CONCLUSIONS

In our study, economic growth has no significant effect on CO2 emissions in Indonesia. This finding contradicts our theory, namely, the Environmental Kuznet Curve (EKC) and is in line with several previous studies that show a negative and insignificant effect of economic growth on CO2 emissions. There is also a significant effect of forest area in the long run. A decrease in forest area due to deforestation, climate change and other ecological threats can reduce the ability of forests to absorb carbon, thereby increasing CO_2 emissions. Furthermore, the industrial sector is proven to have a significant influence on CO2 emissions. This study has limitations in terms of the actuality of the data used. The data analyzed comes from a period of time that is not recent, so its relevance to current conditions in the year this study was conducted is limited. Therefore, this can be a suggestion for future research and can be a reference for other studies regarding the analysis of the effect of CO2 on economic growth, industry, and forest areas as well as implementing effective policy measures to achieve a sustainable environment and economy in Indonesia. Based on the results obtained from the research, there is a positive relationship between industry and CO2 emissions. Thus, we have some suggestions:

a) To anticipate the continuous increase in CO2 emissions, there is a need for awareness on the part of industry players in sustainable development by utilizing space efficiently and optimally as a place for plants that can absorb CO2 emissions.
b) A mechanism or policy to pay developing countries with higher deforestation rates to conserve their country's forest areas.
c) Implementation of REDD+ policies that aim to protect forest climate protection by sustainable forest management and conversion and enhancement of forest carbon stocks.
d) The government can implement appropriate emission reduction policies with sufficient investment through the forestry sector with the aim of environmental sustainability and sustainability. This can be achieved by policies related to carbon trading schemes and carbon emission taxes that can also boost economic growth.

e) In order to mitigate climate change, the government must implement a series of policies in the forestry sector, such as reforestation, selective logging systems, forest conservation, reforestation, afforestation, and sustainable forest management. The forestry sector offers significant potential in reducing greenhouse gas (GHG) emissions at a relatively lower cost compared to GHG emission mitigation technologies in the non-forestry sector.
f) Policies that promote long-term investment for the industrial sector in clean and renewable energy sources such as solar power, wind power, and natural gas, and reduce the emphasis on non-renewable energy such as coal, petroleum, and their derivatives that are rapidly depleting and detrimental to the environment.

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