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Relation of Economy Growth with SDG's Achievement: Indonesia's Case 2013-2023

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Abstract. The SDGs aim to address global challenges such as poverty, inequality, climate change, and environmental degradation. Indonesia has shown progress in various sectors but faces challenges. Low levels of SDG disclosure in Indonesia indicate the need for increased transparency and accountability among companies. In this study, the relation between Indonesia's economic growth and its SDGs achievement is being tested and analyzed. This study uses a quantitative method by utilizing a simple linear regression model to determine the relevance of economic growth to the achievement of SDGs in Indonesia. Regression analysis and data processing were conducted through the Excel program. This study also supported with relevant literature review. In this case, regression analysis is chosen to find and demonstrates a strong correlation between economic growth and Indonesia's SDGs achievement, emphasizing the importance of continued fiscal measures, smart waste management, and localized strategies. The gradual improvement in Indonesia's SDG achievement score over the past decade highlights the country's commitment to sustainable development, although further analysis is required to fully comprehend the detailed relationship between economic growth and SDG achievement.

Keywords: SDGs, Indonesia, Economy Growth, Simple Linear Regression

1 Introduction

Indonesia as one of the countries that agreed on the 2030 Sustainable Development Goals agenda at the UN General Assembly is committed to carrying out and must implement the goals in the SDGs. The commitment is described in the form of 17 goals with the direction of development goals such as social equity, environmental protection, and economic growth [1]. The Indonesian government has pursued these goals through the implementation of policies related to the targets of the SDGs themselves. To fulfill the achievement of SDGs with the direction of economic growth can be interpreted that economic growth can strengthen the achievement of SDGs. So does that mean that these two things affect each other? In recent years, the growth of gross domestic product (GDP) per capita in 2023 has increased higher than in recent years. Previously, in 2022

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the GDP per capita was USD 407,000 and in 2023 it will be USD 425,000 [2]. Coupled with Indonesia's achievement of SDGs based on the SDG Index, which also experienced a significant increase, namely in 2022 at 69.24 and in 2023 reaching 69.43 [3].

This increase is driven by supporting factors, one of which is industrialization. Industrialization that absorbs a lot of jobs is an important thing. With many jobs, it can reduce the unemployment rate in the country [4]. This can be linked to one of the 17 goals, namely no poverty, because people have decent jobs and are able to support them. Departing from the achievement of these goals is expected to trigger an increase in the achievement of other goals in the SDGs. The increase that occurs is not necessarily the main reference or suitability that economic growth affects the achievement of SDGs. It needs to be analyzed further and in detail regarding the measurement of the significance between these two things.

Economic growth in Indonesia has shown significant variations in the last ten years. In the period between 2013 and 2023, Indonesia's economic growth has averaged between 4.94% and 5.17% per year [5]. While these figures are somewhat stable, there are significant challenges in ensuring that this growth is inclusive and contributes directly to the achievement of the SDGs. In fact, some of Indonesia's SDG indicators, such as poverty alleviation (Goal 1), improving the quality of education (Goal 4), and reducing inequality (Goal 10), are far from being achieved in practice [6].

Data from Badan Pusat Statistik/BPS (Indonesia’s Central Bureau of Statistics) shows that the poverty rate in Indonesia continues to decline, from 11.25% in 2014 to around 9.54% in 2023 [7]. However, this decline is often uneven, with significant disparities between urban and rural areas. This suggests that economic growth has not been fully inclusive. In addition, Indonesia's Human Development Index (HDI) increased from 68.31 in 2013 to 73.55 in 2023 [8], but it still falls into the medium human development category according to the UNDP classification.

In addition, Indonesia's abundant natural resource potential is often not matched by qualified human resources (HR). For example, the number of entrepreneurs in Indonesia is still far below the ideal figure, which should reach 2% of the population. When compared to neighboring country like Singapore, which has an entrepreneurial ratio of 7.2%, Indonesia is still very much behind with only around 1% of the population being entrepreneurs [9]. This lack of entrepreneurs impacts the country's competitiveness and ability to create quality jobs.

Based on the background above, this study aims to analyze the relationship between economic growth and the achievement of SDGs in Indonesia in the period 2013-2023. Observational data for the last 10 years is used to see the pattern and significance of both variables. This study is important to provide an overview of how economic policies can be optimized to support sustainable development. By integrating empirical data and relevant analytical frameworks, this study is expected to provide strategic recommendations to improve the inclusiveness and sustainability of economic growth in Indonesia.

2 Literature review

The SDGs are designed to address the most pressing global challenges, including poverty, inequality, climate change, environmental degradation, peace and justice. The achievement of the Sustainable Development Goals (SDGs) in Indonesia shows varied progress in various sectors, but still faces a number of challenges. In Wicaksono's research, the importance of SDGs in a country is not only for one purpose [10]. For one, the SDGs recognize that social, economic and environmental challenges are interrelated and must be addressed simultaneously. Second, the SDGs recognize that social, economic, and environmental challenges are interrelated and must be addressed simultaneously. Third, the SDGs provide a framework for measuring progress and outcomes, allowing countries to track their achievements.

The analysis used is content analysis with matrix coding with Nvivo software. The results indicate that the overall level of SDGs disclosure in Indonesia is significantly low, averaging just 8% in terms of business actions and 20% regarding specific SDG targets [10]. The study emphasizes the necessity for enhanced awareness and commitment among companies towards voluntary disclosures related to sustainability and the SDGs. This study did not explore the factors that influence SDG disclosure in depth. Despite this, the study shows that the level of SDGs disclosure in Indonesia is still low, which could be an incentive for companies to improve their transparency and accountability.

3 Methods

This study uses a quantitative method using regression analysis to determine whether there is an influence and how much influence Indonesia's economic growth has on the achievement of Indonesia's SDGs. Regression analysis was conducted using the regression program from Microsoft Excel to obtain regression results which were then analyzed and interpreted. The variables used in this analysis are Economic growth in the form of GDP per capita as an independent variable (represented by the letter X) and the dependent variable, which is the Indonesian SDGs achievement score (represented by the letter Y). Then to see if these variables are related to each other and will affect each other in two directions, a second regression is carried out by swapping the positions of the two variables. The variables in the second regression become Indonesia's SDGs achievement score as Variable X with GDP per capita as Variable Y. From the two stages of regression, conclusions are drawn about the relationship between the two along with the amount of influence each variable has on each other.

4 Result and Discussion

4.1. Indonesia's Progress in Achieving SDGs

Indonesia has made significant strides in the disclosure and implementation of the SDGs. However, challenges such as the impact of COVID-19, energy needs, and the need for improved governance and quality of education remain. Effective fiscal measures, smart waste management, and localized SDGs strategies are essential for continued progress. Over the past decade, Indonesia's SDGs achievement score has continued to improve year on year. This can be seen in detail in the achievement score in the graph below.

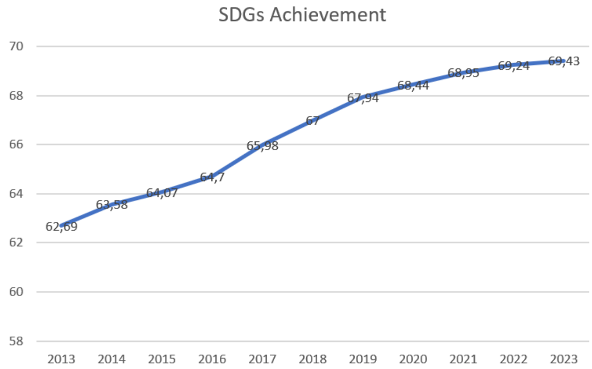

Figure 1 Indonesian SDGs achievement score.

From the graph above, it can be seen that the increase in Indonesia's SDGs achievement score occurs gradually, there is not necessarily a drastic increase in a certain period of time. The graph based on data from the SGD Index [3] increased by 6.74% within ten years. At the beginning of the last decade, in 2013, Indonesia reached a score of 62.69. Without experiencing a decline until 2023 Indonesia reached a score of 69.43. However, the increase is slow because when compared to the SDGs index scores of other countries, Indonesia is still quite behind. A comparison of Indonesia's achievements can be seen in the figure below.

Country	2024 SDG Index Score	2024 SDG Index Rank	SDG1: No Poverty	SDG2: No Hunger	SDG3: Good Health and Well-Being	SDG4: Quality Education	SDG5: Gender Equality	SDG6: Clean Water and Sanitation	SDG7: Affordable and Clean Energy	SDG8: Decent Work and Economic Growth
Morocco	70,85	69	↗	↓	↗	↗	→	→	↗	↓
United Arab Emirates	70,52	70	↑	↗	↗	↗	↗	↗	↗	→
Algeria	70,47	71	↑	↗	↗	↓	→	→	↗	→
Türkiye	70,47	72	↑	→	↗	↗	→	↗	↗	↗
Mauritius	70,45	73	↑	→	→	→	↗	↑	↗	↑
Colombia	70,30	74	↓	→	→	→	↗	↗	↗	→
Ecuador	70,14	75	→	→	↗	↓	↑	↑	↑	↗
Suriname	70,01	76	→	↗	→	↓	↗	↗	↗	
Jamaica	69,51	77	↗	↓	→	↓	↗	→	→	→
Indonesia	69,43	78	↑	→	↗	↑	↗	↗	↗	↗
Malaysia	69,32	79	↑	→	↗	→	↗	↗	→	→
Mexico	69,28	80	→	→	↗	→	↗	↗	→	→
Uzbekistan	69,24	81	↗	→	↗	↗	↗	↗	→	→
Barbados	69,19	82		→	↗	↓	↗	↗	↗	
Egypt, Arab Rep.	69,15	83	→	→	↗	↗	↗	→	↗	↗
Panama	69,09	84	↑	→	↗	↗	↗	↗	↑	→
Jordan	69,06	85	→	→	↗	↓	→	→	↗	↗

Figure 2 Overview Status of SDGs Based on Countries.

Figure 2 shows Indonesia's ranking in achieving SDGs in the world based on data according to J.D. Sachs, G. Lafortune, and G. Fuller [11] Indonesia in 2024, is in the

78th rank position. Just above Indonesia is Jamaica while below Indonesia is Malaysia. Listed above are countries that rank above Indonesia in comparison from 69th to 77th. There are also countries ranked below Indonesia from 79th to 85th. It can be seen that the difference between each country with adjoining rankings is not so far adrift. Therefore, the rankings can change significantly every year. Therefore, Indonesia must as much as possible improve its country's SDGs achievements to be able to rank far above its current rank. In the figure, there is also a detailed development status of each country according to the goals in the SDGs. Figure 2 shows the status from goal number 1 to goal number 8. The meaning of the coloring code and arrow direction listed in figure 2 is as follows:

Table 1: The Codes

green	Goal Achievement
yellow	Challenges remain
orange	Significant challenges
red	Major challenges
grey	Insufficient data
↑	On track or maintaining achievement
↗	Moderately Increasing
→	Stagnating
↓	Decreasing

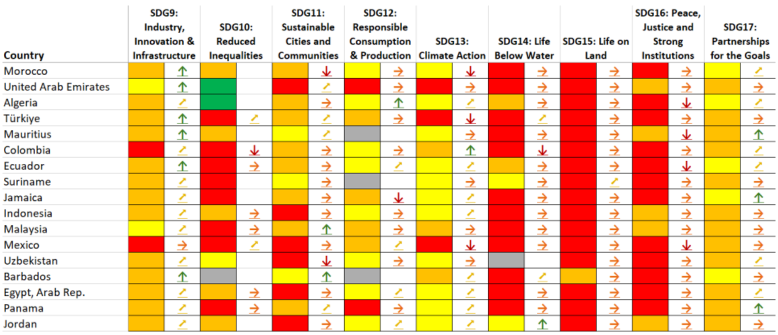

Figure 3 Continued from Overview Status of SDGs Based on Countries.

Then Figure 3 is a continuation of Figure 2 which presents the status of SDGs achievement by country. From the data [11], Indonesia's SDGs achievements based on the goals that must be achieved are still mostly in orange status which means significant challenges with stagnant progress. Even the highest achievement status is in the yellow position which means challenges remain with moderately increasing progress such as in numbers 1, 4, and 13. There are no achievements with green status, which means that there has been no goal achievement by Indonesia from the 17 goals. In fact, there is still a red status which means major challenges such as in numbers 2 and 3.

Looking at Indonesia's position in achieving the SDGs above, are there factors that influence this achievement? One of the factors that can be identified is economic growth. Economic growth can reflect the implementation of policies directed at achieving SDGs. Indonesia's economic growth can be measured by Indonesia's GDP per capita during the same period as the implementation of the SDGs program. Indonesia's economic growth in the form of GDP per capita can be seen in the figure below.

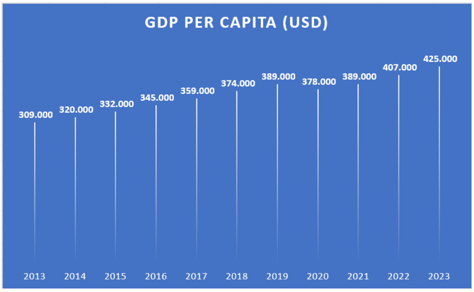

Figure 4 Indonesia's GDP Per Capita (USD).

Data based on Trading Economics [2] shows how Indonesia's GDP per capita fluctuated from 2013 to 2023. Overall, the figures achieved have increased over the last ten years. Although there are certain years where GDP per capita has decreased, such as from 2019 with USD 389,000 to 2020 with USD 378,000. The rest of the following years continued to increase. Then from the existing data with the alleged influence between the achievement of SDGs and economic growth will be measured and analyzed in more detail.

The increase is driven by supporting factors, one of which is industrialization. Basically, industrialization that absorbs many jobs is important. In the report on Indonesia's achievement of the SDGs, there is data on the open unemployment rate for a certain period of time, as follows:

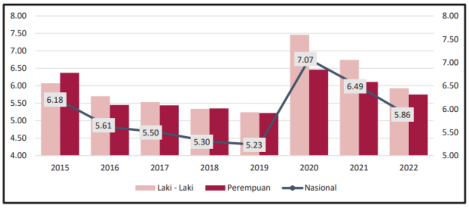

Figure 5 Indonesia's Unemployment Rates.

As seen in the figure above [4], the existence of many jobs can reduce the unemployment rate in the country. However, other factors remain influential, when seen in 2020 where unemployment increased sharply, this was due to the Covid-19 global pandemic which caused many workers to be laid off by their agencies or companies. Beyond these factors, the unemployment rate follows the SDGs achievement rate, which is gradually increasing. This can be attributed to one of the 17 goals, namely no poverty, because people have decent jobs and are able to support them. The achievement of this goal is expected to trigger an increase in the achievement of other goals in the SDGs.

4.2. **Relation between Economy Growth with the Achievement of Indonesia’s SDGs**

This research aims to measure and analyze how Indonesia's economic growth affects the achievement of Indonesia's SDGs, or vice versa. A regression table will be created to test this by examining data on these variables from 2013 to 2023. Economic growth in the form of GDP per capita as an independent variable (represented by the letter X) and the dependent variable, which is the Indonesian SDGs achievement score (represented by the letter Y) as can be seen in table 1 below:

Table 2: The Variable Used

Year	GDP per Capita (USD)	SDGs Achievement
2013	309.000	62,69
2014	320.000	63,58
2015	332.000	64,07
2016	345.000	64,7
2017	359.000	65,98
2018	374.000	67
2019	389.000	67,94
2020	378.000	68,44
2021	389.000	68,95
2022	407.000	69,24
2023	425.000	69,43

After identifying the dependent and independent variables, the regression process is carried out using Microsoft Excel to determine the influence or how much the impact of GDP per capita (Variable X) on the Indonesian SDGs achievement score (Variable Y), with the regression results as follows:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,972198881
R Square	0,945170664
Adjusted R Square	0,939078515
Standard Error	0,607682588
Observations	11

ANOVA

	df	SS	MS	F	Significance F
Regression	1	57,29191503	57,29191503	155,1457038	5,60166E-07
Residual	9	3,32350315	0,369278128		
Total	10	60,61541818			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	42,64420698	1,927765599	22,12105404	3,72593E-09	38,28329823	47,00511574	38,28329823	47,00511574
X Variable 1	6,52927E-05	5,24197E-06	12,45574983	5,60166E-07	5,34345E-05	7,71509E-05	5,34345E-05	7,71509E-05

Figure 6 Regression Result on Indonesia's GDP per capita affects the achievement of Indonesia's SDGs based on Microsoft Excel.

The regression results show that there is an interesting significance. The relationship between variable x and variable y in the results on the P-value number is 3.72 which is a number far from the validity level of the data which is 0.05 (5%). However, if seen in the R-Square results, it shows a high influence between the two variables. The resulting R-Square is 0.945, which means that the influence caused by variable X on variable Y is 94.5%. Although the validity of the data between the two variables is not valid, the percentage of influence produced is very large. Furthermore, the R-value in regression statistics shows the level of relationship between GDP per capita (Variable X) and the achievement of SDGs (Variable Y). The more the R-value approaches 1, the stronger the relationship. In this regression analysis, we obtained a Multiple R of 0.972. This means that the relationship between GDP per capita (Variable X) and the achievement of SDGs (Variable Y) is 97.2%, which is quite high.

The second regression was carried out again to find out whether there is an influence or how much the impact is if the two variables are swapped positions, so that it becomes Indonesia's SDGs achievement score (Variable X) on the GDP per capita (Variable Y), with the regression results as follows:

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,972198881
R Square	0,945170664
Adjusted R Square	0,939078515
Standard Error	9048,305344
Observations	11

ANOVA

	df	SS	MS	F	Significance F
Regression	1	12702062624	12702062624	155,1457038	5,60166E-07
Residual	9	736846466,5	81871829,61		
Total	10	13438909091			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	-597240,7509	77388,42144	-7,717443253	2,94669E-05	-772305,5228	-422175,98	-772305,5228	-422175,979
X Variable 1	14475,89992	1162,186149	12,45574983	5,60166E-07	11846,8522	17104,9476	11846,8522	17104,94764

Figure 7 Regression Result on the achievement of Indonesia's SDGs affects Indonesia's GDP per capita based on Microsoft Excel.

Regression results when the variable positions are swapped to Indonesia's SDGs achievement score as Variable X with GDP per capita as Variable Y can be seen that there is not much difference in the magnitude of the influence of both. The relationship between variable x and variable y in the results on the P-value number is 2.94 which is a number that is far from the data validity level of 0.05 (5%). However, if seen in the R-Square results, it shows a high influence between the two variables. The resulting R-Square is 0.945, which means that the influence caused by variable X on variable Y is 94.5%, just like the results that came out in the previous regression. Then, the R value in the regression statistics shows the level of relationship between the achievement of SDGs (Variable X) and GDP per capita (Variable Y). The more the R value approaches 1, the stronger the relationship. In this regression analysis, we obtained a Multiple R of 0.972, which is the same as the first regression. This means that the closeness of the relationship between the achievement of SDGs (Variable X) to GDP per capita (Variable Y) is 97.2%, which is a fairly high figure as well.

In accordance with the results that came out when regression testing was carried out with two different stages of variables, the output did not differ much. Although the validity of the data between the two variables is not valid, the percentage of influence produced is very large.

5. Conclusions

It can be understood that Indonesia has committed to implementing the 2030 Sustainable Development Goals (SDGs) agenda, with a focus on goals such as social equity, environmental protection, and economic growth. The country has pursued these goals through policy implementation, resulting in an increase in Gross Domestic Product (GDP) per capita and SDG index scores. Industrialization, which creates job opportunities, plays a crucial role in achieving these goals. However, challenges such as the impact of COVID-19 and the need for improved governance persist. Regression analyses indicate a strong relationship between economic growth (measured by GDP per capita) and Indonesia's SDG achievement score, with a significant influence observed in both directions. Through enhanced awareness and commitment, there is a need for increased transparency and accountability among companies towards sustainability and the SDGs. Indonesia's progress in achieving the SDGs remains gradual but steady, requiring continued fiscal measures, smart waste management, and localized strategies for sustained advancement. After all, from this research, it can be understood that there is a degree of correlation between Indonesia's economic growth and the country's performance on SDGs achievement, especially in the last 10 years. Still, further analysis is necessary to fully understand the intricate relationship between economic growth and SDG achievement in Indonesia.

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