



# Can Green Economy Implementation Control Social Costs and Accelerate Welfare? Empirical Evidence from Developing Countries

Hadi Sasana, Nugroho Sumarjiyanto Benedictus Maria, Achma Hendra Setiawan, Andini Kusumawardhani, Navi'ah Khusniati\*

Universitas Diponegoro, Indonesia. \*Email: [naviahk@lecturer.undip.ac.id](mailto:naviahk@lecturer.undip.ac.id)

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## ABSTRACT

The United Nations Environment Programme (UNEP) characterizes a green economy as one that enhances human well-being and social fairness while simultaneously mitigating environmental threats and ecological scarcities. This study analyzes the effects of green economy implementation on social cost management and the enhancement of community well-being in emerging nations. The study was carried out in developing nations that have adopted a green economy since 2015, following to the implementation of the Paris Agreement. The research findings indicate that the adoption of a green economy in emerging nations is essential for managing social costs and enhancing societal welfare. Promoting investment in the renewable energy sector, enhancing renewable energy consumption, decreasing CO<sub>2</sub> emissions, improving access to clean energy, and generating employment in the green job sector are essential for managing social costs and advancing societal welfare. The sustainable optimization of the green economy is expected to be able to control social costs without neglecting the welfare of people in developing countries.

**Keywords:** Green Economy, Green Job, Renewable Energy, CO<sub>2</sub> Emission, Social Cost

**JEL Classifications:** I31, O13, O43, Q50, Q56

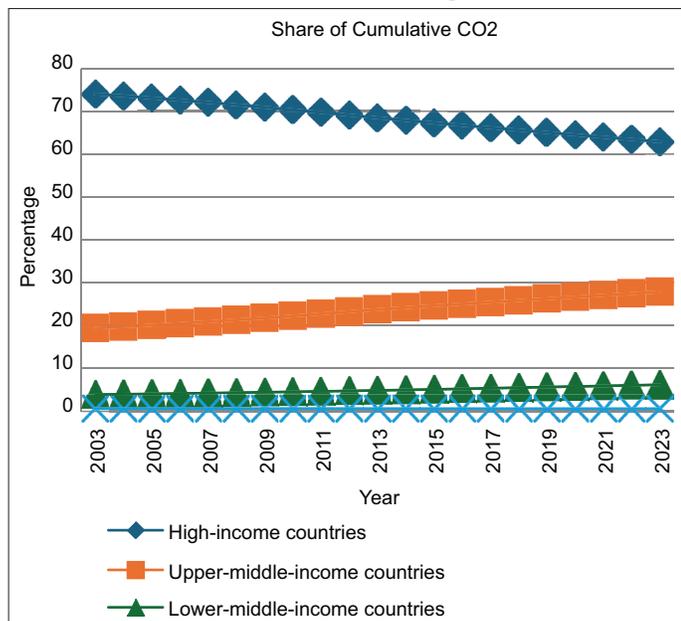
## 1. INTRODUCTION

Discussions on socio-economic and environmental issues have become important topics in both developing and developed countries in recent years (Akbar et al., 2021). The continuously deteriorating state of the environment due to economic activities based on fossil energy, and carbon dioxide emissions, has become one of the indicators for assessing the current quality of the environment (Slathia et al., 2024; Xuan, 2025). In the Environmental Kuznets Curve (EKC) theory, the relationship between economic growth and environmental conditions forms an inverted U-shaped curve. In the early stages, high economic growth reduces environmental quality, but at a certain point (the turning point), continued economic growth leads to an improvement in environmental conditions (Stern, 2004). The following data show

the condition of CO<sub>2</sub> emissions at various country levels around the world, which are still predominantly from lower-middle income countries.

From the empirical data in Figure 1, it can be seen that the contribution of carbon dioxide emissions in developed countries (high-income countries) tends to decrease, in contrast to developing countries (lower-middle-income countries). A closer look reveals that CO<sub>2</sub> emissions in developed countries have declined year after year. Meanwhile, developing countries have seen an increase in global carbon dioxide emissions each year. According to the Environmental Kuznets Curve (EKC) theory, this occurs because developed countries have reached their turning point before developing countries (Chaabouni and Saidi, 2017; Leal and Marques, 2022; Stern, 2004; Xuan, 2025; Zhang et al., 2025).

**Figure 1:** Percentage distribution of total CO<sub>2</sub> emissions in the world



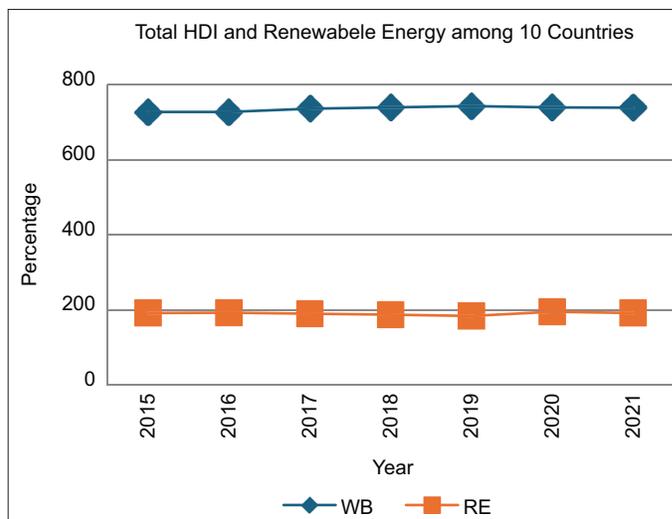
Source: World Bank (2023)

This presents a challenge for developing countries, considering that issues in developing countries tend to be more complex than those in developed countries, such as welfare problems related to infrastructure development, human development, and poverty (Hussain et al., 2023).

Based on the graph in Figure 2, the aggregate Human Development Index (HDI) trend of the ten countries during the period from 2015 to 2021 shows a relatively consistent upward pattern. The HDI value gradually increased from around 724 to 745, reflecting progress in various human development indicators such as health, education, and standard of living, all of which contribute to overall well-being. This increase is in line with global trends as reported by United Nations Development Programme (2025), which notes that most countries experienced improvements in their HDI scores, especially in the categories of high and very high human development countries. Meanwhile, the trend of renewable energy (RE) consumption showed fluctuations during the same period. After a slight decline between 2016 and 2019, renewable energy consumption began to rise again in 2020 and stabilized in 2021. Although the numerical scale may seem unusual (for example, exceeding 100%, which is most likely the result of aggregated indices or certain ratios), this trend indicates an increase in clean energy adoption in some countries. Several studies show that an increase in HDI is positively correlated with increased renewable energy consumption, especially in developing countries, where investment in clean energy plays a role in supporting sustainable development (Amoah et al., 2020; Yahya and Rafiq, 2020). Thus, there is a close relationship between the quality of human development and the transformation of energy towards more sustainable sources.

United Nations Environment Programme (UNEP) defines a green economy as an economy that can improve human well-being, social equity, and at the same time reduce risks from environmental

**Figure 2:** Total HDI and Renewable Energy from 10 countries during 2015-2021



Source: UNDP (2025); World Bank (2025)

degradation and ecological scarcity (Solomon, 2023). The green economy aims to improve the well-being and social equity of society while reducing the risk of environmental degradation. This concept also includes the management of natural resources with a focus on sustainability and efficiency (Kazitskaya et al., 2021). The principles of green economy include: sustainable economy, social inclusivity, environmental conservation (UNEP, 2012). Developing countries have agreed on the importance of taking action to reduce the adverse and potentially disastrous impacts of climate change on the world today and for future generations, as well as its effects on economic growth through the green economy, as outlined in the Paris Agreement (Lyeonov et al., 2019). In achieving economic growth targets, we cannot rely solely on the brown economy, but must also begin to develop the circular economy, green economy, and blue economy (Kasztelan, 2017).

The long-term implementation of a green economy in developing countries is projected to stabilize economic growth, reduce CO<sub>2</sub> emissions, create jobs, and improve public health. The green economy is crucial for realizing economic transformation toward becoming a high-income country on par with developed nations, and for escaping the middle income trap (Pan et al., 2019). Therefore, the transition to a green economy is not merely a choice, but has become a necessity to ensure sustainable long-term growth (Dritsaki and Dritsaki, 2024; Zhang, 2018). This transition involves changes in policy, industry practices, and individual consumption that require strong support from the government and all relevant parties (Imppola, 2020). The green economy has a positive impact on healthcare costs by reducing pollution, mitigating climate change, and improving food security. This can lower healthcare expenses caused by pollution-related diseases and natural disasters. In addition, the green economy can also enhance the overall quality of life for the community, which ultimately contributes to reducing healthcare costs. Green economy not only reduces pressure on ecosystems, but also has the potential to lessen public health costs by improving environmental quality (Manea and Cozea, 2022; Sasana et al., 2022a).

There is a trade-off between economic development and health protection in developing countries (Ali et al., 2021; Sasana et al., 2022b; Tomashuk, 2022). On the other hand, weak institutional structures and funding are the main obstacles to the implementation of the green economy, which in turn affects long-term community welfare. Therefore, it is necessary to continuously and consistently examine the implementation of the green economy in relation to social costs and community welfare in developing countries. In the long run, the adoption of the green economy in developing countries is projected to stabilize economic growth, reduce CO<sub>2</sub> emissions, and improve welfare.

The relationship between economic growth and environmental quality was empirically proposed by Simon Kurznet in 1997. This theory states that increased economic activity will decrease environmental quality in a pattern resembling an inverted U-curve. In the early stages, economic activity will reduce environmental quality. This happens because economic activity drives greater input factors, such as the use of fossil fuels. Fossil fuels lead to increased pollution or higher amounts of carbon dioxide in the air. This pollution causes various health problems, which in turn leads to soaring healthcare costs. However, at a certain point (the turning point), continued economic growth will restore environmental conditions through the transition to cleaner energy and technology (Chaabouni and Saidi, 2017; Hussain et al., 2023; Leal and Marques, 2022; Slathia et al., 2024; Stern, 2004). Unfortunately, most developing countries still rely on resource-based industries (fossil energy) and have high levels of pollution, resulting in declining environmental quality and rising healthcare costs (Manea and Cozea, 2022; Sasana et al., 2022b).

## 2. LITERATURE REVIEW

Green economy has become a concept of economic growth that takes into account existing environmental and social issues (UNEP, 2025). Economic growth can be measured by the value of Gross Domestic Product (GDP) as one of the important variables in macroeconomics, because this variable indicates the total output produced (Gregory Mankiw, 2019). Awareness of the environmental impacts resulting from socioeconomic processes has led to the emergence of the concept of ecological economics. This concept is an economic school of thought that models the socio-ecological system by analyzing cause-and-effect relationships and dynamic processes with the environment, with the hope of achieving structural changes that create social and economic systems that are less harmful to the environment. Ultimately, this aims to achieve the goal of sustainability, including, among other things, the welfare of society (Loiseau et al., 2016). Research output from Dritsaki et al. (2024) found that there is a positive relationship between economic growth and health expenditure, and a negative relationship between health expenditure and the effects of greenhouse gas emissions in G7 member countries. Next, the research conducted by Ali et al. (2025) shows that there is a positive influence between ecological footprint and health expenditure. Where green financing replaces old technology with newer, more efficient, and environmentally friendly technology, leading to a decrease in health expenditure and a reduction in ecological footprint. Study by Li et al. (2022) and Ampon-Wireko

et al. (2022), it is known that there is a long-term cointegration between health expenditure, carbon dioxide emissions, and economic growth in Brazil and China. In the short term in India, it was found that there is a negative causal relationship between carbon dioxide emissions and health expenditure. Meanwhile, in other countries, there is a unidirectional relationship between carbon dioxide emissions, health expenditure, or economic growth in BRICS countries. Research result from Bayar et al., (2021) it was found that the increase in economic growth and the state of greenhouse gas emissions influence the amount of health expenditure incurred by a country. A similar finding was discovered in the study Hussain Ansari and Islam Ansari (2022), it can be concluded that an increase in carbon dioxide emissions will lead to higher healthcare expenditures.

Study from Azam et al., (2023) shows that renewable energy consumption increases societal well-being, while fossil energy consumption decreases societal well-being in developing countries. In addition, other findings indicate that the application of labor in the green economy has a positive influence on improving societal well-being in developing countries. Research output from Akpolat and Bakırtaş (2024), It can be concluded that there is an inverted U-shaped relationship between renewable energy consumption and the human development index, where in the early stages, the implementation of renewable energy will decrease the human development index, but at a certain point, it will increase the human development index. In the early stages, fossil energy consumption will increase the human development index, but at the turning point, continuously increasing fossil energy consumption will actually decrease the human development index in BRICS countries.

## 3. RESEARCH METHODOLOGY

Developing countries still massively use fossil energy to drive their economic growth, but many developing countries have already started implementing a green economy. The research period, from 2015 to 2021, is when many developing countries began to adopt a green economy. The impact of green economy implementation will be tested on social costs and welfare. This study was conducted in 10 developing countries (Brazil, Vietnam, Chile, India, Kazakhstan, South Africa, Egypt, Mexico, Indonesia, Morocco). Information on the variables and data sources used in this research is presented in Table 1.

To address the research problems and achieve the desired outputs, the analysis uses a quantitative method with panel data regression. The impact of green economy implementation on social costs and welfare is modeled with the following basic regression model:

$$Y_{it} = \beta_0 + \beta_n X_{nit} + e_{it} \quad (1)$$

The empirical model of the influence of green economy variables on social costs and welfare is formulated in the following research equation model:

Model (1): An empirical model of the influence of green economy variables on social costs.

**Table 1: Description of variables and research data**

Variable	Symbol	Data	Unit	Sumber
Social Cost	SC	Health Expenditure Percapita	USD	World Bank (2025a)
Well-Being	WB	Human Development Index	% (percent)	UNDP (2025)
Invests in Renewable Energy	IRE	Investation Renewable Energy	USD	IRENA STAT (2025)
Renewable Energy	RE	Renewable Energy	% (percent)	World Bank (2025c)
Carbon Emission	CO <sub>2</sub>	CO <sub>2</sub> Emission	million ton	Global Carbon Budget (2024)
Forest Area	FA	Forest Area	% (percent)	FAO (2025)
Access Clean Fuel	ACF	Access Clean Fuel	% (percent)	IEA (2023)
Green Job	GJ	Employment in Green Sector (% population)	% (percent)	ILO (2025)
Economic Growth	EG	Economic Growth	% (percent)	World Bank (2025b)

$$SC = \beta_0 + \beta_1 IRE_{it} + \beta_2 RE_{it} + \beta_3 CO2_{it} + \beta_4 FA_{it} + \beta_5 ACF_{it} + \beta_6 GJ_{it} + \beta_7 EG_{it} + e_{it} \quad (2)$$

Model (2): An empirical model of the effect of green economy variables on welfare.

$$WB = \beta_0 + \beta_1 IRE_{it} + \beta_2 RE_{it} + \beta_3 CO2_{it} + \beta_4 FA_{it} + \beta_5 ACF_{it} + \beta_6 GJ_{it} + \beta_7 EG_{it} + e_{it} \quad (3)$$

Description:

- SC : Social Cost
- WB : Welfare (HDI)
- IRE : Renewable Energy Investment
- RE : Renewable Energy
- CO<sub>2</sub> : Carbon Dioxide

Emissions:

- FA : Forest Area
- ACF : Access to Clean Fuel
- GJ : Green Job
- EG : Economic Growth
- t : Time
- i : Sample country
- e : Error Term
- β<sub>0</sub> : Constanta
- β<sub>0</sub>, β<sub>1</sub>, β<sub>2</sub>, β<sub>3</sub>, β<sub>4</sub>, β<sub>5</sub>, β<sub>6</sub>, β<sub>7</sub> : Regression Coefficients

## 4. RESULTS AND DISCUSSION

### 4.1. Result

The following are the results of the descriptive statistical test to observe variations in the data, such as the minimum value, maximum value, average, and standard deviation. The research data information which including descriptive statistic of Research Data can be seen in Table 2.

Based on the descriptive statistical test (Table 2), the SC variable shows varying values between countries, with a mean value of 883.82 and a standard deviation of 612.42. WB (HDI) has a relatively high mean value of 0.73 with a standard deviation of 0.06. Green sector investment shows a high level of disparity, with a mean of 162.80 and a deviation of 203.01. Renewable energy consumption is still not optimal, with a mean value of 19.06 and a deviation of 13.52. CO<sub>2</sub> emissions have high variation with a mean value of 539.98 and a deviation of 670.97. FA has a mean value of 26.60 with a deviation of 19.57. The ACF variable has a mean of 88.56 with a deviation value of 12.74. GJ has a mean

**Table 2: Descriptive statistics of research data**

Variable	N	Min.	Max.	Mean	Standard deviation
SC	70	179	2647.61	883.82	612.42
WB	70	0.619	0.859	0.73	0.06
IRE	70	0.01	813.09	162.80	203.01
RE	70	1.70	50.00	19.06	13.52
CO <sub>2</sub>	70	58.46	2670	539.98	670.97
FA	70	0.05	60.29	26.60	19.57
ACF	70	47.4	100	88.56	12.74
GJ	70	6.56	44.68	22.96	11.99
EG	70	-8.65	11.74	2.71	3.97

Source: Eviews 13, processed

value of 22.96, with a variable deviation of 11.99. Economic growth shows high disparity, with a mean value of 2.71 and a deviation of 3.97.

To determine the best model in panel data analysis, model specification tests (Chow Test, Hausman Test, and LM Test) were conducted, with the test results shown in Table 3.

Based on the results of the model specification tests (Table 3), the Chow Test, Hausman Test, and LM Test, the most appropriate model to use for analyzing the equation with the dependent variable Social Cost (SC) is the Random Effect Model (REM). The most suitable model for testing the equation with the dependent variable Well Being (WB) is the Fixed Effect Model (FEM).

Based on the results of the correlation test, it is known that the independent variables in the equation model do not exhibit multicollinearity issues, as the correlation values for each independent variable are below 0.8 (Kim, 2019). Next, the results of the heteroscedasticity test between the research variables are shown in Table 4.

Based on the results of the heteroskedasticity test, the SC and WB equations have heteroskedasticity problems. However, this can be addressed by using the Generalized Least Square (GLS) method. The GLS method is used to overcome problems of heteroskedasticity and autocorrelation (Houssam et al., 2023), by adding the Cross-section Weight. The estimation results for testing the two equations are as follows IN Table 5.

### 4.2. Disussion

Based on the estimation results from both equations (Table 5), it shows that the implementation of a green economy in developing countries has a significant impact on controlling social costs and accelerating community welfare. This is in line with the EKC

**Table 3: Model specification test table**

Test	Y=SC				Y=WB			
	Statistic	Prob.	Description	Conclusion	Statistic	Prob	Description	Conclusion
Chow Test	33.05	0.0000	Prob<0.05; H <sub>0</sub> =FEM Prob>0.05; H <sub>1</sub> =CEM	FEM	115.70	0.0000	Prob<0.05; H <sub>0</sub> =FEM Prob>0.05; H <sub>1</sub> =CEM	FEM
Hausman Test	14.96	0.0519	Prob<0.05; H <sub>0</sub> =FEM Prob>0.05; H <sub>1</sub> =REM	REM	35.28	0.0000	Prob<0.05; H <sub>0</sub> =FEM Prob>0.05; H <sub>1</sub> =REM	FEM
LM Test	74.90	0.0000	Prob<0.05; H <sub>0</sub> =REM Prob>0.05; H <sub>1</sub> =CEM	REM	119.84	0.0000	Prob<0.05; H <sub>0</sub> =REM Prob>0.05; H <sub>1</sub> =CEM	REM

Source: Eviews 13, processed

**Table 4: Heteroscedasticity test**

Variable	Y=SC (REM)		Y=WB (FEM)	
	t-Statistic	Prob.	t-Statistic	Prob.
C	3.357	0.001*	1.257	0.214
IRE	-0.715	0.477	0.625	0.535
RE	0.918	0.362	0.688	0.495
CO	-3.358	0.001*	-0.939	0.352
FA	-1.165	0.249	-0.447	0.657
ACF	-1.195	0.237	0.750	0.456
GJ	-1.808	0.075	-2.049	0.045*
EG	0.250	0.804	-0.638	0.526

\*Significant. Source: Eviews 13, processed

theory, where increased economic growth moves towards a cleaner direction (green economy), accompanied by the realization of community welfare and improvement in environmental quality, which ultimately allows for controlling health expenditures. These findings are consistent with the outputs of several previous studies, which found that the green economy has a significant effect on controlling social costs and accelerating community welfare (Ali et al., 2025; Azam et al., 2023). Partial discussion of the research findings is as follows.

Investment in the renewable energy sector has a significant impact on reducing social costs and has a positive relationship with welfare. The results of this study support the findings of previous research by Yu et al., (2025) and Ali et al., (2025), who found that investment, especially green investment, has a positive impact on nature conservation and social cost control. Where every increase in green investment made will reduce the social costs incurred. The goal of a green economy is to reduce carbon dioxide emissions, decrease social costs, and accelerate the improvement of community welfare. The study by Salim and Rafiq shows that developing countries that accelerate the adoption of renewable energy are generally driven by the need for energy efficiency, energy security, and policy incentives. Government commitment plays an important role in strengthening the economic impact of green investment (Chen et al., 2023; Gao & Xia, 2024; Wang & Zhou, 2023). Study from Alper & Oguz (2016), found that the implementation of the green economy in Sub-Saharan African countries regarding energy consumption (including renewable energy) contributes positively to economic growth, especially when energy is used productively in the industrial and service sectors. These results reinforce positive findings on the relationship between green investment and GDP growth, showing that when green energy becomes part of a productive economic system, rather than merely serving as a symbol of environmental commitment, it can drive real economic growth. The success of green investment

is determined not only by the scale of investment, but also by institutional support and the effectiveness of its implementation institutional support, and the scale of the investment (Chițimiea et al., 2021; Khan et al., 2024; Romano et al., 2017).

Subsequent research findings indicate that renewable energy consumption has a significant impact on reducing social costs and accelerating the welfare of society. Renewable energy consumption has a significantly positive influence on the acceleration of societal welfare in developing countries, where every increase in renewable energy consumption leads to improved public welfare. This is consistent with previous studies in developed countries, which found that renewable energy consumption can lower social costs (Slathia et al., 2024). However, on the other hand, Azam’s study shows that an increase in renewable energy consumption actually drives up and increases social costs (Azam et al., 2023). In developing countries, green economy policies are often faced with the dilemma between economic development and environmental protection (Ali et al., 2021; Tomashuk, 2022). Most developing countries still rely on resource-based industries and have high levels of pollution (Manea and Cozea, 2022). The process of transforming the economy into a sustainable green economy must balance economic, social, and environmental aspects, in line with the SDGs and the Paris Agreement. The main principle of green growth is the ability of science and technology to allow the economy to grow without harming the environment (Mikryukov et al., 2021).

Subsequent research findings indicate that an increase in carbon dioxide (CO<sub>2</sub>) emissions will reduce social costs in developing countries, but improve public welfare. Many developing countries still rely on fossil energy to drive economic growth and welfare, despite high carbon dioxide emissions. In the research conducted by Akpolat and Bakırtaş (2024), it was found that in the early stages of development, increased energy consumption has a positive effect on accelerating societal well-being, which is accompanied by an increase in carbon dioxide (CO<sub>2</sub>) emissions. However, up to a certain turning point, this will eventually decrease societal well-being. This indicates that developing countries are still in the early stages and face difficulties in transforming from fossil energy to cleaner energy without compromising societal well-being. This is similar to the findings of research by Fakhri et al. (2024), where prosperity is achieved in several countries with high pollution. The increase in carbon dioxide (CO<sub>2</sub>) emissions has a significant impact on controlling social costs and drives the acceleration of public welfare.

**Table 5: Estimated Results of the Social Cost (SC) Model and the Well-Being (WB) Model**

Y=SC REM			Variable	Y=WB FEM EGLS		
Coef.	t-Statistic	Prob.		Coef.	t-Statistic	Prob.
1721.626	2.713209	0.0086***	C	0.621416	7.425593	0.0000***
-10.71736	-1.777009	0.0805*	IRE	0.000286	1.073187	0.2880
17.24877	2.570158	0.0126**	RE	0.001246	2.452160	0.0175**
-168.2007	-2.061704	0.0434**	CO <sub>2</sub>	0.033724	2.274447	0.0270**
-3.091957	-0.523846	0.6023	FA	-0.002822	-1.596153	0.1164
5.791206	1.680482	0.0979*	ACF	0.000175	0.817317	0.4174
-26.18315	-5.018313	0.0000***	GJ	-0.002063	-4.964951	0.0000***
6.288854	1.677830	0.0984*	EG	0.000148	0.786406	0.4351
		0.417311	R-Squared			0.995611
		0.351523	Adjusted R-squared			0.994286
		6.343315	F-Statistic			751.3992
		0.000012	Prob (F-statistic)			0.000000
		5.401659	JB-Test			3.674746
		0.067150	Prob. JB-Test			0.159235

\*Significant (10%); \*\*Significant (5%); \*\*\*Significant (1%). Source: Eviews 13, processed

The size of forest areas has a significant influence on controlling social costs, but does not affect community welfare. This condition may occur because each country has different forest characteristics. Differences in forest characteristics among countries can affect how forests impact the health and well-being of those countries (Cheng et al., 2020). Forest area does not have a significant impact on economic outcomes, which is consistent with the findings of Michinaka and Miyamoto, who state that in many developing countries, short-term economic activities still heavily rely on the exploitation of natural resources, so forest conservation has yet to make a direct contribution to growth. The role of institutions, technological limitations, and the pressure to expand the extractive sector can explain why forest area has not yet resulted in significant economic growth. Meanwhile, its impact on economic growth requires time, policy synergy, and a supportive institutional ecosystem (Manea and Cozea, 2022).

Subsequent research findings indicate that the utilization of clean energy access has a significant impact on improving well-being, although it initially increases social costs. In the short term, social costs rise due to increased health awareness during the transition period, when environmental conditions are not very healthy, and people become more concerned about their health during this transitional phase, however, in the long term, it will promote the well-being of the community (Akbar et al., 2021; Pervaiz et al., 2021). A similar study was conducted by Inglesi-Lotz et al., (2024), where access to renewable energy increases health expenditures in developing countries. This increase in health expenditures improves public health in developing countries (Roy, 2025)

The following research findings show that the workforce in the green job sector has a significant impact on reducing social costs, although it has not yet succeeded in improving overall welfare. An increase in the workforce in the green job sector will lower society's social costs, because the implementation of green jobs can create a healthier environment, resulting in reduced social costs. However, on the other hand, the rise of green jobs has not been able to increase welfare, as there has not yet been appropriate technological implementation, especially in the agricultural sector in developing countries, leading to low production and low

income. Most developing countries have entered the industrial era, and the shift from the agricultural sector to industry in the short term has led to decreased welfare due to a lack of skills. Suitable technological applications are needed so that the growth of green jobs in the agricultural sector can lead to improved welfare (Abdul-Majid et al., 2024). From this, it is clear that the green economic transformation in developing countries is a complex matter. Human resource management focused on the green economy can be one of the solutions to improve welfare (Gyensare et al., 2024).

The final findings of this study indicate that economic growth plays an important role in improving people's welfare, although in the short term it increases social costs. Economic growth in developing countries is still dominated by the use of natural resources, especially fossil energy. Every increase in economic growth leads to higher social costs. This is consistent with research by Piscopo et al., (2024); Ampon-Wireko et al., (2022) and Bayar et al., (2021) which shows that the higher a country's economic level, the more its society cares about health and the environment, resulting in a tendency for higher social costs. With the transition to green energy, it is expected to promote well-being by reducing social costs related to healthcare spending.

## 5. CONCLUSION

The implementation of the green economy, which is beginning to spread in developing countries, aims to improve community welfare and social equity while reducing the risk of environmental damage. Institutional roles, technological limitations, pressure to expand the extractive sector, policy synergy, and institutional ecosystems remain as challenges. Based on the findings of this research, it can be concluded that the implementation of the green economy has a significant impact on controlling social financing and accelerating public welfare. Simultaneously, investment in renewable energy, renewable energy itself, carbon dioxide emissions, forest area size, access to clean energy, green jobs, and economic growth all have a significant impact on controlling social costs and accelerating public welfare in 10 developing countries. However, it should be noted that the transformation

toward a green economy in developing countries often feels inflexible and complex.

The intensity of renewable energy use has become a significant factor in controlling social costs and accelerating community welfare. An increase in renewable energy consumption in the short term raises social costs, but ultimately has a positive impact on the environment and health, thereby improving welfare. Meanwhile, an increase in fossil energy consumption leads to a rise in carbon dioxide emissions. Although it boosts welfare, it is accompanied by higher social costs due to declining public health quality. The growth of the workforce in green jobs has a significant influence on controlling social costs. Even though the transition to green jobs results in decreased welfare due to the readiness required for changes in structure as society enters the industrialization phase, the increase in green jobs helps control social costs, even though in the short term, the effect on welfare is not yet significant.

Further studies are needed regarding the appropriate green economic models to be implemented in developing countries without sacrificing the welfare of the people. High economic growth is important for improving public welfare, but it must be accompanied by a transition to green energy. Extensive forest cover plays an important role in developing countries in controlling social costs, although it has not yet succeeded in promoting public welfare.

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