CONNECTIVITY INCLUSIVE ECONOMIC DEVELOPMENT AND ENVIRONMENTAL QUALITY IN DECENTRALIZED INDONESIA

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CONNECTIVITY INCLUSIVE ECONOMIC DEVELOPMENT AND ENVIRONMENTAL QUALITY IN DECENTRALIZED INDONESIA

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Keywords: Inclusive economic development; sustainable environmental quality; Sustainable development.

ABSTRACT:

Purpose of the study: This study analyses the relationship of inclusive economic development to the quality of the environment in Indonesia.

Methodology: Secondary data used, derived from; BAPPENAS, Ministry of Environment and Forestry of the Republic of Indonesia, period 2013 to 2017

Main Findings: The results showed that inclusive economic development still resulted in environmental degradation. The inclusive economic development index, one of the sustainable development goals that represent the achievement of economic dimensions and social dimensions, leads to environmental degradation.

Applications of this study: The inclusive economic development index, one of the sustainable development goals that represent the achievement of economic dimensions and social dimensions, leads to environmental degradation. The Kuznets Environmental Hypothesis Curve (EKC) did not occur in this study's year of observation. Future researchers may consider research to determine sustainable development indicators, which are composite indicators consisting of all dimensions (economic, social, environmental).

Novelty/Originality of this study: Prioritize environmental sustainability in every policy taken

INTRODUCTION

Inclusive Economic Development is an economic development that creates complete access and opportunity for all walks of life in a fairway, improves welfare, and reduces inequality between groups and regions. Sustainable Development is an enormous challenge for all countries globally, especially for developing countries like Indonesia (Klugman, 2011). Sustainable development departs from one noble goal: achieving a better quality of life for all, for now, tomorrow. For future generations, conditions occur if we can improve the quality of economic, social, and environmental life in a balanced manner. By considering these three aspects, the benefits of development will be inclusively felt by the whole community, followed by more efficient use of natural resources (Bappenas, 2017).

Development in the field of economics and social aims to prosper society and is expected to be sustainable without damaging the environment. Some research in modern and developed countries, economic development, and social development do not cause environmental degradation (Mohsin et al., 2029). However, from research in developing countries, there is a phenomenon to the contrary. The ecological damage occurred so massively as a result of the construction carried out (Baranova & Meadows, 2017).

As a result of development, environmental damage, threatening the sustainability of civilization, had become a significant concern and a shared concern of the world community (Arora et al., 2019). At the end of 2015, sustainable development goals (SDGs) came into effect. At the United Nations general assembly, on December 4, 2014, which agreed to the world development plan platform, based on the results of the Open Working Group on Sustainable Development Goals? The deal will target world development goals from 2016 to 2030. Development often results in damage to the environment; Air pollution, water pollution, or damage to forests.

The relationship between inclusive economic development and sustainable environmental ality is the single hypothesis in this study. This study's hypothesis is that: there is a significant link between inclusive economic development and sustainable environmental quality. The sustainable environmental quality index (EQI) consists of; air quality index, water quality index, land cover quality index. The inclusive economic development index (IEDI). Inclusive economic development index, which is a tool to measure and monitor the extent of Indonesia's development inclusivity. Both at the national, provincial, and district and city levels (The index figures consist of 3 Pillars and 8 Sub-pillars as well as 21 indicators of the shaper of the inclusive economic development index).

The three pillars are:

- 1. Economic development and growth;
- 2. Equalization of income and reduction of advertising;
- 3. Expansion of access employment opportunities.

Eight sub pillars consist of;

- 1. Economic growth;
- 2. Employment opportunities;
- 3. Economic infrastructure;
- 4. Inequality;
- 5. Poverty;
- 6. Human capabilities;
- 7. Basic infrastructure;
- 8. Inclusive finance.

21 indicators, as follows:

- 1. Real GDP/GDP growth per capita;
- 2. Persentase portion of the manufacturing sector to overall GDP;
- 3. Bank credit ratio to GDP;
- 4. Employment opportunity rate;
- 5. Percentage of Fully Working Population;
- 6. Percentage of Workforce with Secondary and Upper Education Level;
- 7. Percentage of Households Using Electricity from PLN;
- 8. Percentage of The Population owned Mobile Phones;
- 9. Percentage of Roads with Good and Moderate Condition;
- 10. Gini Ratio;
- 11. Women's Income Donation;
- 12. Average Ratio of Village and City Households Expenditure;
- 13. Percentage of The Poor;
- 14. Average Protein Consumption per capita per day;
- 15. Old School Expectations Figures;
- 16. Percentage of Toddlers Who Get Complete Basic Immunizations;
- 17. Percentage of The Population Who Have Health Insurance;
- 18. Percentage of Households with Decent Drinking Water Source;
- 19. Percentage of Households with Own Urination Facilities;
- 20. The ratio of Deposit Account Amount to Productive Age Population;
- 21. Bank small and medium-sized enterprises Credit Ratio.

LITERATURE REVIEW

The conception of the pillars of sustainability (social, economic, environmental), usually represented by three circles that intersect sustainability at the center of the slice of the three rings, is an attempt to reconcile economic growth as a solution to social and ecological problems (Purvis et al., 2019).

Development of economics, social, and its impact on the environment; there are still differences in research results (research gaps) in many studies. The Environmental Kuznets Curve Hypothesis (EKC) i proven to occur. GDP per capita affects carbon emissions (Dong et al. 2018). Economic indicators include the gross domestic product (GDP) per capita, urbanization rate, industrial structure, net exports, and indirect foreign investment. In contrast, social indicators include employment, health and disease, social security, consumer protection, and adverse and significant effects environment(Sutthichaimethee and Dockthaisong 2018). GDP per capita and Exports increase CO2 emissions per capita(Cheng et al., 2019). Per capita income and population have an increasing impact on combined emissions (Wiebe et al., 2015)

Different results submitted by (Terrell, 2020), Land use data, and land cover changes, for 14 countries revealed an N-shaped Environmental Kuznets curve (EKC) in some countries, while others showed very different relationships. The results show that sustainable economic growth can help reduce the concentration of environmental pollution (Hao et al., 2018); (Gürlük, 2009).

METHODOLOGY 24

This research uses multivariate statistical methods, structural equation Modeling (SEM), and WarpPLS software. Research involving multivariable analyses is worth doing multivariate analysis if the variables are observed in unison or simultaneously conducted the study. Data analysis is done simultaneously on research in which variables interconnecting, both theoretically and empirically. In the process of multivariate analysis, the relationship between variables included in the calculation process (Liang et al., 2020). Interpretation of the analysis results made comprehensively, and this is in harmony with the nature that in multivariate analysis already considers the relationship between variables. To analyze the relationship between variables in this study empirically, using WarpPLS, user interface, and graphics. Using variance-based and factor-based structural equation models (SEM), using the least-squares and factor-based methods. (Kock, 2015c)(Kock, 2015a). Another critical feature of WarpPLS is its ability to identify and model non-linearity among the variables in the path model, measuring whether these variables as latent variables or not, resulting in parameters that take into account the appropriate underlying heterogeneity (Gountas and Gountas 2016); (Guo et al., 2011). There is a ten model fit and quality index (Kock, 2010); (Kock, 2014); (Kock, 2015d), as follows (refer to Table 1

- Average Path Coefficient (APC);
- 2. Average R-squared (ARS);
- 3. Average Adjusted R-squared (AARS);
- 4. Average block Variance Inflation Factor (AVIF);
- 5. Average Full Collinearity VIF (AFVIF);
- 6. Tenenhaus GoF (GoF);
- 7. Simpson's paradox ratio (SPR);
- 8. R-squared contribution ratio (RSCR);
- 9. Statistical suppression ratio (SSR);
- 10. Nonlinear- bivariate causality- direction ratio (NLBCDR).

For APC, ARS, and AARS, this P-value computing through a process that involves estimating resampling plus a correction to counteract the standard error compression effect associated with adding a random variable, in a way inalogous to Bonferroni corrections. Ideally, AVIF and AFVIF be equal to or lower than 3.3, measuring especially in models where most variables through two or more indicators. A looser (acceptable) criterion is that both indexes are equal to or lower than 5, especially in models where most variables are single indicator variables (and thus not latent variables "true"). GoF. Like ARS, the GoF index, referring to the Tenenhaus GoF in honor of Michel Tenenhaus, is a measure of the model's explanatory power (Kock, 2015d). (Tenenhaus et al., 2005) define

GoF as the intermediate product's square root to which they refer to the mean commonality index and the ARS.

The SPR index is a measure of the extent to which the model does not depend on the example of Simpson's paradox (Kock, 2015b); (Kock and Gaskins, 2016). An example of the Simpson paradox occurs when the path coefficients and correlations associated with a pair of related variables have different signs. Ideally, the SPR should be equal to 1, which means that there are no examples of Simpson's paradox in the model; an acceptable SPR value is equal to or greater than 0.7, which means that at least 70 percent of the paths in the model are free of the Simpson paradox. RSCR index is a measure to analyze the extent the model is free from negative R-squared contributions, which occurs together with the example of Simpson's paradox. When the predictor's latent variable makes a negative contribution to the R-squared of the criterion latent variable (note: the predictor points to the measure), it means that the predictor reduces the percentage of variance described in the standard. Such a deduction takes into account the contributions of all predictors plus the remainder. This index os similar to SPR. Ideally; the RSCR should be equal to 1, meaning no negative Rsquared contribution in the model. Tho acceptable value of the RSCR is equal to or greater than 0.9, which means that the sum of the positive R-squared contributions in the model makes up at least 90 percent of the total sum of the absolute \overline{R} -squared contributions in the model.

The SSR index is a measure of how a model is inderendent of statistical emphasis examples. An example of statistical emphasis occurs when the path coefficient is more significant in absolute terms than the associated correlation concerning a pair of related variables. Like the Simpson paradox example, an example of statistical emphasis is a possible indication of a causality problem, suggesting that the hypothesized pathway may be unreasonable or reversed. The acceptable SSR value is equal to or greater than 0.7, which means that at least 70 percent of the model's paths are free from statistical suppression.

NLBCDR. One of the exciting properties of nonlinear algorithms is that the nonlinear bivariate association's coefficient varies depending on the direction of the hypothesized causality. They tend to be stronger in one order than the other, meaning that the residuals (or errors) are larger when the direction of hypothesizing causality in one way or another. It can be used, along with other coefficients, as partial evidence supporting or against a hypothesized causal relationship. The acceptable value of the NLBCDR is equal to or greater than 0.7, which means that in at least 70 percent of the path-related examples in the model, support for the hypothesized reverse causality direction is weak or less.

Table 1. Model fit and Quality index

	Model fit & Quality index	Criteria Fit
No	2	
1	Average Path Coefficient (APC)	p < 0.001
2	Average R-squared (ARS)	p < 0.001
3	Average Adjusted R-squared	p < 0.001
	(AARS)	
4	Average block Variance Inflation	Acceptable if ≤ 5
	Factor (AVIF)	Ideally ≤ 3.3

5	Average Full Collinearity VIF	Acceptable if ≤ 5
	(AFVIF)	Ideally ≤ 3.3
6	Tenenhaus GoF (GoF)	Small ≥ 0.1
		$Medium \ge 0.25$
		Large ≥ 0.36
7	Simpson's paradox ratio (SPR)	Acceptable if ≥0.7
		Ideally = 1
8	R-squared contribution ratio	Acceptable if ≥0.9
	(RSCR)	Ideally = 1
9	Statistical suppression ratio	Acceptable if ≥ 0.7
	(SSR)	•
10	Nonlinear -bivariate causality-	Acceptable if ≥ 0.7
	direction ratio (NLBCDR). 22	-
		1 . 1 . 200.00

^{*} *Source*: (Kock, 2015d); (Tenenhaus et al., 2005)

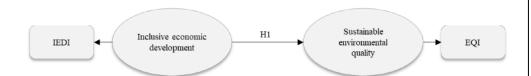


Figure 1. Research model pathway analysis Source: by the author (2020)

Note: 10

Sustainable environmental quality represented by the Environmental quality index (EQI);

Inclusive economic development represented by the inclusive economic development index (IEDI)

Sustainable environmental quality (EQI) = $\lambda_1 \text{EQI} + \delta_1$ (1) Inclusive economic development (IEDI) = $\lambda_2 \text{IEDI} + \delta_2$ (2) Sustainable environmental quality (EQI) = $\gamma 1 + \gamma 2 \text{IEDI} + + \delta_3$ (3)

Description:

λ: indicator weight

 $\gamma\textsc{:}$ coefficient of influence of exogenous variables on endogenous

variables

 δ : measurement error

RESULTS

Analysis results model fi²⁷)d quality index (refer to Table 2) Table 2. Analysis results model fit and quality index

	Model fit & Quality	Criteria Fit	Analysis	Remarks
No	index		results	
1	Average Path	p < 0.001	0.550	Good

			2	
	Coefficient (APC)		p < 0.001	Significant
2	Average R-squared	p < 0.001	0.303	Good
	(ARS)		p < 0.001	Significant
3	Average Adjusted R-	p < 0.001	0.298	Good
	squared (AARS)		p < 0.001	Significant
4	Average block	Acceptable if ≤ 5	N/A	Not available
	Variance Inflation	Ideally ≤ 3.3		
	Factor (AVIF)			
5	Average Full	Acceptable if ≤ 5	1.389	Ideal
	Collinearity VIF	Ideally ≤ 3.3		
	(AFVIF)			
6	Tenenhaus GoF	Small ≥ 0.1	0.550	Large
	(GoF)	Medium ≥ 0.25		
		Large ≥ 0.36		
7	Simpson's paradox	Acceptable if \geq	1	Ideal
	ratio (SPR)	0.7		
		Ideally = 1		
8	R-squared	Acceptable if \geq	1	Ideal
	contribution ratio	0.9		
	(RSCR)	Ideally = 1		
9	Statistical	Acceptable if \geq	1	Acceptable
	suppression ratio	0.7		
	(SSR)			
1	Nonlinear- bivariate	Acceptable if \geq	1	Acceptable
0	causality- direction	0.7		-
	ratio (NLBCDR).			

Hypothesis test results (refer to figure 2):



Figure 2. Hypothesis test results * Source: by the author (2020)

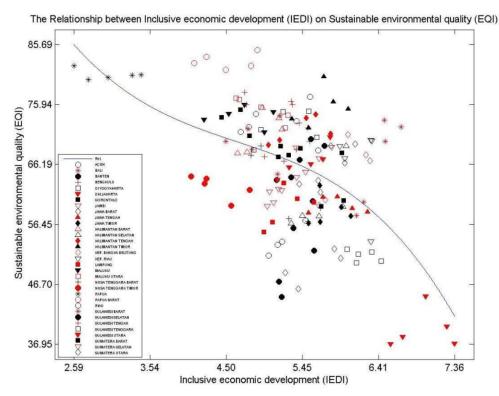


Figure 3. The relationship between inclusive economic developments (IEDI) on sustainable environmental quality (EQI)

Source: by the author (2020)

Figure 1 and figure 2 show that; significant and negative relationships (β =-0, 55, P<.01) between IEDI and EQI. It shows that inclusive economic development (IEDI) causing environmental damage. The higher the IEDI value, the lower the EQI. Growth in economics and the social field, not yet on the right path, towards a sustainable development path. Not proved in Kutznet's environmental curve hypothesis in this study. Inclusive economic development (IEDI) leads to sustainable ecological degradation.

As seen in figure 3, the province of Papua has the highest environmental quality index (EQI) value but has the lowest inclusive economic development index (IEDI). The opposite happened in the Capital of Indonesia, the province of DKI-Jakarta.

The study's main conclusion is; inclusive economic development led to the degradation of sustainable environmental quality. Economic development and social development still cause environmental sustainability damage. To stakeholders, future researchers are: Create and implement and prioritize more environmentally friendly development. For future research, create models of economic development and people's prosperity without compromising the surrounding environment.

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