CAUSAL RELATIONSHIP AMONG HUMAN DEVELOPMENT INDEX (HDI), ECONOMIC GROWTH AND POVERTY IN SULAWESI ISLAND

Miftahul Jannah[1], Ahmad[2], Muhamad Armawaddin[3]
Halu Oleo University, Kendari[1,2,3]
Email: miftahuljannah8523@gmail.com[1], ahmaddduho.23012020@gmail.com[2], adiox68@gmail.com[3]

Abstract

This study investigates the causal relationships among the Human Development Index (HDI), economic growth, and poverty in Sulawesi Island. The aim is to test and analyze the causal interactions among HDI, Economic growth, and poverty across thus region. Using panel data from six provinces on Sulawesi Island From 2007-2023, the study applies the granger causality test. The findings reveal a one-way causal relationship from the Human Development Index to economic growth, a two-way causal relationship between economic growth and poverty on Sulawesi Island.

Keyword: *Human Development Index; Economic Growth; Poverty*

A. INTRODUCTION

Development is a process aimed at bringing about change to enhance the quality of life within a community. Its goalsis to Uplift and raise the community's, improve welfare, and can expand employment opportunities, this can increase community productivity. One indicator that sees the success of development is economic growth and human development. So this encourages each region to increase and improve economic growth so that it can achieve the desired development and can achieve better development in the future.

Increasing economic growth can enhance community welfare. Economic growth reflects a process of change in a region's economic conditions, Focused on achieving better circumstances over time. Growth is observed through shifts in demand and supply for good and services, with Gross Regional Domestic Product (GRDP) serving as a key benchmark. Various factors influence this growth, including human development and poverty levels.

Human development and poverty which are factors that influence economic growth are actually besed on the theory of endogenous development. The theory of endogenous development suggest that innovation, knowledge and investment in human resources should be the main focus in analyzing economic growth. Kuncoro, (2006) And Nurkse's theory which has a vicious circle of poverty paradigm. The theory states that poverty occurs due to a lack of human resources, this will affect the lack of community productivity so that it will trigger a lack of savings and investment levels. Therefore, it is hoped that poverty will decrease when there is an increase in economic growth. However, this reduction is not always even, with this it will affect a person in fulfilling their needs Kuncoro, (2006).

Human development is an increase in the ability and quality of life of an individual that aims to live more decently than before, both in terms of education, health and economy. Therefore, human development can be measured using the Human Development Index (HDI). Human development can thus be assessed through the Human Development Index (HDI), which is based on three core dimensions: education, health, and a decent standard of living. These dimensions reflect the quality of human resources in terms of their ability to quickly access income, education, and healthcare. Consequent, it is anticipated that higher economic growth will promote improvements in the human development index. So that it can produce quality individuals and later will be able to reject the natural resources owned by a country Kristina et al., (2022). However, this will be hampered if there is a humanitarian crisis that will increase poverty in an area.

The Human crisis is a persistent problem today that requires immediate attention, it reflect an imbalance in real life, where individuals are unable to meet essential needs or face dehumanization due to inadequate knowledge, mental resilience, and emotional preparedness for life's challenges. This, in turn. Can lead to increased poverty. Without intervention, both issues pose significant threats to a country or region, as they involve complex, ongoing challenges. High levels of poverty, in particular, can negatively impact economic growth, leading to a slowdown in its rate,

Research Putra et al., (2022) dentified a two-way causal relationship between economic growth and HDI, while Nitami et al., (2023) found no causal relationship. In contrast, study Martius et al., (2019)

reported a one-way relationship between economic growth and HDI. Research Ariyati, (2018) observed a two-way relationship between poverty and HDI, whereas Belhadj et al., (2020) found a one-way causal link between human development and poverty, and Akbar & Prabowo, (2023) (Akbar & Prabowo, 2023) found no causal relationship between HDI and poverty. Furthermore Jonaidi, (2012) concluded that a two-way relationship between economic growth and poverty. While Renggo, (2017) observed a one-way relationship, and Damayanti & Sentosa, (2020) found no causal connection between economic growth and poverty.

B. RESEARCH METHODS

This Study relies on Secondary data, which is collected indirectly but involves comprehensive preliminary research, including sources like the internet, literature, statistics, and various published data Sugiyono, (2013) The data used in this study is panel data. Which integrates both time series and cross sectional information Basuki & Rosnawintang, (2021) The time series component includes HDI, economic growth and poverty figures from 2007-2023, while the cross-sectional data covers HDI, economic growth and poverty statistics for the provinces on Sulawesi island, specifically North Sulawesi, Central Sulawesi, Sount Sulawesi, Southeast Sulawesi, Gorontalo and west Sulawesi Sourced from Indonesia's Central Statistics Agency.

Data for this study was obtained from publications by Central Bureau of Statistics of Sulawesi Island and Indonesia. The study employs Granger Causality Panel Test as its data analysis method, Which includes stages such as testing for data stationarity, determining the optimal lag length and conducting the Granger Causality Panel Test, all using Eviews 12 software.

C. RESULTS AND DISCUSSION

1. RESULTS

a. Data Stationarity Test

Stationary testing is a crucial step in analyzing data, asit determines whether the data is stationary or non-stationary. This test can be conducted using the Augmented Dickey-Suller (ADF) method.

Table 1.1
stationarity the results of HDI, Economic Growth and Poverty Data 2007-2023

Variables	Different Levels	ADF	Prob	Results
HDI	Level	0.74199	0.771	Simultaneously Stationary At Differential Level 1
	Different 1	-3,1531	0.0008	
Economic growth	Level	0,39957	0,6553	
	Different 1	-4,06984	0,0000	
Poverty	Level	-5,17773	0.0000	
	Different 1	-3.75724	0.0001	

Source: Eviews 12 Output

The results in table 1.1 show that the variables for the human development index, economic growth and poverty are stationary at the first difference level 1, with probability values below $\alpha = 0{,}05(5\%)$, this outcome supports the acceptance of H1, indicating that the variables do not have a unit root, in other words, the variables are stationary.

b. Determining Optimal Lag Length

Determining the optimal lag length is essential for analyzing how each variable depends on other variables over a specific time interval (lag). The determination of the lag length has several criteria. In this study, the criteria used are FPE (Final Prediction Error), AIC (Akaike Information Criterion), Sc (Schwarz Information Criteria) and HQ (Hannan-Quinn Information Criterion). From these criteria, it can

be said that the lag length can be optimal if each value in the criteria has the smallest absolute value Gujarati, (2011).

Table 1.2.
Optimal Lag Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	208.2703	NA	2.14e-07	-6.842342	-6.737625	-6.801382
1	221.0944	23.93841	1.89e-07	-6.969814	-6.550945	-6.805971
2	235.9248	26.20036	1.56e-07	-7.164161	-6.431140	-6.877436
3	271.0245	58.49947*	6.57e-08*	-8.034150*	-6.986978*	-7.624543*
4	274.9224	6.106733	7.88e-08	-7.864080	-6.502757	-7.331592
5	284.6754	14.30435	7.83e-08	-7.889179	-6.213704	-7.233809
6	288.3030	4.957711	9.63e-08	-7.710099	-5.720472	-6.931847

Source: Eviews Output 12

Table 1.2 shows the optimal lag length is at lag 3. Thus, it is said that lag 3 is because it has the smallest FPE, AIC, and HQ values. Therefore, lag 3 is used as the basis for parameter estimation in this study.

c. Granger Causality Test

Causality is a two-way relationship, which aims to analyze the relationship between variables, where this uses several analysis methods, including *the Granger Causality Test* Armawaddin, (2013)

Table 1.3
Granger Causality Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
GE does not Granger Cause HDI	84	3.43495	0.0210
HDI does not Granger Cause GE		0.60203	0.6156
POVERTY does not Granger Cause HDI	84	4.19391	0.0084
HDI does not Granger Cause POVERTY		0.51353	0.6742
POVERTY does not Granger Cause GE	84	18.4838	4.E-09
GE does not Granger Cause POVERTY		7.40787	0.0002

Source: Eviews 12 Output

The table above indicates that there is no two-way causal relationship between the human development index and economic Growth. The economic Growth variable, however, does influence the HDI, as its probability value is below α = 5% (0.05), specifically 0.0183 <0.05. Conversely, the HDI does not impact economic growth, with a probability value above α = 5% (0.05), at 0.4840 > 0.05. This suggests a one-way relationship from economic growth to Human Development Index (HDI).

The Poverty and Human Development Index (HDI) variables do not exhibit a two-way causal relationship. The poverty variable Affects the HDI, as its probability value is less that α = 5% (0.05), specifically 0.0084 <0.05. However, the HDI does not impact the poverty variable, with a probability value greater than α = 5% (0.05) or 0.6742 > 0.05, Therefor, a one-way causal relationship exists from poverty to the Human Development Index (HDI).

The economic growth and poverty variables exhibit a two-way causal relationship. This is demonstratedbay the poverty variable influencing economic growth, with a probability value less than α = 5% (0.05) or 0.0000 <0.05. Similarly, the economic growth variable affects poverty, with a probability value of 0.0000 <0.05. Therefore, it can be concluded that economic growth and poverty share a strong two-way causal relationship.

2. DISCUSSION

a. Causality of Human Development Index (HDI) and Economic Growth in Sulawesi Island

The study findings revealed that although the HDI economic growth variables have a causal link, the relationship is unidirectional, moving from economic growth to HDI. This implies that fluctuations in economic growth, whether positive or negative, influence HDI. Specifically, a decline in economic growth leads to a decrease in HDI, while an increase in economic growth boosts HDI, and similarly, a drop in economic growth is likely to result in a decline in HDI. Basically, the better the economic growth, the better the human resources will be, so it has the potential to increase economic development. This shows how important economic growth is in increasing the human development index. However, if non-inclusive economic growth can lead to a humanitarian crisis, in turn it will trigger a lack of education, health, and community income, thus inhibiting economic development. Thus, inclusive economic growth is needed to overcome the humanitarian crisis. The finding of this study align with the research conducted (Martius et al., 2019), which indicates a unidirectional relationship between economic growth and the human development index.

b. Causality of Poverty and Human Development Index (HDI) in Sulawesi Island

The study results indicate that variables of poverty and thethe human development index do not have a two-way causal relationship, but the results show a one-way relationship, namely from poverty to the human development index. This shows that an increase or decrease in poverty will affect the human development index.

Where it shows that when poverty decreases, it will increase the human development index improves as poverty decreases, and conversely, when poverty rises, the Human Development Index declines. In essence, effective poverty reduction leads a better Human Development Index in the future. This is in line with Nurkse's theory which has a vicious circle of poverty paradigm stating that the lack of community productivity will affect the level of savings and investment, therefore it can cause an individual or community to get less education, health and income so that it will hinder the progress of increasing human resources. This is consistent with the findings of research (Belhadj et al., 2020), which indicates a one-way relationship between human development and poverty. Thus it can be interpreted that the humanitarian crisis is caused by a lack of productivity so that the government is expected to take action by reducing the poverty rate in order to accelerate the increase in human development which in turn can overcome the humanitarian crisis well.

c. Causality of Economic Growth and Poverty in Sulawesi Island

The study's fundings indicate a bidirectional relationship between economic growth and poverty. This means that changes in economic growth whether an increase or decrease will impact poverty levels in a corresponding direction, and vice versa. As poverty decreases or increases, it likewise affects economic growth. This suggests that the success of economic development on Sulawesi Island is mirrored in its economic growth, where growth boosts community productivity and consequently, reduces poverty. In other word, economic growth helps address poverty issues, ultimately mitigating humanitarian crises. Theses Findings are consistent with research by (Jonaidi, 2012), which also identifies a two-way causal link between economic growth and poverty.

D. CONCLUSION

The study's findings, derived from panel data and analyzed using the Granger causality panel test method, conclude that there is a one-way relationship between the human development index and economic growth, as well as between poverty and human development index. Additionally, economic growth have a two-way causal relationship on Sulawesi Island. These results highlight the critical role of economic growth.

E. SUGGESTION

Based on research findings, several things are recommended, namely:

1. The main solution for the government in efforts to increase economic growth and reduce poverty that contribute to improving the quality of life of the community, the government can increase productive sectors in each region on Sulawesi Island such as agriculture, fisheries, and tourism, and the government increases the development of facilities and infrastructure needed by each region and reduces inequality between regions so that it can open up many job opportunities which in turn can reduce the number of poor people and can support human development on Sulawesi Island.
2. For further researchers, they can add variables to see better relationships between variables and can change the analysis tool using ARDL (Autoregressive Distributed Lag).

References

Akbar, A. M., & Prabowo, P. S. (2023). Hubungan Kausalitas Produk Domestik Regional Bruto. Indeks Pembangunan Manusia dan Kemiskinan Di Indonesia. *Independent: Journal Of Economics*, *3*(1), 138–149.

Ariyati, N. (2018). *Analisis Kausalitas Antara Pertumbuhan Ekonomi, Indeks Pembangunan Manusia, Kemiskinan dan Pengangguran (Data Panel Kabupaten/ Kota di Aceh)*. Skiripsi, Universitas Islam Negeri Ar-Raniry, Banda Aceh.

Armawaddin, M. (2013). *Kausalitas Grange With Eviews 6.0*. Modul Kuliah.

Basuki, A. T., & Rosnawintang. (2021). *Pengantar Ekonometrika Dilengkapi Penggunaan SPSS dan EVIEWS*. Yogyakarta: UMY Press.

Belhadj, B., Berrek, K., & Boukhris, H. A. (2020). The Causality Relationship Between Poverty And Human Development: Empirical Evidence From Tunisia For The Period Of 1990-2017. *Algerian Scientific Journal Platform*, *10*(2), 43–53.

Damayanti, D. A., & Sentosa, S. U. (2020). Analisis Kausalitas Stanting, Pertumbuhan Ekonomi dan Kemiskinan di Indonesia. *Jurnal Kajian Ekonomi Dan Pembangunan*, *2*(2), 45–48.

Gujarati, D. N. (2011). *Econometrics By Example*. England: Palgrave Macmillan.

Jonaidi, A. (2012). Analisis Pertumbuhan Ekonomi dan Kemiskinan di Indonesai. *Jurnal Kajian Ekonomi*, *1*(1), 140–164.

Kristina, F., Angeliani, F., Malaifani, S. R. O., Hayati, N., Hidayati, F. N., Rina, L., & Sadjiarto, A. (2022). Pengaruh Pengangguran Dan Indeks Pembangunan Manusia Terhadap Pertumbuhan Ekonomi Di Provinsi Bali. *Nuansa Akademik: Jurnal Pembangunan Masyarakat*, *7*(2), 299–314. https://doi.org/10.47200/jnajpm.v7i2.1173

Kuncoro, M. (2006). *Ekonomi Pembangunan Teori, Masalah, dan Kebijakan Edisi Keempat*. Yogyakarta:UPP STIM YKPM.

Martius, Azhar, Z., & Ariusni. (2019). Analisis Kausalitas Indeks Pembangunan Manusia, Pertumbuhan Ekonomi dan Pariwisata di Indonesia. *Ecosains: Jurnal Ilmiah Ekonomi Dan Pembangunan*, *8*(2), 141–148. https://doi.org/10.24036/ecosains.11522857.00

Nitami, T. D., Artaningtyas, W. D., & Wijayanti, D. L. (2023). Analisis Kausalitas antara Indeks Pembangunan Manusia,Pertumbuhan Ekonomi, Ketimpangan Distribusi Pendapatan dan Indeks Kedalaman Kemiskinan di Daerah Istimewa Yogyakarta Tahun 2015-2021. *Jurnal Pendidikan Ekonomi Indonesia Journal*, *5*(2), 99–122.

Putra, P. G., Anis, A., & Irfan, M. (2022). Analisis Kausalitas Indeks Pembangunan Manusia Pengangguran Pertumbuhan Ekonomi dan Ketimpangan Pendapatan di Indonesia. *Jurnal Kajian Ekonomi Dan Pembangunan*, *4*(4), 65–78. https://doi.org/10.24036/jkep.v4i4.14062

Renggo, Y. R. (2017). Kausalitas Antara Pertumbuhan Ekonomi dan Kemiskinan. *Optimal: Jurnal Ekonomi Dan Kewirausahaan*, *11*(1), 35–46.

Sugiyono. (2013). *Metode Penelitian Kuantitatif dan Kualitatif dan R&D*. Bandung: Alfabeta.