

## **The Relationship Between Absolute Poverty Income Inequality in Rural and Urban Areas in Indonesia: The Granger Causality Approach**

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### **Abstract**

This study aims to determine the relationship between poverty and inequality in rural and urban areas by using the Granger causality test approach. This research method uses the Granger causality test analysis tool with rural and urban areas as objects in all provinces in Indonesia with use data from thirty four province and period year from 2014 until 2020. The results of the Granger causality test for rural areas show that there is a relationship unidirectional relationship between poverty and inequality, the relationship shows significant inequality that causes poverty in rural areas, that meaning in rural area absolute poverty happen because inequality income distribution, while the results of causality tests for urban areas show that there is no relationship at all between poverty and inequality in the urban areas. that meaning In urban areas no causality between absolute poverty and inequality income distribution, this result shows that poverty and inequality in urban areas do not contain a direct one way or two-way relationship.

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### **Abstrak**

Penelitian ini bertujuan untuk mengetahui hubungan antara kemiskinan dan ketimpangan di pedesaan dan perkotaan dengan menggunakan pendekatan uji kausalitas Granger. Metode penelitian ini menggunakan alat analisis uji kausalitas Granger dengan objek pedesaan dan perkotaan di seluruh provinsi di Indonesia dengan menggunakan data dari tiga puluh empat provinsi dan selama periode mulai dari tahun 2014 hingga tahun 2020. Berdasarkan Hasil uji kausalitas Granger untuk pengujian kausalitas di wilayah pedesaan menunjukkan bahwa terdapat hubungan searah antara kemiskinan absolut dan ketimpangan distribusi pendapatan, hubungan tersebut menunjukkan ketimpangan distribusi pendapatan yang secara signifikan menyebabkan terjadinya kemiskinan absolut di wilayah pedesaan, artinya di wilayah pedesaan kemiskinan absolut terjadi karena ketimpangan distribusi pendapatan, sedangkan hasil uji kausalitas untuk wilayah perkotaan menunjukkan tidak ada hubungan antara kemiskinan dan ketimpangan di perkotaan. Artinya Di perkotaan tidak ada hubungan kausalitas antara kemiskinan absolut dan ketimpangan distribusi pendapatan, hasil ini menunjukkan bahwa kemiskinan dan ketimpangan di perkotaan tidak mengandung hubungan searah atau dua arah secara langsung.

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## INTRODUCTION

Currently, various countries are trying to create inclusive economic growth, economic growth is considered unsuccessful if it only benefits a small number of people, inclusive economic growth requires the creation of justice for the community, including people in rural areas, not only those in urban areas. However, in developing countries or countries that are transforming towards industrialized countries such as Indonesia, the problem of poverty and inequality has always been a problem that can hinder the creation of inclusive economic growth. Some opinions say that poverty and inequality are interrelated problems as stated by (Cheyne Christine et al., 1998) that inequality or injustice is the source of poverty.

Various policies continue to be carried out by the government to overcome the problem of poverty and inequality, including through budget instruments that are directed at improving infrastructure and human resource development to improve people's living standards, but the various policies adopted have not been considered effective and efficient if the level of poverty and disparity income inequality has not yet reached a satisfactory figure, equalizing efforts to reduce poverty and inequality is not appropriate if you do not see and evaluate the condition of each region in Indonesia, in the phenomenon that occurs which is explained in the background that the poverty rate in rural areas is relatively higher when compared to In urban areas, based on the latest data from the BPS (2020), the poverty rate in rural areas is 12.82% and in urban areas is 7.38%, while the opposite is true if you look at inequality. What happened in urban areas turned out to be higher than in rural areas with a Gini ratio index in urban areas in 2020 of 0.393 while in rural areas it was 0.317 in the theory of social democracy poverty (Cheyne Christine et al., 1998) it is injustice and inequality in society that causes poverty.

This paradigm does not see poverty as an individual problem but rather sees it as a structural problem (Christine et al., 1998). According to him, it is injustice and inequality in society that causes poverty in society. For this approach, the closed access to certain groups is the cause of poverty. (Kincaid, 1975) also stated that the greater the gap between the living levels of the rich and the poor, the greater the number of people who are always poor, by looking at the population's distribution of income. Based on this theory, if inequality in rural areas is relatively low, then poverty should ideally be relatively low, but what happens shows that inequality is low in villages because income levels are low and evenly distributed among residents of rural areas while access to development in rural areas continues to be carried out in government programs including budget funds. temporary villages in urban areas, the inequality rate is high because of the emergence of market mechanisms that occur so that human resources who have high abilities and productivity of course have higher incomes when compared to human resources with low productivity and low education and low income, this is what needs to be done. studied and evaluated overcoming poverty in rural and urban areas which have different problems. The difference in poverty and inequality between rural and urban areas raises the question of why poverty is higher in rural areas when compared to urban areas while inequality in rural areas is lower when compared to rural areas. This is an interesting phenomenon to see the relationship between poverty and inequality in both rural and urban areas with the Granger causality approach.

## LITERATURE REVIEW

Many theories discuss poverty and inequality, conceptually BPS and the world bank have explained poverty and inequality with absolute and relative approaches. Researches on poverty and inequality include Aubron et al. (2015) examine poverty and inequality in rural India. However, this research is descriptive so the study is not in-depth. Sumner & Edward (2013) researched poverty and inequality in Indonesia, but this research is also descriptive and only uses Trend as an analytical tool so that the depth quantitatively is not maximized. Guiga & Rejeb (2012) examined the relationship between poverty and inequality with a wider object of 52 countries and proved the Kuznets hypothesis. However, the exploration of the relationship between poverty and inequality has not been maximally carried out. Zaman & Shamsuddin (2018) connects poverty and inequality with two quantitative analysis tools, panel data, and *linear programming*, but has

not maximized the relationship between the two variables. Chukwu (2018) examines poverty and inequality by linking groups. This study shows that there is a relationship between changes in inequality and poverty between groups. However, this relationship has not been identified using quantitative analysis. Asra (2000) examines poverty and inequality in Indonesia. However, have not explored in-depth the relationship between the two variables. Adeleye et al. (2020) in their research found a relationship between poverty and inequality. Inequality exacerbates the impact of growth on poverty, so inequality is considered a major factor determining poverty. This approach uses absolute poverty and income inequality variables. Deutsch et al. (2020) researched poverty and inequality in the Southeast Asian region. This research is only descriptive so it is lacking in analyzing the relationship between the two variables. Mustika & Nurjanah (2021) show that HDI has a *positive* and significant effect on poverty levels in rural and urban areas on the island of Sumatra, while GRDP and per capita expenditure do not have a significant effect on poverty levels in rural and urban areas on the island of Sumatra. Dartanto & Nurkholis (2011) regarding the dynamic determinants of poverty in Indonesia using logit panel data regression show that the determinants of the dynamics of poverty in Indonesia are education level, number of household members, physical assets, employment status, health shock, microcredit programs, access to electricity, and changes in employment, employment status and number of household members. Biyase and Zwane (2017) conducted research with a micro approach to poor households with primary data and combining social variables in influencing poverty. Then Maloma (2016) also conducted the same research. However, the variables used are fewer than those of Biyase and Zwane (2017). Meanwhile, Rodriguez (2015) examines poverty research not only using a social variable approach but also using demographics with rural areas as one of the variables that affect poverty. Deressa and Sharma (2014) also conducted research using a logistic regression model that uses socio-economic variables as the determinants of someone leaving the poverty line. Zuhdyaty and Kaluge (2017) conducted research on poverty in all provinces in Indonesia. However, his approach only uses three economic variables and only one has a significant effect. Hyder and Sadiq (2020) found that education level and employment status determine significant poverty reduction, but this study only has few independent variables.

## METHOD

The type of data used in this study based on how to obtain it is secondary data in the form of panels consisting of *time series data* (time series) from 2014 to 2019 using objects from 34 provinces in Indonesia (the cross-section) while the source of the data obtained comes from the National Agency for Research and Development. Statistics Center (BPS, 2021)

To determine the causal relationship between poverty and inequality in rural and urban areas, the Granger Causality Test analysis tool Gujarati (2003) is used as follows:

$$Y_t = a_i Y_{t-i} + b_j X_{t-j} + t \dots\dots\dots(1)$$

$$X_t = c_i X_{t-i} + d_j Y_{t-j} + t \dots\dots\dots(2)$$

Where (  $t$  ,  $t$  )' is an independent random vector with zero mean and finite covariance matrix. Equation 1 shows that the variable  $X_t$  fails causes  $Y_t$  if in the regression  $Y_t$  to  $Y$  lag and  $X$  lag, the coefficient of  $X$  lag is equal to zero. With words otherwise, if  $b_j=0$  ( $i=1, 2, \dots, k$ ), then  $X_t$  fails to cause  $Y_t$ . The causality test is carried out because there are three

possible directions of causality. First,  $X$  causes  $Y$  if the null hypothesis which states  $b_j=0$  with  $j=1, \dots, k$  can be rejected (see equation 1). Second,  $Y$  causes  $X$  if the null hypothesis is express  $b_j=0$  where  $j=1, \dots, k$  can be rejected (see equation 2). Third, relationship reciprocity occurs when  $X$  causes  $Y$  and at the same time  $Y$  causes  $X$

$Y$  = Poverty

$X$  = Inequality

The hypotheses to be tested in this study are:

H0 : There is no one-way or two-way relationship between poverty and inequality

H1: There is a unidirectional or bidirectional relationship between poverty and inequality.

If the probability value of the Granger causality test is greater than 5% alpha, then accepting H0 and rejecting H1 means that there is no unidirectional or bidirectional causality relationship between poverty and inequality.

if the probability value of the Granger causality test is small from alpha 5% then accepting H1 and rejecting H0 means that there is a unidirectional or bidirectional causality relationship between poverty and inequality

## RESULTS AND DISCUSSION

### Absolute Poverty and Inequality of Income Distribution in Rural and Urban Area

Poverty is one indicator that shows the level of welfare of the population in a country. The percentage of poor people is one of the poverty variables that shows the poverty level of the population in a country. The size of the percentage of poor people in an area shows the percentage of the population living below the poverty line.

**Table 1.**  
**Absolute Poverty Rate in Rural Area in Indonesia 2014 – 2020**

Provinsi	2014	2015	2016	2017	2018	2019	2020	Average
Aceh	11.56	11.025	10.805	10.765	10.035	9.575	10.075	10.55
Sumatera Utara	9.58	10.335	9.72	9.38	8.995	8.475	8.99	9.35
Sumatera Barat	5.42	5.73	5.53	5.125	4.925	4.735	5.095	5.22
Riau	6.72	6.92	6.39	6.67	6.3	6.14	6.255	6.48
Jambi	10.26	11.855	10.795	10.735	10.245	9.78	10.815	10.64
Sumatera Selatan	12.95	13.065	12.735	12.405	12.305	12.065	12.34	12.55
Bengkulu	17.71	17.97	16.175	15.87	15.095	14.415	14.915	16.02
Lampung	10.88	10.095	10.34	9.58	9.165	8.76	9.305	9.73
Kep. Bangka Belitung	3.22	2.875	2.725	2.945	2.935	2.915	3.245	2.98
Kep. Riau	5.85	5.23	5.075	5.295	5.3	5.295	5.555	5.37
Dki Jakarta	4.01	3.77	3.75	3.775	3.56	3.445	4.61	3.85
Jawa Barat	8.40	8.505	7.61	7.14	6.4	6.005	7.465	7.36
Jawa Tengah	12.09	11.675	11.41	10.88	9.7	9.095	10.33	10.74
DI Yogyakarta	13.59	12.68	11.735	11.36	10.88	10.755	11.85	11.84
Jawa Timur	8.33	8.3	7.925	7.5	7.015	6.805	8.13	7.71
Banten	4.74	5.07	4.5	4.605	4.31	4.06	5.44	4.67
Bali	4.18	4.415	3.605	3.52	3.34	3.165	3.685	3.70
Nusa Tenggara Barat	18.86	18.82	17.875	16.88	15.8	15.295	14.975	16.93
Nusa Tenggara Timur	10.46	10.345	10.375	10.215	9.515	8.59	8.7	9.74
Kalimantan Barat	5.62	5.81	5.065	5.065	4.805	4.605	4.775	5.11
Kalimantan Tengah	4.87	5.27	4.545	4.8	4.63	4.375	4.77	4.75
Kalimantan Selatan	3.74	4.09	3.455	3.525	3.57	3.5	3.72	3.66
Kalimantan Timur	4.00	3.88	3.895	4.13	4.25	4.3	4.775	4.18
Kalimantan Utara	0.00	3.675	4.14	4.99	5.31	4.98	5.4	4.07
Sulawesi Utara	5.54	5.39	5.28	5.085	4.975	4.98	5.265	5.22
Sulawesi Tengah	10.06	10.995	10.125	10.275	9.825	9.11	8.985	9.91
Sulawesi Selatan	5.08	4.77	4.49	4.62	4.545	4.33	4.705	4.65
Sulawesi Tenggara	6.84	7.54	6.805	7.35	6.715	6.81	7.38	7.06
Gorontalo	6.42	6.66	5.81	5.27	4.855	4.1	4.075	5.31
Sulawesi Barat	9.58	9.605	8.51	9.015	9.72	9.52	9.785	9.39
Maluku	7.58	7.87	7.76	6.91	6.185	5.965	6.295	6.94
Maluku Utara	3.77	3.23	3.54	3.655	4.005	4.255	4.78	3.89
Papua Barat	5.69	5.77	5.915	5.495	5.335	5.55	6.08	5.69
Papua	4.47	4.11	4.315	4.505	4.26	4.395	4.53	4.37
<b>Indonesia</b>	<b>8.25</b>	<b>8.255</b>	<b>7.76</b>	<b>7.49</b>	<b>6.955</b>	<b>6.625</b>	<b>7.63</b>	<b>7.57</b>

Source: Data Processed (2022)

Table 1. shows a downward trend in the percentage of poverty in rural areas in Indonesia during the period 2014 – 2020. During this period the average poverty rate in Indonesia was 7.57%. In 2014 the percentage of Indonesia's poor was 8.25%, and continued to decline until it reached 6.955% in 2019, this downward trend did not last the following year, where in 2020 the percentage of the poor again increased to 7.63%.

The data also shows that the province with the highest and lowest percentage of poor people in Indonesia, where during the period 2014 to 2020, the province with the lowest percentage of poor people was achieved by Kep. Bangka Belitung consistently with an average of 2.98%. Likewise, the Province with the highest percentage of poor people during that period was consistently obtained by Bengkulu with an average of 16.02%. The percentage of poor people in Kep. Bangka Belitung in 2014 was 3.22% and decreased until 2017 to 2.725%, then increased to 2.945% in 2019. In 2020, the percentage of the poor again decreased to 2.915% and was the lowest percentage during the period 2014 – 2020. Bengkulu Province as the province with the highest percentage of absolute poverty rate experienced a decline during the period 2014 – 2020, from 17.71% in 2014 to 15.095% in 2020.

From this description, it can be interpreted that the Province with the lowest percentage of absolute poverty in rural areas in Indonesia is not directly affected by the Covid-19 pandemic, resulting in a decrease in poverty. In contrast to the level of the poor population, which shows a number of people who are below the poverty line, Gini is the ratio of income distribution in an area. The ratio of Provinces - Provinces in Indonesia during the period 2014 - 2020 can be seen in the following table.

**Table 2.**  
**Gini Ratio in Rural Area in Indonesia 2014 – 2020**

Provinsi	2014	2015	2016	2017	2018	2019	2020	Average
Aceh	0.268	0.293	0.292	0.296	0.279	0.276	0.282	0.284
Sumatera Utara	0.278	0.291	0.276	0.260	0.265	0.261	0.2565	0.270
Sumatera Barat	0.288	0.292	0.278	0.282	0.271	0.2675	0.2565	0.276
Riau	0.300	0.329	0.309	0.294	0.290	0.279	0.2735	0.296
Jambi	0.319	0.329	0.303	0.290	0.302	0.29	0.288	0.303
Sumatera Selatan	0.317	0.300	0.300	0.323	0.306	0.3055	0.309	0.308
Bengkulu	0.318	0.342	0.299	0.311	0.317	0.2845	0.2745	0.306
Lampung	0.287	0.329	0.321	0.299	0.306	0.297	0.2965	0.305
Kep. Bangka Belitung	0.263	0.261	0.240	0.228	0.230	0.2265	0.2245	0.239
Kep. Riau	0.302	0.288	0.274	0.283	0.276	0.266	0.26	0.278
Dki Jakarta	0.000	0.000	0.000	0.000	0.000	0	0	0.000
Jawa Barat	0.298	0.313	0.314	0.325	0.319	0.319	0.3255	0.316
Jawa Tengah	0.347	0.335	0.318	0.325	0.326	0.3175	0.3185	0.327
DI Yogyakarta	0.339	0.333	0.339	0.329	0.338	0.328	0.3285	0.333
Jawa Timur	0.325	0.336	0.323	0.322	0.325	0.317	0.317	0.323
Banten	0.287	0.265	0.256	0.269	0.291	0.291	0.296	0.279
Bali	0.326	0.341	0.332	0.314	0.314	0.308	0.301	0.319
Nusa Tenggara Barat	0.307	0.338	0.312	0.319	0.338	0.3365	0.3365	0.326
Nusa Tenggara Timur	0.280	0.296	0.299	0.310	0.312	0.3165	0.3105	0.303
Kalimantan Barat	0.337	0.294	0.286	0.280	0.278	0.2795	0.2725	0.289
Kalimantan Tengah	0.307	0.281	0.311	0.307	0.307	0.2965	0.2895	0.300
Kalimantan Selatan	0.298	0.291	0.298	0.289	0.282	0.2795	0.2765	0.287
Kalimantan Timur	0.291	0.283	0.301	0.289	0.292	0.2845	0.286	0.289
Kalimantan Utara	0.000	0.276	0.274	0.282	0.281	0.287	0.2785	0.240
Sulawesi Utara	0.360	0.335	0.353	0.351	0.359	0.348	0.345	0.350
Sulawesi Tengah	0.294	0.316	0.314	0.311	0.294	0.291	0.295	0.302
Sulawesi Selatan	0.401	0.363	0.354	0.340	0.357	0.352	0.354	0.360
Sulawesi Tenggara	0.351	0.362	0.360	0.366	0.363	0.3565	0.3475	0.358
Gorontalo	0.418	0.368	0.395	0.391	0.398	0.3915	0.3915	0.393
Sulawesi Barat	0.347	0.344	0.344	0.311	0.323	0.32	0.321	0.330
Maluku	0.302	0.315	0.308	0.301	0.290	0.2895	0.2845	0.298
Maluku Utara	0.264	0.260	0.250	0.271	0.272	0.259	0.2685	0.263
Papua Barat	0.373	0.469	0.385	0.389	0.426	0.418	0.413	0.410

Provinsi	2014	2015	2016	2017	2018	2019	2020	Average
Papua	0.358	0.384	0.388	0.401	0.400	0.41	0.415	0.394
<b>Indonesia</b>	<b>0.328</b>	<b>0.332</b>	<b>0.322</b>	<b>0.320</b>	<b>0.322</b>	<b>0.3175</b>	<b>0.318</b>	<b>0.323</b>

Source: Data Processed (2022)

Based on Table 2, it can be seen that the rural areas Indonesia's Gini ratio continued to decline during the 2014 – 2020 period, at an index of 0.3. In 2014, the urban areas's Gini ratio was 0.328 and decreased to 0.3175 in 2019, then in 2020 there was a not so significant increase to 0.318. The gini ratio, which is close to 0 during the 2014 - 2020 period, shows that the distribution of income in Indonesia is close to even distribution, but the Covid-19 pandemic that occurred in 2020 has an impact on increasing income inequality in Indonesia.

Table 2 also shows the regions with the highest and lowest levels of income distribution in Indonesia. Where in 2014 – 2019, the highest level of average income distribution disparity was in the Province of the Kep. Bangka Belitung with a Gini ratio of 0.239 while the lowest level of equity in Indonesia was in Papua Barat with a Gini ratio of 0.410. The data shows that the highest and lowest income distribution in Indonesia from 2014 to 2020 achieved by the Kep. Bangka Belitung and Papua Barat continues to decrease, where the Gini ratio is getting closer to 0.

### Absolute Poverty and Inequality of Income Distribution in Urban Area

The following are absolute poverty rate and inequality of income distribution in urban area in Indonesia.

**Table 3.**  
**Absolute Poverty Rate in Urban Area in Indonesia 2014 – 2020**

Provinsi	2014	2015	2016	2017	2018	2019	2020	Average
Aceh	19.86	19.50	18.98	18.87	18.51	17.86	17.71	18.75
Sumatera Utara	9.65	10.98	10.92	10.14	9.18	9.04	8.90	9.83
Sumatera Barat	8.26	7.85	8.22	8.02	7.99	7.79	7.63	7.96
Riau	8.93	9.71	8.76	8.21	7.98	7.57	7.38	8.36
Jambi	7.23	7.75	7.31	6.79	6.78	6.49	6.32	6.95
Sumatera Selatan	14.23	14.54	13.88	13.58	13.11	12.98	13.11	13.63
Bengkulu	17.09	17.32	17.64	16.09	15.58	15.40	15.29	16.34
Lampung	15.44	15.31	15.47	14.82	14.75	14.12	14.03	14.84
Kep. Bangka Belitung	7.06	7.29	7.65	7.83	7.46	6.59	6.54	7.20
Kep. Riau	10.20	9.99	10.45	10.71	11.02	10.86	10.84	10.58
Dki Jakarta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jawa Barat	11.12	11.72	11.76	11.26	10.16	9.69	10.46	10.88
Jawa Tengah	15.66	14.96	14.89	14.35	12.90	12.37	13.00	14.02
DI Yogyakarta	17.12	16.74	16.45	15.99	14.92	13.78	14.44	15.63
Jawa Timur	16.03	16.01	15.92	15.70	15.26	14.30	14.97	15.45
Banten	6.93	7.45	7.39	7.71	7.50	7.40	8.38	7.54
Bali	5.37	5.93	5.22	5.44	5.23	4.87	5.09	5.31
Nusa Tenggara Barat	15.92	15.36	15.00	14.48	13.71	13.21	13.26	14.42
Nusa Tenggara Timur	21.97	25.68	25.18	24.81	24.70	24.68	25.00	24.57
Kalimantan Barat	9.48	9.30	9.25	9.19	9.00	8.89	8.54	9.09
Kalimantan Tengah	6.66	6.26	6.03	5.61	5.46	5.25	5.23	5.79
Kalimantan Selatan	5.49	5.42	5.63	5.67	5.48	5.42	5.42	5.50
Kalimantan Timur	10.20	10.05	10.10	10.12	9.75	9.29	9.75	9.89
Kalimantan Utara	0.00	9.58	9.88	9.96	9.42	9.01	9.77	8.23
Sulawesi Utara	10.94	11.69	10.90	10.68	10.53	10.43	10.45	10.80
Sulawesi Tengah	14.97	15.49	15.70	15.57	15.46	15.14	14.73	15.29
Sulawesi Selatan	12.75	12.73	12.38	12.62	12.20	11.93	12.11	12.39
Sulawesi Tenggara	15.98	15.66	15.40	15.02	14.42	13.93	13.72	14.87
Gorontalo	23.16	24.40	24.36	24.41	23.98	23.68	23.89	23.98
Sulawesi Barat	12.93	12.79	12.28	11.87	11.71	11.44	11.58	12.08
Maluku	25.89	26.80	26.85	26.37	26.63	26.73	26.64	26.56
Maluku Utara	8.71	7.76	7.44	7.48	7.68	7.89	7.72	7.81

Provinsi	2014	2015	2016	2017	2018	2019	2020	Average
Papua Barat	35.59	37.96	37.41	36.28	34.80	33.70	32.95	35.52
Papua	37.40	37.00	37.11	36.38	36.64	36.10	35.60	36.60
<b>Indonesia</b>	<b>13.97</b>	<b>14.15</b>	<b>14.04</b>	<b>13.70</b>	<b>13.15</b>	<b>12.73</b>	<b>13.01</b>	<b>13.53</b>

Source: Data Processed (2022)

Table 3. shows a downward trend in the percentage of poverty in urban areas in Indonesia during the period 2014 – 2020. During this period the average poverty rate in Indonesia was 13.52%. In 2014 the percentage of urban areas Indonesia's poor was 13.97%, and continued to decline until it reached 12.73% in 2019, this downward trend did not last the following year, where in 2020 the percentage of the poor again increased to 13.01%.

The data also shows that the province with the highest and lowest percentage of poor people in urban areas Indonesia, where during the period 2014 to 2020, the province with the lowest percentage of poor people was achieved by Kalimantan Selatan with an average of 5.50%. Likewise, the Province with the highest percentage of poor people during that period was consistently obtained by Papua with an average of 36.60%. The percentage of poor people in Kalimantan Selatan in 2014 was 5.49% and decreased until 2020 to 5.42%. Papua Province as the province with the highest percentage of absolute poverty rate experienced a decline during the period 2014 – 2020, from 13.97% in 2014 to 12.73% in 2019 and increase to 13.01% in 2020.

**Table 4.**  
**Gini Ratio in Urban Area in Indonesia 2014 – 2020**

Provinsi	2014	2015	2016	2017	2018	2019	2020	Average
Aceh	0.369	0.368	0.353	0.341	0.341	0.346	0.358	0.353
Sumatera Utara	0.338	0.346	0.334	0.354	0.333	0.339	0.337	0.340
Sumatera Barat	0.346	0.342	0.338	0.323	0.323	0.315	0.322	0.330
Riau	0.397	0.389	0.369	0.348	0.368	0.370	0.361	0.371
Jambi	0.331	0.368	0.390	0.382	0.353	0.348	0.349	0.360
Sumatera Selatan	0.419	0.372	0.385	0.386	0.368	0.353	0.355	0.377
Bengkulu	0.393	0.402	0.395	0.385	0.391	0.375	0.380	0.388
Lampung	0.390	0.401	0.389	0.362	0.353	0.350	0.344	0.370
Kep. Bangka Belitung	0.315	0.288	0.304	0.296	0.293	0.276	0.274	0.292
Kep. Riau	0.419	0.347	0.349	0.341	0.329	0.338	0.336	0.351
Dki Jakarta	0.434	0.426	0.404	0.411	0.392	0.391	0.400	0.408
Jawa Barat	0.423	0.440	0.418	0.406	0.416	0.409	0.411	0.417
Jawa Tengah	0.405	0.411	0.382	0.385	0.389	0.380	0.386	0.391
DI Yogyakarta	0.444	0.436	0.423	0.441	0.432	0.425	0.438	0.434
Jawa Timur	0.410	0.435	0.428	0.430	0.381	0.377	0.375	0.405
Banten	0.418	0.401	0.401	0.381	0.374	0.358	0.361	0.385
Bali	0.439	0.394	0.374	0.384	0.372	0.368	0.375	0.386
Nusa Tenggara Barat	0.436	0.388	0.401	0.413	0.410	0.406	0.404	0.408
Nusa Tenggara Timur	0.361	0.317	0.337	0.364	0.355	0.339	0.332	0.343
Kalimantan Barat	0.419	0.358	0.367	0.358	0.364	0.342	0.332	0.363
Kalimantan Tengah	0.408	0.353	0.362	0.357	0.378	0.369	0.359	0.369
Kalimantan Selatan	0.363	0.376	0.355	0.362	0.361	0.354	0.349	0.360
Kalimantan Timur	0.349	0.316	0.314	0.332	0.349	0.337	0.332	0.332
Kalimantan Utara	0.000	0.310	0.306	0.296	0.309	0.289	0.287	0.257
Sulawesi Utara	0.458	0.371	0.387	0.397	0.383	0.373	0.369	0.391
Sulawesi Tengah	0.406	0.420	0.380	0.373	0.351	0.340	0.334	0.372
Sulawesi Selatan	0.433	0.404	0.416	0.427	0.392	0.392	0.384	0.407
Sulawesi Tenggara	0.440	0.413	0.401	0.406	0.415	0.406	0.404	0.412
Gorontalo	0.427	0.407	0.408	0.408	0.394	0.395	0.392	0.404
Sulawesi Barat	0.379	0.389	0.417	0.408	0.436	0.444	0.437	0.416
Maluku	0.323	0.320	0.333	0.320	0.304	0.297	0.294	0.313
Maluku Utara	0.345	0.299	0.311	0.330	0.327	0.307	0.296	0.316
Papua Barat	0.405	0.346	0.342	0.349	0.325	0.325	0.318	0.344
Papua	0.375	0.343	0.315	0.312	0.303	0.294	0.294	0.319

Provinsi	2014	2015	2016	2017	2018	2019	2020	Average
Indonesia	0.431	0.424	0.410	0.406	0.396	0.391	0.396	0.407

Source: Data Processed (2022)

Based on Table 2, it can be seen that the urban areas Indonesia's Gini ratio continued to decline during the 2014 – 2020 period, at an index of 0.3 – 0.43. In 2014, Indonesia's Gini ratio was 0.431 and decreased to 0.391 in 2019, then in 2020 there was a not so significant increase to 0.396. The gini ratio, which is close to 0 during the 2014 - 2020 period, shows that the distribution of income in Indonesia is close to even distribution, but the Covid-19 pandemic that occurred in 2020 has an impact on increasing income inequality in Indonesia.

Table 2 also shows the regions with the highest and lowest levels of income distribution in Indonesia. Where in 2014 – 2019, the highest level of average income distribution disparity was in the Province of the Kalimantan Utara with a Gini ratio of 0.257 while the lowest level of equity in Indonesia was in South DI Yogyakarta with a Gini ratio of 0.434. The data shows that the highest and lowest income distribution in Indonesia from 2014 to 2020 achieved by the Province of the Kalimantan Utara and DI Yogyakarta continues to decrease, where the Gini ratio is getting closer to 0.

### Poverty and Inequality Causality Test Results in Rural Areas

Before conducting a causality test between poverty and inequality in rural areas, first, perform a regression test to get the lag value containing the smallest Akaike Info Criterion (AIC).

**Table 5.**  
**Regression Results of Inequality and Poverty in Rural Areas Using Lag 1**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-5.447755	1.943762	-2.802687	0.0055
GD(1)	62.21113	6.275651	9.913095	0.0000
R-squared	0.294865	Mean dependent var		13.33804
Adjusted R-squared	0.291864	SD dependent var		7.911131
SE of regression	6.657280	Akaike info criterion		6.637702
Sum squared resid	10415.05	Schwarz criterion		6.666968
Likelihood logs	-784.5677	Hannan-Quinn Criter.		6.649498
F-statistics	98.26946	Durbin-Watson stat		0.421002
Prob(F-statistic)	0.000000			

Source Data Processed (2022)

Based on the results of the regression using lag 1, the AIC value is 6.63. This regression uses the dependent variable of poverty and the independent variable is inequality using a lag of 1. To test the best lag in using the causality test, then lag 2 is used, so that the regression results are obtained as follows

**Table 6.**  
**Regression Results of Inequality and Poverty in Rural Areas Using Lag 2**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-5.741062	2.021927	-2.839401	0.0049
GD(1)	50.50362	10.58686	4.770406	0.0000
GD (2)	12,43797	10.52671	1.181563	0.2386
R-squared	0.291006	Mean dependent var		13.24159
Adjusted R-squared	0.284920	SD dependent var		7.787058
SE of regression	6.584924	Akaike info criterion		6.620073
Sum squared resid	10103.17	Schwarz criterion		6.664105
Likelihood logs	-778.1686	Hannan-Quinn Criter.		6.637823
F-statistics	47.81722	Durbin-Watson stat		0.379355
Prob(F-statistic)	0.000000			

Source Data Processed (2022)

Based on the results of the regression using lag 2, the AIC value is 6.62. This regression uses the dependent variable of poverty and the independent variable is inequality using a lag of 2. To test the best lag in using the causality test, then lag 3 is used, so that the regression results are obtained as follows



**Table 7.**  
**Regression Results of Inequality and Poverty in Rural Areas Using Lag 3**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-5.741062	2.021927	-2.839401	0.0049
GD(1)	50.50362	10.58686	4.770406	0.0000
GD (2)	12,43797	10.52671	1.181563	0.2386
GD(3)	5.266557	10.51289	0.500962	0.6169
R-squared	0.283565	Mean dependent var		13.14202
Adjusted R-squared	0.274261	SD dependent var		7.651651
SE of regression	6.518466	Akaike info criterion		6.604030
Sum squared resid	9815.283	Schwarz criterion		6.662917
Likelihood logs	-771.9735	Hannan-Quinn Criter.		6.627770
F-statistics	30.47664	Durbin-Watson stat		0.382794
Prob(F-statistic)	0.000000			

*Source Data Processed (2022)*

Based on the results of the regression using lag 3, the AIC value is 6.60. This regression uses the dependent variable of poverty and the independent variable is inequality using a lag of 3.

Based on the regression results, the smallest AIC value results occurred when using lag three (3), so the Granger causality test using lag three (3) obtained the following results:

**Table 8.**  
**Granger Quality Test Results Poverty and Inequality in Rural Areas**

<b>Lags: 3</b>				
<b>Null Hypothesis:</b>	<b>Obs</b>	<b>F-Statistics</b>	<b>Prob.</b>	
KD does not Granger Cause GD	235	2.43508	0.0656	
GD does not Granger Cause KD		0.60735	0.6109	

*Source Data Processed (2022)*

Based on the results of the Granger causality test, the following results were obtained : KD is poverty in the village and GD is inequality in the village with a probability of 0.0656 significantly the results show a significant inequality in influencing poverty with a significant degree of 90%. With a probability of 0.6109, it turns out that poverty is not significant in determining inequality Based on these results, it can be concluded that there is a unidirectional relationship between poverty and inequality in rural areas, meaning that only inequality determines poverty, otherwise poverty does not determine inequality.

### **Poverty and Inequality Causality Test Results in Urban Areas**

Similar to the causality test conducted in rural areas, before testing causality in urban areas, regression analysis between poverty and inequality in urban areas was performed using lags 1, 2, and 3. Based on the regression results, the smallest AIC value will be chosen to get the lag in the Granger causality test.

The following are the results of the regression between poverty and inequality in urban areas:

**Table 9.**  
**Regression Results of Inequality and Poverty in Urban Areas Using Lag 1**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-0.826560	1.762247	-0.469037	0.6395
GK(1)	22.28360	4.761285	4.680165	0.0000
R-squared	0.085261	Mean dependent var		7.354388
Adjusted R-squared	0.081369	SD dependent var		3.591410
SE of regression	3.442196	Akaike info criterion		5.318499
Sum squared resid	2784,447	Schwarz criterion		5.347766
Likelihood logs	-628.2422	Hannan-Quinn Criter.		5.330295
F-statistics	21.90394	Durbin-Watson stat		0.318952
Prob(F-statistic)	0.00005			

*Source Data Processed (2022)*

**Table 10.**  
**Regression Results of Inequality and Poverty in Urban Areas Using Lag 2**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-1.961472	1.981530	-0.989877	0.3233
GK(1)	17.36341	5.907051	2.939439	0.0036
GK(2)	8.030938	5.876207	1.366687	0.1730
R-squared	0.090483	Mean dependent var		7.366928
Adjusted R-squared	0.082676	SD dependent var		3.593840
SE of regression	3.442073	Akaike info criterion		5.322655
Sum squared resid	2760553	Schwarz criterion		5.366687
Likelihood logs	-625.0733	Hannan-Quinn Criter.		5.340405
F-statistics	11.58997	Durbin-Watson stat		0.285082
Prob(F-statistic)	0.000016			

Source Data Processed (2022)

**Table 11.**  
**Regression Results of Inequality and Poverty in Rural Areas Using Lag 3**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-2.275876	2.119556	-1.073751	0.2841
GK(1)	16,42607	6.102329	2.691771	0.0076
GK(2)	6.322971	6.513195	0.970794	0.3327
GK(3)	3.518538	6.063921	0.580241	0.5623
R-squared	0.089414	Mean dependent var		7.380149
Adjusted R-squared	0.077588	SD dependent var		3.595755
SE of regression	3.453445	Akaike info criterion		5.333496
Sum squared resid	2754,972	Schwarz criterion		5.392383
Likelihood logs	-622.6858	Hannan-Quinn Criter.		5.357237
F-statistics	7.560894	Durbin-Watson stat		0.278389
Prob(F-statistic)	0.000076			

Source Data Processed (2022)

From the three regression models, the smallest AIC value is obtained when using lag one (1), using lag 1, the results of the Granger causality test between poverty and inequality in urban areas are as follows:

**Table 4.**  
**Granger Quality Test Results Poverty and Inequality in Rural Areas**

Lags: 1			
Null Hypothesis:	Obs	F-Statistics	Prob.
GK does not Granger Cause KK	237	0.06148	0.8044
KK does not Granger Cause GK		2.68580	0.1026

Source Data Processed (2022)

Based on the results of the Granger causality test, the following results were obtained. KK is poverty in the City and GD is inequality in the City with a probability of 0.8044 the results show that inequality is not significant in influencing poverty. With a probability of 0.1026, it turns out that poverty is not significant in determining inequality. Based on these results, it can be concluded that there is no one-way or two-way relationship between poverty and inequality in rural areas, meaning that there is no causal relationship between inequality and poverty in urban areas.

### Implications of Research Results

The first step in testing causality is to perform a regression between the variables of poverty and inequality using a lag of 1 to three. Based on the results of the study, there is a causal difference between the poverty relationship between rural areas and urban areas. In rural areas, there is a unidirectional relationship where there is a significant relationship when inequality in determining poverty while poverty is not significant in determining inequality, this shows that in the case of rural areas the occurrence of unequal income differences between residents in rural areas is the cause of poverty. This is following the views put forward by social democracy Christine et al. (1998) it is injustice and inequality in society that causes poverty.

In urban areas, there are different results where there is no causality relationship either unidirectional or bidirectional. This shows that in urban areas the cause of poverty is not income

inequality among fellow residents but there are other factors. Absolute poverty is determined by the ability of the community or household to meet the minimum living needs, in urban areas the difference in income is caused by differences in education levels between residents, urban areas poverty is often caused by residents from rural areas who are looking for work but do not have sufficient provision in education. or skills, so that the jobs obtained tend to be low-income jobs.

In rural areas jobs tend to be homogeneous or dependent on the agricultural sector, so the income tends to be low and almost the same, while rural residents who have large land or capital tend to have large incomes, this is different from urban areas where the population varies in occupations and has income. which varies.

he difference in the results of the causality test of absolute poverty and income inequality in rural and urban areas, shows that the policy recommendations for the two regions in overcoming poverty and inequality of course have differences, in rural areas where the number of poverty is greater, of course, it is necessary to increase infrastructure economic development more massively so that can suppress development inequality and high economic costs, access to health and education is something that is very basic in providing reinforcement in human resources, if rural areas are more advanced then this will reduce the impact of urbanization or migration of rural residents to cities, poverty in the city a lot happens because of the inability of the population to find work that can provide a decent income and above the poverty line, this is also mostly caused by some rural residents who migrate to the city but do not have educational capital. adequate education and work skills.

## CONCLUSION

Based on the results of the study, it was concluded that the Granger causality test results for rural areas showed that there was a unidirectional relationship between poverty and inequality, the handover relationship showed significant inequality that led to poverty in rural areas, while the results of causality tests for urban areas showed no relationship at all. poverty and inequality in urban areas, these results show that poverty and inequality in urban areas do not contain a direct or two-way relationship.

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