THE IMPACT OF COVID-19 PANDEMIC ON POVERTY IN JAMBI PROVINCE

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Abstract

This study examined the impact of the COVID-19 pandemic on poverty in Jambi Province. The independent variables were the human development index, unemployment rate, population, GDRP, and Covid19. This paper used panel data from the Central Bureau of Statistics Republic of Indonesia, as the cross-section data are all regencies in Jambi Province for 2017 and 2020. The first step was an appropriate model selection and analyzed by F-test, t-test, and determinant coefficient. Results from the analysis show that the best model is the random effect. The F-test stated that all of the independent variables affect the poverty percentage simultaneously. Meanwhile, the t-test found that only the human development index variable has a significant effect.

Keywords: Human Development Index; Population; Gross Domestic Regional Product; Poverty percentage; Unemployment rate

Introduction

COVID-19 pandemic not only occurs in Indonesia but all over the world. According to WHO, on October 25, 2021, the confirmed cases in Indonesia were 4,2479, and confirmed deaths were 143,235 (WHO, 2021). Even the impact of the COVID-19 pandemic affected various sectors: health, economic (Khoirudin, 2021; Yamali & Putri, 2020), social (Aeni, 2021), and education (Syah, 2020).

In the economic sector, the COVID-19 pandemic has a prominent effect in terms of inflation, the occupancy decrease of the tourism sector, diminished imports (Yamali & Putri, 2020), even the welfare (Kurniasih, 2020), such as unemployed and poverty (Kasna, 2021; Khoirudin, 2021; Setyadi & Indriyani, 2021)—the causes of poverty due to lack of employment so that unemployment increases. Several companies abuse the pandemic as a reason for downsizing and efficiency (Khoirudin, 2021).

Poverty is all over the world matters. The United Nations (UN) stated poverty as an inability condition to meet basic needs (United Nations, 1997). Poverty is an individual living standard that is considered lower than the standard poverty level (BPS, n.d.). BPS calculates the poverty rate based on the idea of being able to meet basic necessities. If a population's average monthly per capita spending is less than the poverty line, that population is said to be poor (Adji et al., 2020).

Prior research concerning the impact of the COVID-19 pandemic on poverty in Indonesia has been done by several researchers (Budastra, 2020; Khoirudin, 2021; Kurniasih, 2020; Rahmawati et al., 2021; Tarigan et al., 2020). The studies only examine it descriptively. Setyadi & Indriyani (2021) used multiple linear regression methods, and the independent variables were life expectancy, income inequality, and GDRP in cross-section data. Likewise, Lewaherilla's research (2021) used multiple linear regression and time-series data for Human Development Index as the independent variable.

In contrast to the previous research, this study uses panel data regression to combine cross-section and time-series data. This study's independent variables include human development index, unemployment rates, population, GDRP, and Covid19. The type of data, variable, and analyzing method distinguishes current research from the prior research.

Therefore, this study aims to find out the best model and analyze the effect of all independent variables on poverty percentage in Jambi Province.

Methods

This research utilized a quantitative approach that examined panel data. As the cross-section data used are all regencies in Jambi Province. Meanwhile, the time-series data is from 2017-2020. This study uses secondary data obtained from the Central Bureau of Statistics Republic of Indonesia (BPS) website. The data analyzing technique was panel data regression.

The dependent variable is the poverty percentage (PO), and the independent variables are the Human Development Index (IPM), unemployment rate (TPT), population (LNPENDUDUK), and LNGDRP. The value of GDRP is based on constant prices. In addition, one independent variable, namely Covid19 as a

nominal data; zero (0) in the Covid19 variable represented before the COVID-19 pandemic, which is 2017, 2018, and 2019. Otherwise, the value of one (1) was given in 2020, representing the pandemic condition.

Data analysis used Eviews software. The first step is determining the appropriate model, whether Common Effect, Fixed Effect, or Random Effect Model. The Chow-test is used to compare between Common Effect and Fixed Effect Model, then Hausman test to determine the best model between Fixed Effect Model and Random Effect Model. The last test is the Lagrange Multiplier to compare Random Effect Model and Common Effect Model. After the appropriate model is found, the next step is analyzing the model by F-test, t-test, and determinant coefficient.

Result and discussions

The initial stage compared the Common Effect and Fixed Effect Model by using the Chow-test. Table 1 shows the results of the Chow-test.

Table 1. Chow-test

Effects Test	Statistic	d.f.	Probability
Cross-section F	280.360	(10.28)	0.0000
Cross-section Chi-square	203.121	10	0.0000

Source: processed by the authors from E-Views 9's Output, 2022

Based on table 1, the Chow-test shows that the value of Probability Cross-Section F is 0.0000, more diminutive than 0.05. Therefore, the Fixed Effect model is elected than the Common Effect model.

The next stage was comparing the Fixed Effect and Random Effect model by using the Hausman test. Table 2 shows the results of the Hausman test.

Table 2. Hausman test

Test Summary	Chi-Square Statistic	Chi-Square d.f.	Probability
Cross-section random	4.24778	5	0.5143

Source: processed by the authors from E-Views 9's Output, 2022

The Hausman test shows that the probability cross-section random value is 0.5143, which is greater than 0.05. Therefore, the Random Effect model is more suitable compared with the Fixed Effect model. Due to the different results between the Chow-test and Hausman test, the next is Lagrange Multiplier.

Table 3. Breush-Pagan Lagrange Multiplier test

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	55.97669 (0.0000)	1.634569 (0.2011)	57.61126 (0.0000)

Source: processed by the authors from E-Views 9's Output, 2022

Table 3 show that the probability value of Breusch-pagan is smaller than 0.05, then the Random Effect model is appropriate to be used. Table 4 shows the results of the panel data regression test for the Random Effect model.

Table 4. Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	26.52964	18.59890	1.426410	0.1619
IPM	-0.518968	0.103128	-5.032267	0.0000
TPT	0.064119	0.050437	1.271271	0.2114
LNPENDUDUK	-0.282007	1.907931	-0.147808	0.8833
LNPDRB	1.276206	1.343655	0.949802	0.3482
COVID19	-0.059329	0.111982	-0.529805	0.5993

Effects Specification		
	S.D.	Rho

Cross-section random		2.514792	0.9906
Idiosyncratic random		0.245319	0.0094

Weighted Statistics			
R-squared	0.534628	Mean dependent var	0.376231
Adjusted R-squared	0.473395	S.D. dependent var	0.339157
S.E. of regression	0.246118	Sum squared resid	2.301812
F-statistic	8.731019	Durbin-Watson stat	0.981950
Probability			
(F-statistic)	0.000014		

Unweighted Statistics			
R-squared	0.293784	Mean dependent var	7.722727
Sum squared resid	221.9085	Durbin-Watson stat	0.010186

Source: processed by the authors from E-Views 9's Output, 2022

The following process was to conduct a classic assumption test. The first test is a normality test that can be seen in Figure 1.
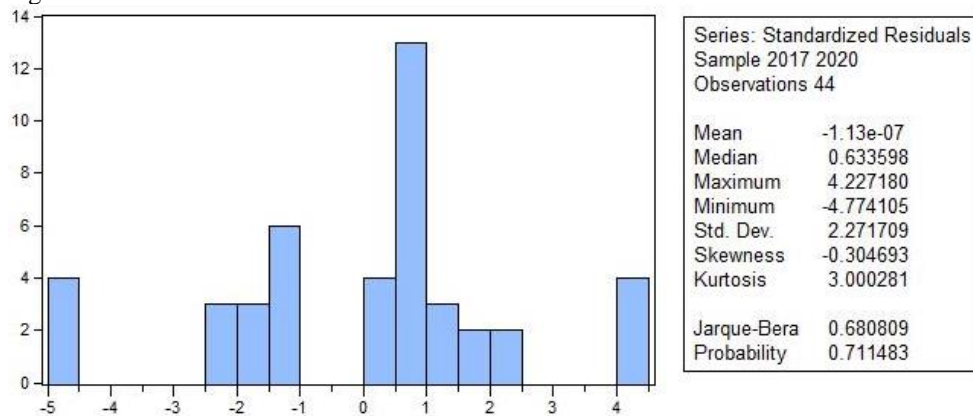

Figure 1. Normally test

The Jarque-Bera probability value in Figure 1 is 0.711482, which is greater than 0.05. It implies residual data is normally distributed.

Table 5. Multicollinierity test

	IPM	TPT	LNPENDUDUK	LNPDRB	COVID19
IPM	1.000000	0.721743	0.009763	-0.322632	0.081544
TPT	0.721743	1.000000	0.291698	0.003905	0.230540
LNPENDUDUK	0.009763	0.291698	1.000000	0.644159	0.026061
LNPDRB	-0.322632	0.003905	0.644159	1.000000	0.036310
COVID19	0.081544	0.230540	0.026061	0.036310	1.000000

Source: processed by the authors from E-Views 9's Output, 2022

Table 5 shows the value for the multicollinearity test. All of the values are smaller than 0.8, so there is no multicollinearity. Heteroscedasticity tests are not carried out because the model is Random Effect. It is also referred to as Generalized Least Square (GLS) or Error Component Model (ECM) (Zulfikar, 2018).

The adjusted r-squared value from table 4 is 0.473395. It implies that the proportion of independent variables on dependent variables is 47.34%. Its means IPM, TPT, the population percentage, the GDRP percentage, and Covid19 affect 47.34% of the poverty percentage in Jambi Province. The remaining 52.66% is affected by other variables.

Based on table 4, the value of probability (F-statistics) is 0.000014. All independent variables affect the poverty percentage simultaneously. The constant value obtained is 26.52964, then the coefficient of IPM, TPT, LNPENDUDUK, LNPDRB, and Covid19 respectively to -0.518968, 0.064119, -0.282007, 1.276206, and -0.059329.

Only Human Development Index (IPM) variable was significantly affected the poverty percentage in Jambi Province. It also had a negative effect. The other independent variables had no significant effect on the poverty percentage due to the p-value being bigger than 0.05.

The IPM p-value is smaller than 0.05. It had a negative and significant effect on the poverty percentage in Jambi Province. The coefficient of -0.518968 could be interpreted that the IPM score increases one point, the average poverty percentage will decrease by 0.519 percent. This finding in this study is consistent with the previous study by Lewaherilla (2021) also found that IPM had a negative and significant effect on the poverty rate.

The poverty percentage declining due to the IPM is a factor that influences work productivity to increase income. The higher IPM tends to diminish the poverty rate (Lewaherilla, 2021). Therefore, increasing human resources becomes one of the strategies to overcome poverty.

The unemployment rate (TPT) variable has a p-value of 0.2114 greater than 0.05, so it does not significantly affect the poverty percentage in Jambi Province. This finding is consistent with Wicaksono & Kharisma (2020) and Lewaherilla (2021) but inconsistent with Ibrahim's study (2021). Although the unemployment rate in Jambi Province has increased every year, even in 2020 increased drastically. Increasing unemployment in 2020 was due to laid-off (Khoirudin, 2021), and some businesses that gathered many people were forced to be suspended so the employees would be laid off.

The unemployment rate does not significantly affect the poverty percentage in Jambi Province due to the fact that agriculture employs the majority of the people of 46.44%. While the processing sector is 18.93%, and the service sector is 34.63% (BPS, 2021). The most affected sector by the COVID-19 pandemic is workers in the services, such as tourism, transportation, and entertainment venues (Ngadi et al., 2020). Moreover, unemployment still can meet daily needs. Therefore, the unemployed person is not always relatively poor (Prasetyoningrum, 2018).

LNPENDUDUK variable has a p-value of 0.8833 is greater than 0.05, so the population growth has a negative effect but not significantly on the poverty percentage in Jambi Province. The finding of this study is contradictory to Nabawi (2020) and Ritonga & Wulantika (2020), which stated that the population affected the poverty rate. The population growth does not significantly affect the poverty percentage in Jambi Province due to the population that tends to increase. However, the poverty percentage has tended to decline. Even during a COVID-19 pandemic, the poverty percentage in Jambi Province continued to decrease compared to the last year.

The LNPDRB variable has a p-value of 0.3482. This value shows that GDRP growth does not affect the poverty percentage significantly in Jambi Province. Contrary to the research conducted by Setyadi & Indriyani (2021) that found GDRP had a negative and significant effect on the poverty percentage. The distinguish occurs due to the difference in data which is only cross-section data for 2020. However, the results of this study are consistent with Nabawi's (2020) research which also states that GDRP does not affect the poverty rate. The different results of these studies because of economic growth in Jambi Province for every regency is uneven. Therefore, the GDRP affects poverty in Jambi Province indirectly.

The last variable is Covid19 has a coefficient value of -0.059329 and a p-value of 0.5993. It represents that the COVID-19 pandemic in Jambi Province is not significant and negatively affects the poverty percentage. Likewise, the coefficient value explains that the average poverty percentage is 0.0593% during the COVID-19 pandemic compared to before the COVID-19 pandemic. It is also the reason the effect is not significant. The poverty percentage in Jambi Province tends to decline. However, compared to 2019, the percentage of the decrease in 2020 was only 0.31%.

When the COVID-19 pandemic occurred, people sought other sources of income to preserve their expenses. Some people replace their food with the cheaper ones and other retrenchments (Kurniasih, 2020). During the COVID-19 pandemic, many people received assistance from the government, both in the form of the Program Keluarga Harapan (PKH), groceries assistance, pre-employment card by targetting layoff workers and MSME, electricity subsidies (Barany et al., 2020), utilizing village funds for social assistance (BLT) (Pramanik, 2020; Zakiyah et al., 2020).

Conclusion

This study uses five independent variables: the human development index (IPM), unemployment rate, population, GDRP, and Covid19. The dependent variable is the poverty percentage in Jambi Province. The F-test shows that all independent variables simultaneously affect the poverty percentage. Meanwhile, the t-test shows that the significant variable is IPM which has a negative effect. The Adjusted R-Squared value indicated that the contribution of independent variables on the poverty percentage by 47.34% and the rest are affected by other variables. The Covid-19 pandemic does not affect poverty in Jambi Province. Increasing IPM could decrease the poverty of a county.

HDI consists of three elements, which is education, health, and economy. Therefore, the implications of this study suggested improving the education quality. The health indicator could be done through vaccination. Meanwhile, economic factors can be done by providing stimulus for business actors in the

Covid-19 pandemic. For future research, to use other independent variables so that other significant variables can be known in affecting the poverty percentage.

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