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DETERMINANTS OF THE HUMAN DEVELOPMENT INDEX DURING THE COVID-19 PANDEMIC: A CASE STUDY FOR REGENCIES/MUNICIPALITIES IN JAMBI PROVINCE

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ABSTRACT

It is expected that the COVID-19 pandemic could cause a global recession with a significant impact on disrupting economic activities. This study's primary objective is to determine the impact, effect, and determinant of Human Development Index (HDI) during the COVID-19 pandemic in the regencies/municipalities of Jambi Province, utilising four independent variables: economic growth, poverty rate, unemployment rate, and income distribution inequality. To analyse the impact of COVID-19 during the pandemic on independent variables, the author used different test analyses and a quantitative descriptive method. Using a regression panel model, the author analyses the impact of a pandemic on Jambi Province's HDI for the years 2017 to 2021. Different test results indicated that the COVID-19 pandemic had an effect on economic growth, poverty rate, and unemployment rate in the regencies/municipalities of Jambi Province, but had no effect on income distribution inequality. The regression estimation of panel data using a Fixed Effect Model reveals that the poverty rate and open unemployment rate have a significant effect on the HDI in the regencies/municipalities of Jambi Province, whereas economic growth and income distribution inequality do not.

Keywords: human development index, poverty rate, unemployment rate, economic growth, and income distribution

1.0 INTRODUCTION

The United Nations Development Programme (UNDP) introduced the Human Development Index (HDI) in 1990, and it is now routinely published in the Human Development Report. Using the HDI standard, one may assess the level of human beings in the Human Development Report. HDI is a standard used in looking at the quality of human beings in each region. HDI has three rudiments: health, education achieved, and standard of living, frequently called economics. These three elements are very important in determining the level of regional ability to increase HDI [Central Bureau of Statistics (CBS), 2021.

Human development is defined by UNDP as the process of giving people more choices. In this instance, the thing is the population, while human development efforts are seen to produce a better standard of human living. A better life can be seen from the economic progress of each occupant of the country (Feriyanto, 2014). Development is the goal of a country. Human Development is a means to create a prosperous society. One of the ways to improve welfare is through economic development, a series of conditioning carried out by the government in all situations of society to achieve a better life.

The Indonesian Constitution in the Preamble to the 1945 Constitution explicitly recognizes this by calling the government's main task of the Republic of Indonesia" to promote social fairness for all, educate the populace, and improve the public welfare for all Indonesians". Citizens constitute asset wealth for a country and must always be bettered constantly in a better direction. The development of human resources physically or non-physically means an increase in the introductory capacities of the population as they're demanded to increase the occasion to share in development efforts (Septajaya, 2014). Efforts can be done by increasing the population's health, knowledge, and skills, so that the economic activities of the population in a country run productively. Effectiveness in raising the HDI is the main companion in choosing a plan of action and tools for development.

The UNDP has created an index called the HDI to assess the degree of effective development and human well-being in a nation. A region or nation's welfare rate is measured using the HDI, which is based on three confined (Ramadan, 2017). HDI measures are: 1) The Life Expectancy at Birth, with Dimension Indicator, of the Life Expectancy Index indicates a long and healthy life. 2) Knowledge, as shown by Mean Years of Schooling (MYS) and Expected Years of Schooling (EYS) with the Education Index dimension indicator. 3) Gross National Income (GNI) per capita (PPP $) with dimension Indicator of GNI Index is used to measure a decent standard of living. Human development is a paradigm for development that views people as the center of attention and the goal of all developmental efforts, including gaining control over resources (money to lead a decent life), enhancing health (long and healthy life), and refining education. [Regional Body for Planning and Development, 2020, Indonesia: Badan Perencanaan Pembangunan Daerah, BAPPEDA].

According to CBS (2021), HDI is a gauge of development progress based on a few fundamental aspects of quality of life. The life expectancy rate, which measures success in the health sector, the literacy rate and average length of schooling, which measure success in the field of education, and the capacity of the purchasing power of 14 people, which is seen from the average quantum of per capita expenditure as an income approach, which measures success in the field of deprivation, are the four factors that go into calculating the HDI. HDI has increased grounded on the computation of the HDI of the old system and the new system. The HDI of Indonesia is still below Malaysia, Singapore, Thailand, and Brunei Darussalam. This shows that there is still a need for hard work to improve the quality of life of Indonesian people amid transnational competition, presents the HDI for the period 2017 to 2021 in Jambi Province. Based on data published by CBS Jambi, HDI in Jambi Province has increased rapidly over time. From 2017 to 2022, these growth rates were between 69.99 and 71.63, reflecting a medium to the high value of HDI referred to as the standard value of HDI. The standard value ranges from 0 to 100 and is grouped into four orders, videlicet $< HDI\ 60$ as Low, $HDI\ 60 \leq HDI < 70$ as Medium, $HDI\ 70 \leq HDI < 80$ as High, $HDI \geq 80$: veritably High HDI.

In the year 2017, the HDI in the Jambi Province was 69.99. In 2018 and 2019, the HDI expand to 70.65 and rise to 71.26 respectively. The HDI in Jambi Province extend to 71.29 in the year 2020 and increased to 71.63 in the year 2021. Economic growth, poverty rate, unemployment rate, and income distribution inequality may be the factor related to Jambi Province's increasing HDI.

COVID-19 was established in 2019. It is a sort of contagious strain virus that causes respiratory tract infections comparable to Middle East Respiratory Syndrome (MERS-CoV) related to Coronavirus. The COVID-19 infectious disease spreads to several countries and continents, becoming a pandemic. Its prevalence has surpassed the average state that is currently present in numerous countries and all parts of the world with a significant population. It has quickly and widely spread after the early reporting of cases in Wuhan, China, in late December 2019. COVID-19 has had disastrous repercussions. In terms of the factual significance of the complaint, the World Health Organization (WHO) declared a global public health emergency on March 11, 2020. (not policy measures). By the end of 2020, there were 83.9 million and 1.8 million independently documented COVID-19 cases and deaths. (Coronavirus Resource Center, 2020).

Since the end of 2019, the coronavirus outbreak has shaken the world. To deal with COVID-19, measures, and efforts of many world country's governments forced to reduce the transmission of COVID-19 by restrictions on movement, implementing regulations such as physical distancing, scale social restrictions, working from home and online schooling, shutting down the operation of goods and services. Critical sectors are allowed to operate with only limited hours. Community activity restrictions severely affect the retail, wholesale, distribution, or trade/business sectors. The cross-boundary ban is enforced, and the government prohibits all kinds of programs, and socialization of society such as parties, gatherings, sports and recreation, and council meetings/seminar gatherings.

COVID-19 entered Indonesia in early Mac 2020 with an adding number of infections in a widespread distribution area finally declared a public disaster. In taking ways to prevent the invasion, Indonesia closed its borders to prevent COVID-19 through human movement and outbreaks in the country from getting worse. One of the nations in the globe with a notably high COVID-19 case transmission rate is Indonesia. The Indonesian government assessed Large-Scale Social Restrictions and Community Activities Restrictions Enforcement to break the COVID-19 transmission chain. [Indonesia : Pemberlakuan Pembatasan Kegiatan Masyarakat (PPKM) and Pembatasan Sosial Berskala Besar (PSBB)]. These regulations, which differ depending on the region, include limitations and inspections of conditioning in popular areas including marketplaces, tourist hotspots, and houses of worship. These limits access into and out of the community and the implementation of health regulations such as using work-from-home (WFH) and home-schooling (SFH) making the government may put public policies in place to control and restrict the COVID-19 contagion's spread (Ministry of Health,2020).

The implementation of the new normal has a great effect on the decline in socio-cultural values in society. The implementation of the PSBB and PPKM programs also affects the changing patterns of sociocultural interaction in the community. Every society's socialization among citizens of the community is limited not only to society in general but also to the environment of family, friends, and relatives. Activities that previously could be carried out regularly by meeting face to face, turned online (Asmariati, 2021). State-level policy responses to COVID-19 focus on minimizing infection risks through quarantine, testing, contact policing; inspection of schools and workplaces; development of personal protective equipment (PPE) as a specific defensive outfit, and vaccinations. Similar actions have a significant positive influence on the global COVID-19 infection rate (Ghosal et. al., 2020). However, the influence varies depending on the metric, the location, and the social class. Additionally, measures have considerable financial, social, physical, internal health, and political consequences.

The COVID-19 pandemic has impacted Indonesia's human development. This is evident from the slower growth of the HDI in 2020 compared to previous years. The HDI's expansion has been slowed. The retardation in HDI growth in 2020 was explosively told by the drop in each adjuster's average per capita expenditure (BPS, 2021). Numerous economic activities have had the effect of limiting, restricting, and even suspending products because of various regulations implemented to combat the spread of COVID-19 and efforts to break the chain of its spread. This has led to an increase in unemployment, a decline in individual and corporate productivity, and the appearance of new poor people, who collectively increase the number of poor people (Izzati, 2020). The COVID-19 pandemic has led to a rise in the proportion of persons living in poverty in most provinces in Indonesia. BPS data states that in June 2020, around 22 of the 34 provinces have been affected (Herman, 2020). The biggest impact occurred in Java and Bali successively in the provinces of DKI Jakarta, DI Yogjakarta, West Java, Central Java, East Java, Bali, and Banten.

As streamlined in 2019 by the Governance Bureau of Region Secretary of Jambi Province, Jambi Province consists of 9 regencies and 2 municipalities. Jambi is the capital and largest municipality of Jambi Province (BPS 2022). The borders of the regency of Jambi Province are Batang Hari, Bungo, Merangin, Kerinci, Muaro Jambi, Sarolangun, Tanjung Jabung Barat, Tanjung Jabung Timur, Tebo, and the municipality are Jambi and Sungai Penuh. The first case of COVID-19 in Jambi Province was announced on March 23, 2020, while the first positive case of COVID-19 death in Jambi Province was blazoned on July 6, 2020. As of March 2021, the total number of verified cases of COVID-19 in Jambi Province reached verified 4543 cases (Jambi Protocol Public Relations, 2021). In Jambi Province, infection prevention techniques such as social seclusion, social mobility limits, hand washing, and access to PPE were also implemented. Although lockdowns may have slowed the infection's spread, they have further weakened the original food systems by preventing people from accessing their fields, compromising their ability to obtain inputs (such as fertilizers) due to broken food chains and increased costs, and limiting labor accessibility. (Béné, 2020 and Farcas et al., 2021).

The Presidential Decree of the Republic of Indonesia (Keppres) Number 24 of 2021 concerning the Determination of the Factual Status of the Corona Virus Disease 2019 (COVID-19) Pandemic in Indonesia was signed by The President of the Republic of Indonesia Joko Widodo on December 31, 2021. It states that the Corona Virus Disease 2019 (COVID-19) pandemic, which is a Global Pandemic according to the statement of the World Health Organization, factually still occurs and has not ended in Indonesia. Based on Presidential Decree Number 11 of 2020 concerning the Determination of Corona Virus Disease 2019, Presidential Decree Number 24 of 2021 is a response to the pandemic and spread of COVID-19, which the World Health Organization (WHO) declared a global pandemic on March 11, 2020. (COVID-19) Public Health Emergencies and Non-nature Disasters based on Presidential Order Number 12 of 2020 regarding determining Non-nature disaster being a national emergency that hasn't yet subsided, the Corona Virus Disease 2019 (COVID-19) outbreak has an impact on a number of areas in Indonesia, including the country's economy, social structure, and public health. (Ministry of State Apparatus Empowerment and Bureaucratic Reform, 2022)

The post-COVID-19 epidemic impact affects the economic sector, especially the decline in people's income situation. So that it influences the low purchasing power of the people which causes request conditions to become unstable, and the perpetuation of the new normal causes trade to weaken. Indeed, Indonesia's export sector has also endured a weakening (Nasution et al., 2020). Based on the vast effects of the pandemic COVID-19 on the world in general and particularly in Indonesia, how about economic growth, poverty rate, unemployment rate, and income distribution inequality during the pandemic COVID-19 in the regencies/municipalities of Jambi Province, depicted line chart statistical information about Jambi Province's economic growth from 2017 to 2021, the growth over time experienced fluctuations. In the year 2017, the economic growth of Jambi Province was 4.60 percent. Economic growth prolongs to 4.69 percent in 2018, and in the year 2019, economic growth diminishes to 4.35 percent. Economic growth in Jambi Province drops significantly by declining to negative 0.46 percent in 2020. This severe drop was due to the economic crisis from the COVID-19 pandemic's effects. The moping impacts of COVID-19-related shutdowns and force chain backups caused all economic sector COVID-19-related erosion. In 2021, economic growth increased again to 3.66 percent but was still lower amounting to 0.7 percent than the year before. The pace of world economic growth and global financial market pressures causes uncertainty for the government and society. Indonesia in 2020, has the potential to be lower if the COVID-19 outbreak continues to spread and is not under control. This situation makes the government implement a stricter social distancing policy compared to other countries. In 2021, Indonesia is still facing this outbreak over the ability of this virus to mutate, however, the introduction of antiviral treatments and vaccines has successfully hindered the global lockdown and movement control in Indonesia.

Poverty is a common problem experienced by every nation on earth, especially developing countries. The COVID-19 disease has worsened poverty by increasing the poverty level of the people (Wijaya, 2021), the poverty rate in Jambi Province has a slope downtrend from 2017 at 8.19 percent to 7.58 percent in 2020. In 2018 and 2019 the poverty percentages are 7.92 percent and 7.6 percent. Theoretically, the reduction in the poverty rate should be able to increase the HDI in Jambi Province. However, the decline in poverty occurs only in a few regions in Jambi Province so the uneven reduction in poverty will cause no impact on the rate of HDI in Jambi Province. In the year 2021, the poverty rate in Jambi Province jump to 8.09 percent, this is suspected to be due to the impact of the COVID-19 epidemic which caused the number of scarcities to increase. The unemployment rate in Jambi Province from 2017 to 2021 has fluctuated. In 2017 and 2018, the unemployment

rate in Jambi Province was constant at 3.87 percent. In 2019, the unemployment rate increased to 4.19 percent, and it has reach 5.13 percent in 2020. The increase occurred possibly because of the COVID-19 pandemic, which caused many workers who were laid off. Then the unemployment rate in 2021 slightly dropped to 5.09 percent.

The ratio of open unemployment to the total labor force is known as the unemployment rate, just like poverty, this rate of open unemployment will affect the purchasing power of the people so that economic growth will stagnate, even fall so that the problem of unemployment must be solved to spur the acceleration of economic growth (Nurulita Meita Putri and Sri Muljaningsih, 2022). The Gini ratio indicator is used to measure the overall position of income inequality in a region. The range of values for the coefficient Gini, which measures overall inequality, is zero to one, (0 to 1) which means perfect equality to perfect inequality.

In Jambi Province, the Gini ratio shows a fluctuating trend from 2017 to 2020 in the downslope pattern. In 2017, the Gini ratio in Jambi Province was 0.334, which slightly increased in 2018 to 0.335. In 2019 and 2020, the Gini ratio in Jambi Province decreased to 0.324 and 0.320 respectively. In the year 2021, the Gini ratio increased to 0.319. Based on data from BPS Indonesia 2020, the Gini ratio has decreased every year. In 2015, the Gini ratio of 0.402, in 2016 changed to 0.394, in 2017, the Gini ratio was 0.391, in 2018-2019 it was 0.384, and 0.380 respectively, then in 2020 it continued to decline to 0.385 (Julia Delmasari and Nur Ari Sufiawan, 2022).

The statistical data of the HDI, BPS Jambi Province 2022, shows opposition to the determinants of the HDI during COVID-19 and were also found to contradict economic theory and the previous studies. The HDI in Jambi Province from 2017 to 2021 was increasing from 69.99 to 71.63, while most determinants of HDI fluctuated and even show negatives. There is a gap that occurred between theory and real data from BPS Jambi Province. A case study should be done to find the answer to the research question and the problem stated regarding determinants of the HDI during the COVID-19 pandemic for regencies/municipalities in Jambi Province.

The increase in HDI in Jambi Province is not in line with the increase in economic growth. Based on the data, economic growth in Jambi Province is still experiencing fluctuations from 2017 to 2019 and even plunge badly to a negative state in 2020 and a slight uprise in 2021. While HDI Jambi Province continues to increase over time from the year 2016 to 2021. This is inconsistent with Todaro (2011) who said that economic growth will increase per capita output growth. Per capita output growth is related to GDP per capita. This will change people's consumption patterns so that people's purchasing power increases. The increase in people's purchasing power will influence the growing HDI because one of the HDI's compound pointers known as income indicators, measures people's purchasing power.

The data shows that the poverty rate tends to decrease from 2017 to 2020 from the range of 8.19 percent to 7.58 percent over time in a downslope pattern and in the year 2021 the poverty rate in Jambi Province shows a 0.51 percent increase, while the HDI continues to increase over time from 2017 to 2021. This is inconsistent with the theory that the poor can benefit dually from income growth as well as an increase in HDI (Dewi, 2017).

The data shows that the unemployment rate in Jambi Province was stagnant at 3.87 percent for two consecutive years in 2018 and 2019. The unemployment rate increased sharply by nearly 1 percent (0.94 percent) in 2020 compared to 2019. Data also depicted quite a consistent percentage in 2020 and 2021 which is 5.13 percent and 5.03 respectively. The HDI of the Jambi Province keeps increasing even though the unemployment rate increased in the year 2020. This contradicts Sukirno's (2006) assertion that severance hurts people's income, which in turn lowers the position of substance and well-being that a person has attained. The likelihood of being caught in the low HDI will undoubtedly increase due to the fall in people's well-being brought on by unemployment because their needs will not be met by their income.

The shifting Gini ratio value is going down from 2017 until 2020 (moving towards perfect equality) but its value stands in the of range around 0.334 to 0.320. The Gini value increased in 2021 by 0.012, to 0.332. This case study pickup HDI data from 2017 to 2021 show a consistently increased in HDI. This condition is inconsistent with research by (Huda, 2013) which says HDI variables against inequality, there is an adverse correlation. Accordingly, if the HDI score rises as a result of the HDI score rises, the income distribution inequality will drop, and vice versa.

Based on the description above, the increase in HDI could be influenced by, economic growth, poverty rate, unemployment rate, and income distribution inequality. This study will be seen the extent to which the influence of several factors such as economic growth, poverty rate, unemployment rate, and income distribution inequality can affect the HDI in regencies/municipalities in Jambi Province. To the description above, the research entitled "Determinants of Human Development Index during the COVID-19 pandemic. A case study for regencies/municipalities in Jambi Province" created research questions.

2.0 LITERATURE REVIEW

Research that has two categories requires testing different test methods for two paired data in evaluating a particular treatment on the same sample at two different research periods. This differential test model was used to analyze a pre-post research model of the COVID-19 pandemic. Paired Sample t-Test was used to find out the condition of economic growth, poverty, unemployment rate, income distribution inequality, and HDI in regencies/municipalities in Jambi Province during the pre-post COVID-19 pandemic for the period 2017 to 2021. Data processing is done by the usage of Statistical Package for the Social Sciences (SPSS) Version 22.

The quantitative approach was used to answer the third research question in this paper. It combines observation of time series data and cross-section data or panel data. Data processing will be done by the usage of EViews 9.0. In this study, the data tested were panel data (time series) and (cross-section). The panel data regression model is as follows:

$$HDI_{it} = \beta o + \beta_1 EG_{it} + \beta_2 PR_{it} + \beta_3 UR_{it} + \beta_4 IDIR_{it} + e$$

Information:

HDI (Y)	= Human Development Index of Jambi Province.
i	= number of observations (9 regencies/ 2 municipalities).
t	= Year of observation data (2017-2021).
Bo	= Constant
B_1 to B_4	= Coefficient Regression Value
EG_{it}	= Economic Growth (percent)
PR_{it}	= Poverty Rate (percent)
UR_{it}	= Unemployment Rate (percent)
$IDIR_{it}$	= Income Distribution Inequality Rate (Gini ratio)
e	= error term

3.0 RESULTS OF RESEARCH AND DISCUSSION

Condition Of Economic Growth, Poverty Rate, Unemployment Rate, Income Distribution Inequality and Hdi In Jambi Province During The (Pre-Post) Covid-19

Quantitative descriptive analysis where the resulting data will be in the form of numbers. From the data obtained, an analysis was carried out using SPSS and Eviews 9 software, which was explained as follows:

Table 1. Difference test with t statistics

		Paired Differences					t	df	Sig. (2-tailed
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Economic Growth - Impact of the Pandemic	3.20491	2.78697	.37579	2.45149	3.95833	8.528	54	.000
Pair 2	Poverty Rate - Impact of the Pandemic	7.37364	2.70124	.36423	6.64339	8.10388	20.244	54	.000
Pair 3	Unemployment rate - impact of the pandemic	3.63436	1.83533	.24748	3.13820	4.13052	14.686	54	.000
Pair 4	Income Distribution Inequality - Impact of the Pandemic	-.09709	.50223	.06772	-.23286	.03868	-1.434	54	.157
Pair 5	HDI - Impact of the Pandemic	69.64455	3.60577	.48620	68.66977	70.61932	143.242	54	.000

Source: Processed data, (2023)

The Province of Jambi's economic situation in 2017–2019 was rather typical, but in 2020–2021, the COVID-19 pandemic, which had a significant influence on the economy, caused a drop in the economy in Jambi Province. The overall weakness of the economy has resulted in a sharp decline in economic activity. Based on this, researchers conducted a study to determine whether there was a difference in the impact of the pandemic on economic growth, poverty rate, unemployment rate, income distribution inequality, and HDI in Jambi Province by measuring the impact through dummy variable indicator. Dummy variable 0 represented the situation prior to the outbreak of the pandemic, specifically from 2017 to 2019, and dummy variable 1 referred to the pandemic period of the years 2020 and 2021. In order to respond to this, a paired samples test was used, as shown in the table below.

Based on the results of the calculation presented in Table 5.7, it is known that the difference test between the variable conditions of economic growth and the impact of the COVID-19 pandemic has a significance value of 0.000 < 0.05, meaning that there is a positive impact of the COVID-19 pandemic on economic growth in Jambi Province. The poverty rate variable with the impact of the COVID-19 pandemic has a significance value of 0.000 < 0.05, meaning that there is a positive impact of the COVID-19 pandemic on the poverty rate in Jambi Province. There is a positive influence of the COVID-19 pandemic on the unemployment rate in Jambi Province, as indicated by the variable unemployment rate with the impact of the pandemic having a significance value of 0.000 <0.05. The COVID-19 pandemic has no negative impact on income distribution inequality in the province of Jambi, according to the income distribution inequality variable that takes the impact of the pandemic into account, which has a significant value of 0.157 > 0.05. The COVID-19 pandemic had a positive impact on the HDI in Jambi Province, as indicated by the HDI variable with the impact of the pandemic having a significance value of 0.000< 0.05.

Effect Of Economic Growth, Poverty Rate, Unemployment Rate, And Income Distribution Inequality on The Hdi of Jambi Province For 2017-2021

Panel data regression is used to examine the impact of economic growth, poverty, unemployment, and income inequality on the HDI in the province of Jambi. Cross-section data from the years 2017 to 2021 encompass 11 regencies/municipalities: Kerinci, Merangin, Sarolangun, Batanghari, Muaro Jambi, East Tanjung Jabung, West Tanjung Jabung, Tebo, Bungo, Jambi City, and Sungai Penuh. Time series data are from the same years. The significance level for this study was set at 95%, or alpha of 0.05 percent. The panel data regression equation is created using the selected FEM.

Table 2. FEM panel data estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	75.23406	2.191918	34.32340	0.0000
EC?	-0.005485	0.039568	-0.138617	0.8904
PR?	-0.619886	0.269794	-2.297628	0.0269
UR?	0.234878	0.084608	2.776077	0.0083
IDIR?	-4.286967	2.927519	-1.464368	0.1509
Fixed Effects (Cross)				
_KRC--C	0.797371			
_MRG--C	-0.348444			
_SRL--C	0.128034			
_BTH--C	0.867004			
_MJ--C	-3.879806			
_TJT--C	-3.339644			
_TJB--C	-0.559411			
_TB--C	-1.640634			
_BNG--C	-1.645125			
_KJ--C	7.699162			
_KSP--C	1.921493			
Effects Specification				
Cross-section fixed (dummy variables)				
Weighted Statistics				
Root MSE	0.479431		R-squared	0.975724
Mean dependent var	78.53003		Adjusted R-squared	0.967228
S.D. dependent var	20.33292		S.E. of regression	0.562183
Sum squared resid	12.64200		F-statistic	114.8380
Durbin-Watson stat	1.451908		Prob(F-statistic)	0.000000
Unweighted Statistics				
R-squared	0.981189		Meandependent var	70.04455
Sumsquaredresid	13.38723		Durbin-Watson stat	1.312854

Source: Processed data, (2023)

The regression equation is obtained as follows:

$$HDI=75.23406 – 0.005485\ EG – 0.619886\ PR + 0.234878\ UR – 4.286967\ IDIR$$

According to the findings of the FEM estimates, if there are changes in the variables of economic growth, poverty rate, open unemployment rate, and income distribution inequality, both within and between regions/municipalities, and over time, the constant value is 75.23406 points, which means that the HDI rises by 75.23406 points if these variables are held constant.

Following is an explanation of the regression coefficient equation's estimation results: The economic growth regression coefficient is equal to -0.005485, which suggests that for every 1% increase in economic growth, the HDI will fall by 0.005485 points. The poverty rate's regression coefficient is equal to -0.619886, which means that for every 1% increase in poverty, the HDI will fall by 0.619886 points. The open unemployment rate has a regression coefficient of 0.234878, which means that for every 1% increase in the open unemployment rate, the HDI will rise by 0.234878 points. The income distribution inequality regression coefficient is equal to -4.286967, which suggests that for every one-point rise in income distribution inequality, the HDI falls by 4.286967 points.

F Statistic Test

Testing the influence of independent variables on dependent variables is carried out with the F-Statistical Test. To determine the value of table f, namely 55-4-1=50, the table f value with a significance level of 95 percent or alpha 0.05 percent is obtained at 2.40. If the value of Prob (F-statistic) is smaller compared to αlfa, then it can be concluded that the entire free variable together affects the dependent variable significantly. In the estimation results, it is known that the prob value of 0.00000 < 0.05 or statistical F 114.8380 > F Table 2.40, then H0 is rejected and H1 is accepted, meaning that the variables of economic growth, poverty rate, open unemployment rate and income distribution inequality together have a significant effect on the HDI of regencies/municipalities in Jambi Province.

T Statistik Test

The t-test is used to test the individual influence of independent variables on dependent variables. To determine the table t value of 55-4=51, the table t value with a significance level of 95 percent or alpha 0.05 percent is obtained at 2.00758. If the value of Prob (t-statistic) is smaller compared to αlfa, then it can be concluded that the independent variable has a significant effect on the bound variable. Conversely, if the value of Prob (t-statistic) is greater than αlfa, it can be concluded that the independent variable has no significant effect on the dependent variable. Based on the results of the estimated regression of panel data, the results are processed as follows:

Table 3. Partial statistical t test on FEM

Variabel	t statistik	Prob	t tabel	Alfa	Information
EG	-0.138617	0.8904	2.00758	0.05	Not significant
PR	-2.297628	0.0269	2.00758	0.05	Significant
UR	2.776077	0.0083	2.00758	0.05	Significant
IDIR	-1.464368	0.1509	2.00758	0.05	Not Significant

Source: Processed data, (2023)

Based on table 3 it can be explained that the economic growth variable statistical t value < from the t table (0.138617 < 2.00758) or the prob value >of alpha (0.8904 > 0.05) meaning that H0 is accepted and H1 is rejected, meaning that economic growth has no significant effect on the HDI of regencies/municipalities in Jambi Province in 2017 - 2021. The poverty rate variable is known to be the statistical t value > from the t table (2.297628 > 2.00758) or the prob value <of alpha (0.0269 < 0.05) meaning that H0 is rejected and H1 is accepted, meaning that the poverty rate has a negative and significant effect on the HDI of regencies/municipalities in Jambi Province in 2017 - 2021. The variable open unemployment rate is known to be the statistical t value of > from the t table (2.776077 > 2.00758) or the prob value < of alpha (0.0083 < 0.05) meaning that H0 is rejected and H1 is received meaning that the open unemployment rate has a positive and significant effect on the HDI of regiences/municipalities in Jambi Province in 2017 - 2021. The income distribution inequality variable is known to be the statistical t value of < from the t table (1.464368 < 2.00758) or the prob value >of alpha (0.1509 > 0.05)

meaning that H0 is accepted and H1 is rejected, meaning that income distribution inequality does not have a significant effect on the HDI of regiences/municipalities in Jambi Province in 2017 - 2021.

Coefficient Determination

From the test results, the coefficient of determination was obtained as seen from the R Square value of 0.975724, meaning that 97.57 percent of the human development index of regencies/municipalities in Jambi Province in 2017 - 2021 explained by the variables of economic growth, poverty rate, open unemployment rate and income distribution inequality, while the remaining 2.43 percent was explained by other variables that were not included in this study.

FEM Intercept

From the results of estimates using the FEM, each regency /municipality in Jambi Province has different intercept values. The effect of fixed effects is as follows:

Table 4. Regencies/municipalities interception coefficients on fixed effects model

REG/Munp	Fixed Effect	Kostanta	Fixed Effect Model
_KRC--C	0.797371	75.23406	76.03143
_MRG--C	-0.348444	75.23406	74.88562
_SRL--C	0.128034	75.23406	75.36209
_BTH--C	0.867004	75.23406	76.10106
_MJ--C	-3.879806	75.23406	71.35425
_TJT--C	-3.339644	75.23406	71.89442
_TJB--C	-0.559411	75.23406	74.67465
_TB--C	-1.640634	75.23406	73.59343
_BNG--C	-1.645125	75.23406	73.58894
_KJ--C	7.699162	75.23406	82.93322
KSP--C	1.921493	75.23406	77.15555

Source: Processed data, (2023)

Based on table 4 it can be seen that the intercept value using the estimation results obtained by the FEM can be explained that if there is a change in the variables of economic growth, poverty rate, open unemployment rate and income distribution inequality both between regencies/municipalities and times are as follows: Kerinci Regency will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 – 2021 an increase of 76.03143 percent. Merangin Regency will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 – 2021 an increase of 74.88562 percent. Sarolangun Regency will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 - 2021 an increase of 75,36209 percent. Batanghari Regency will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 – 2021, an increase of 76.10106 percent. Muaro Jambi Regency will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 – 2021, an increase of 71.35425 percent. East Tanjung Jabung Regency will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 – 2021 an increase of 71.89442 percent. West Tanjung Jabung Regency will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 – 2021 an increase of 74.67465 percent. Tebo Regency will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 - 2021 an increase of 73.59343 percent. Bungo Regency will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 - 2021 an increase of 73.58894 percent. Jambi

City will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 - 2021 an increase of 82.93322 percent. Sungai Penuh City will have a fixed effect on the HDI of regencies/municipalities in Jambi Province in 2017 – 2021, an increase of 77.15555 percent.

4.0 CONCLUSION AND RECOMMENDATIONS

In the regencies and municipalities of Jambi Province, the COVID-19 pandemic that occurred during the crisis in the years 2020 to 2021 had an effect on economic growth, poverty rates, and unemployment rates. In the meantime, wealth inequality has no impact on the COVID-19 pandemic in the regencies and municipalities of the Jambi Province. In contrast to the independent variables of economic growth and income inequality, the results of the panel data regression estimation using a FEM showed that the independent variables of poverty rate and open unemployment rate had a significant impact on the HDI in the regencies/municipalities of Jambi Province.

It is important for the regencies and municipalities in Jambi Province to increase the accessibility of basic services for those who need them. The main goal of this programme is to improve the poor's access to essential services like health care, education, and infrastructure. In addition to improving the community's health, this can improve the quality of life for the poor and give them a greater sense of fulfilment. In order for the history of human progress to continue to shape and influence a better HDI, efforts must be made to raise the HDI's value, specifically by reducing the unemployment and poverty rates in each region. It is hoped that the government will be able to uniformly enact pro-poor policies across every province.

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