

The Effect of Population and HDI on Poverty Levels in Pakpak Bharat District

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ARTICLE INFO

Keywords: Population, Human Development Index, Poverty Level

Received : 02, March

Revised : 08, April

Accepted: 13, May

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ABSTRACT

The number of poor people in pakpak bharat from 2010 to 2020 has increased from year to year; in 2010, the number of poor people was 176,830.00, and in 2020, it rose to 311,584.00. The aim of this research is to determine the effect of population and the human development index (IPM) partially and simultaneously on the level of poverty in Pakpak Bharat district. The location of this study in Pakpak Bharat district used time series data from 2010 to 2010 with two independent variables and one dependent variable. The type of data used in this study was secondary data obtained from the central statistics agency (BPS) in Pakpak Bharat district, which was then processed and analyzed using multiple linear regression analysis. The results of the analysis were obtained: (1) population has a significant effect on the poverty rate in Pakpak Bharat district; (2) HDI has a significant effect on the poverty rate in Pakpak Bharat district; and (3) simultaneously, population and HDI have a significant effect on the poverty rate in Pakpak Bharat district.

INTRODUCTION

Poverty is a long-term social problem that is difficult to overcome until now. Poverty is a phenomenon that occurs in developing countries. The problem of poverty arises because there are some people who are still unable to manage their daily lives to a humane level (Purnama, 2017). The number of poor people in Pakpak Bharat from 2010-2020 has increased from year to year, in 2010 the number of poor people was 176,830.00 and in 2020 it rose to 311,584.00. Factors causing poverty are the low quality of human resources, lack of income and assets to meet needs, low level of education, lack of knowledge to develop economic sectors, and increasingly high unemployment.

According to BPS Pakpak Bharat, the population in Pakpak Bharat district in 2010-2020 has increased, namely in 2010 the population was 40,505.00 and in 2020 it became 52,351.00. This is because the population is increasing every year but it is not qualified, this will affect human resources. Population growth occurs due to the increase or decrease in population due to births and deaths (Kemdikbud, 2019).

The Human Development Index is a measure of comparison between several variables, namely the comparison of life expectancy, literacy, education and standard of living. IPM also provides an overview of how a population can or can access a development outcome to earn income, health, education and so on. The HDI in Pakpak Bharat district in 2010-2020 has fluctuated every year, namely in 2010 it was 70.80 and in 2020 it became 67.59%. The human development index is used to measure how big the impact is from efforts to increase basic human capital capabilities. Development is calculated using the size of the numbers of education, health and purchasing power. The higher the number obtained, the more the goals of development are achieved. Development is a process of making changes for the better (Falabibla, 2019).

LITERATURE REVIEW

A. Previous Research

Previous research that can be used as reference material or as a reference in this research material is as follows;

Rizaldi Zakaria in research, at the Journal of Business Economics and the Islamic University of Indonesia. The data used in this research is the panel data regression analysis method to process the data. From the data processed from the results of the analysis used, a conclusion can be obtained where the number of a population can have a good or positive effect and increase or be significant from the Human Development Index, Unemployment has variables that can have a bad or negative effect and increase or be significant from The Human Development Index, Economic Growth has a variable that does not significantly affect the Human Development Index and capital spending has a variable that has a positive and significant influence on the HDI in Central Java Province.

Anggatia Ariza in the research, in the Journal of the Faculty of Sharia and Islamic Economics, IAIN Pontianak, a study was obtained using the two data used, namely cross section and time series data and the analysis used from this study using the Rerection model Panel data from and the results of the analysis used in this study, namely that it can be done partially and simultaneously with

independent variables Economic growth, and Capital Expenditures can influence positively or positively and increase HDI.

Adelfina and I Made Jember in their research, in the Journal of Economics and Business at Sam Ratulangi University, Manado, from the subject matter of this research, it can be tested which aims to see the purpose of the research and these variables influence HDI in the Province of Bali. Furthermore, research can be carried out into the method of multiple linear regression analysis tools. Then the research can be carried out by using the method used in the multiple linear regression analysis tool. Furthermore, the results of the analysis can conclude that economic growth can affect the objective HDI and poverty and regional spending can affect HDI if one can see the level or size of the Human Development Index in the Province of Bali.

Then, the latest research obtained from Anggi Eka Amalia, in the Journal of Economics and Development, UIN Syarif Hidayatullah Jakarta that in this study the data can be processed using the panel data regression method using the classical test assumption (Ordinary Least Square) then the results of the analysis can be It can be concluded that this research can be about the effect of Population on HDI and stated if the Population can affect HDI from constant prices.

B. Theory and Literature Review

a. Definition of poverty

BPS states that poverty is the inability of individuals to meet minimum standard needs covering food and non-food needs. Poverty can be measured by comparing the level of use with individual spending. For Arsyad (2010) poverty is hunger, not having a place to live, if you are sick you don't have funds for treatment.

b. Definition of population

Total population is the number of residents who live or live in an area or country in a certain period of time, and can determine the number of residents in one area and this can be done by measuring demographic data correctly or accurately to be able to determine it. After that, determine demographic data. This was carried out in three ways, including a population census, population registration and surveys. BPS Institute in Indonesian Statistics (2013).

Said (2012) That population is the number of people living in an area at a certain time and is the result of demographic processes, namely fertility, mortality and also migration. The total population is all people who live in a geographic area. Republic of Indonesia for 6 months or more and those who have lived for less than 6 months but with the intention of settling down (BPS, 2013).

C. Theory of Population for Experts

1. Thomas Malthus

Malthus explained that the universal tendency of the population in a country to grow according to a geometric progression is to double every 30-40 years. Meanwhile, at the same time, due to reduced yields from land, food supplies cannot keep up with the rapid and large population growth, so per capita income will tend to fall to a very low level, resulting in a population that is never normal, or slightly below over subsistence.

2. John Stewart Mill

According to John Stuart Mill, a British philosopher and economist, he can accept Malthus' comments about the rate of population development surpassing the rate of food development as an axiom, however, John Stuart Mill comments that individuals can influence their demographic attitudes, if a person's productivity is large then there is tend to have small families (low fertility). Mill argues that poverty cannot be avoided due to the influence of population growth, so that this condition is only temporary and can be overcome by importing food or moving residents to other areas.

D. Definition of HDI

According to the Central Bureau of Statistics (2017), the human development index (IPM) is a measure of human development achievement based on several components under the quality of life. The HDI describes several components, namely the attainment of a long and healthy life that represents the health sector: literacy rate, school level, and length of schooling to measure development performance in the education sector, as well as people's purchasing power for basic needs as seen from the average per capita expenditure.

According to UNDP, the Human Development Index can be interpreted that there is a concept that can be aimed at widening the reach of the population (people). After that, this theory explains that the population (humans) can work on development issues which are the main target (principal means) in order to be able to achieve these goals.

Mind Map

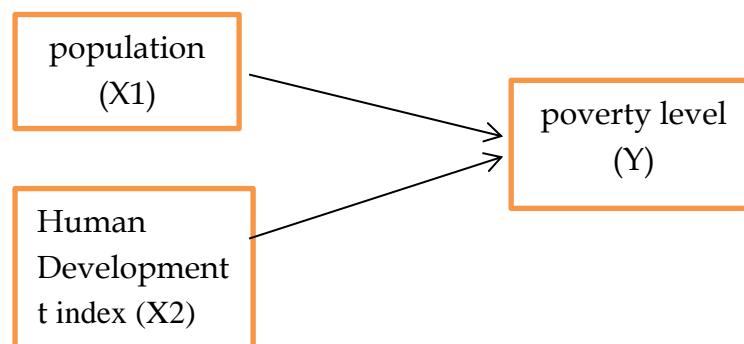


Figure 1. Conceptual Framework

METHODOLOGY

This type of research is associative research. Sugiyono (2012), states that the form of associative research is meant as a research statement in the form of asking about the relationship between 2 or more variables. The associative design of this study aims to determine the relationship or influence of population and HDI on poverty in Pakpak Bharat district 2010-2020.

The type of data used in this research is quantitative data. Sugiyono (2014), states that quantitative data is data in the form of numbers or data that can be measured or calculated directly. Quantitative data in this study are in the form of population data, HDI on poverty in Pakpak Bharat district for the period 2010-2020 (*time series*).

The data used in this study were obtained from secondary sources. For Umar (2013), secondary data is data that has been further processed and presented by other parties. Secondary data in this study are in the form of documents or archives at the Central Bureau of Statistics of Pakpak Bharat district, both those that have been published and those that have not been published.

Hypothesis

1. Population has a significant effect on poverty levels in pakpak bharat district
2. HDI has a significant effect on the level of poverty in Pakpak Bharat Regency
3. Population and HDI have a significant effect on the level of poverty in Pakpak Bharat district

Collecting data in this study using the documentation method. For Sugiyono (2014), documentation can be in the form of photo writing, or momental works from other people. Documentation is also said to be secondary data, which is data obtained in a finished form, which has been collected by other parties. The data includes data on population, HDI and poverty for Pakpak Bharat district for the 2010-2020 period obtained from documents and archives at the Central Bureau of Statistics for Pakpak Bharat district.

Variables and Variable Operational Definitions:

1. The independent variable (*independent*) is a variable that does not depend on other variables. In this study the independent variables are the population (X1), HDI (X2) in Pakpak Bharat district.
2. Related variable (*dependent*) is a variable that depends on other variables. In this study, the pull variable is poverty in Pakpak Bhara District (Y).

In this study the analytical techniques used in analyzing the data are:

- a) Multiple linear regression analysis (Wirawan, 2009).
$$Y=b_0 + b_1X_1 + b_2X_2 + b_3X_3$$
- b) t test (partial test)
Standard error (standard error) of the regression coefficient (b1)

c) f test (simultaneous test)

The f-test is applied by comparing the value F_{hitung} with f_{tabel} or the significance value is less than the real tariff value (5%).

THE RESULT

BPS uses a method known as the ability to meet basic needs to reduce poverty (basic need approach). With this approach, poverty is seen as an economic tool to meet basic food needs, not food that comes from the realm of production. Therefore, the poor are people who have a proportional amount per capita per month under the poverty gate. Poor people have difficulty getting an education, so it will be difficult to compete in getting jobs with educated people. This can result in increasing unemployment.

Pakpak Bharat's Human Development Index (IPM) achievement in 2021 is at 67.94, below the North Sumatra HDI (72.00), and ranks 28th out of 33 Regencies/Cities. The low Human Development Index (IPM) will have an impact on the low work capacity of the population. Low work capacity can result in low income. So that with low income causes a high number of poor people.

Development which is now shifting from the authority of the state's role to the role of the community will not be carried out if the number of poor people is significant, this happens because in general the poor spend more of their energy and time on fulfilling basic needs, they are not interested in participating in activities -activities that are not directly related to the fulfillment of basic needs.

1. Multiple Regression Analysis

The multiple regression analysis in this study aims to find out how much the poverty rate variable in Pakpak Bharat Regency has changed due to population growth and the human development index (IPM). Based on the results of the regression test with the help of the eviews application used, the results are obtained in the table below.

Table 1. Multiple Linear Regression Test Results

Variables	coefficient	std. Error	t-Statistics	Prob.
C	4.534056	2.121711	2.136981	0.0651
X1	-6.12E-05	1.69E-05	-3.629134	0.0067
X2	0.047465	0.024570	1.931809	0.0895

Table 2. F Test Results

R-squared	0.786902	Mean dependent var	4.970909
Adjusted			
R-squared	0.733627	SD dependent var	0.347576
SE of regression	0.179389	Akaike info criterion	-0.371524
Sum squared			
residue	0.257442	Schwarz criterion	-0.263007
Likelihood logs	5.043379	Hannan-Quinn criter.	-0.439928
F-statistics	14.77067	Durbin-Watson stat	1.619206
Prob(F-statistic)	0.002062		

Based on these results, the regression equation used in this study can be formulated as follows:

$$Y = 4.534 - 6.12X_1 + 0.047X_2 + e$$

The multiple linear equations in this study can be interpreted as follows:

- a. Constant = 4.534 and is positive, this shows that if the variable population, the human development index is considered constant, then the poverty rate of Pakpak Bharat Regency is 4.534
- b. The variable value of the population (x_1) is -6.12 and is negative. This shows that if the population increases by 1 percent, it will cause the poverty rate in Pakpak Bharat Regency to increase by -6.12, assuming the HDI remains (*ceteris paribus*).
- c. The value of the HDI variable (x_2) is 0.047 and is positive. This shows that if the HDI increases by 1 percent, the poverty rate decreases by 0.047 assuming the value of the total population (x_1) is constant.

2. Partial Parameter Hypothesis Test (t test)

Based on the results of statistical testing that has been carried out in table 2, the following conclusions are generated:

a. *The Effect of Total Population on Poverty Levels*

The results of the estimated coefficient of the population variable are -6.12 and have a significant effect on the prob. $0.0067 \leq \alpha = 0.05$, which means that partially the population has a significant effect on the level of poverty in Pakpak Bharat Regency. If there is an increase in population by 1 percent, the poverty rate in Pakpak Bharat district will increase significantly by 6.12 percent. And conversely, if there is a decrease in the population of 1 percent, the poverty rate in Pakpak Bharat district will decrease significantly by 6.12 percent in one year, *ceteris paribus*. So, the statement of the first hypothesis which states that partially the population has a significant effect on the level of poverty in Pakpak Bharat Regency, is accepted

b. *The effect of HDI on the level of poverty*

The results of the estimated coefficient of the HDI variable are 0.047 and are significant on the prob. $0.0895 > \alpha = 0.05$, which means that partially HDI has a negative and not significant effect on the poverty rate in Pakpak Bharat district. If there is an increase in HDI by 1 percent, then the poverty rate in Pakpak Bharat district will decrease insignificantly by 0.047 percent, and vice versa if the HDI decreases by 1 percent, then the poverty rate in Pakpak Bharat district will not increase significantly by 0.047 percent in one year, ceteris paribus. Then the statement of the first hypothesis which states that partially HDI has a significant effect on the poverty rate in Pakpak Bharat Regency, is rejected

c. *F test*

The results of the F test value in this study obtained a value of $0.002062 \leq \alpha 0.05$. So, it can be stated simultaneously that the population and HDI have a significant effect on the poverty rate in Pakpak Bharat Regency. So, the statement of the third hypothesis which states that something that happened or was done at the same time (simultaneously) the population and HDI have a significant effect on the poverty rate in Pakpak Bharat district is accepted,

CONCLUSIONS AND RECOMMENDATIONS

1. Population has a significant effect on the level of poverty in Pakpak Bharat Regency
2. HDI has a significant effect on the level of poverty in Pakpak Bharat district
3. Simultaneous population size and HDI have a significant effect on the level of poverty in Pakpak Bharat district.

Based on the conclusions above, the suggestions that can be given from this research are:

1. Population growth should be followed by good quality growth in terms of health and education
2. In the field of HDI, it is hoped that the government will carry out research in order to accurately identify an area that wants to address problems regarding the human development index and find out how ready it is to encourage existing economic growth

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