E-ISSN : 2549-5992, P-ISSN : 2088-0944
Available online at:
https://ejournal.itbwigalumajang.ac.id/index.php/wiga

Analysis Effect of Human Development Index, Minimum Wage Regency, Investment and Unemployment Rate on the Number of Poor People in Bali Province

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ARTICLE INFO

Date of entry:
13 January 2023
Revision Date:
9 February 2023
Date Received:
1 Maret 2023

ABSTRACT

This study aims to analyze the effect of the human development index (HDI), regency/city minimum wage (UMK), investment and unemployment rate on the number of poor people in Bali Province in 2012-2021. The analysis tool used is panel data regression. Panel data is a combination of time series and cross sections. Research data in the form of secondary data includes the human development index(HDI), regency/city minimum wage(UMK), investment, unemployment rate and the number of poor people obtained from the Central Statistics Agency (BPS). The results showed that the best model chosen was the fixed effect model (FEM). Based on the analysis of the FEM model, it shows that the human development index, the regency/city minimum wage affects the number of poor people in Bali province in 2012-2021. Meanwhile, investment variables and unemployment rate do not affect the number of poor people in Bali province. The coefficient of determination 0,9429 means that 94,29% of the variable variation in the number of poor people in Bali province can be explained by the variables of human development index (HDI), minimum wage regency (UMK), investment and unemployment rate. The remaining 5,71% is explained by other free variables that are not included in the model.

Keywords: Human Development Index, Minimum Wage Regency, Investment, Unemployment Rate, Number of Poor People

Cite this as: Dewi, A. K., & Nurhayati, S. F. Analysis Effect of Human Development Index (HDI), Regency/City Minimum Wage (UMK), Investment and Unemployment Rate on the Number of Poor People in Bali Province in 2012-2021. *Wiga : Jurnal Penelitian Ilmu Ekonomi*, *13*(1), 95–102. https://doi.org/10.30741/wiga.v13i1.933

INTRODUCTION

Indonesia as the fourth largest populated country in the world faces many socioeconomic problems, including poverty. This condition is aggravated by the Covid-19 outbreak so that people's income has decreased (Sulistyan et al., 2022). The number of poor people in Indonesia in 2021 is 26,50 million people. This is certainly a challenge as well as an economic development problem that must be overcome immediately (BPS Indonesia, 2021). Poverty is a condition where people have limited access to basic needs, education, health and productive economic activities (Priastiwi & Handayani, 2019). In measuring poverty, BPS (2021) uses a capacity-based approach to meet needs. Poverty occurs from the accumulation of various problems and involves many basic dimensions. The four

main dimensions of poverty include lack of opportunity, low of capabilities, low level of security, and low level of capacity or empowerment (Makmun, 2013; Damanik & Zalukhu, 2021).

Research by Lutfi et al. (2016) entitled "The Effect of the Regency/City Minimum Wage (UMK), Human Development Index (HDI) and Unemployment on the Number of Poor People in East Java Province for the 2006-2013 Period". The research method used is panel data regression. The results of the study found that the regency minimum wage (MSE), human development index (HDI) and unemployment had a positive and significant effect on the number of poor people at $\alpha = 0,05$. Research by Hamzah et al. (2019) entitled "The Effect of Investment and Inflation on the Number of Poor People in Jember Regency in 2000-2015". The research method used is multiple linear regression. The results of this study found that investment had no effect on the number of poor people at $\alpha = 0,05$ while the inflation variable had a positive and significant effect on the number of poor people at $\alpha = 0,05$.

Research Annisa and Sutjipto (2017) was entitled "Analysis of Factors Affecting the Number of Poor People in Regencies and Cities of Banten Province". The research method used is panel data regression. The results of the study found that the number of unemployed and GRDP per capita had a positive and significant effect on the number of poor people at $\alpha = 0,05$ while the percentage of people who graduated from high school had no effect on the number of poor people at $\alpha = 0,10$. This research is a development (extension) of the research of Lutfi et al. (2016), Hamzah et al. (2019), Annisa and Sutjipto (2017). In the research of Ahmad Fathul et al., (2016) the variables taken were the regency/city minimum wage (UMK) and the human development index (HDI), the research of Hamzah et al., (2019) one variable taken was investment and research of Annisa & Sutjipto (2017) one variable taken was unemployment. Thus, the purpose of this study is to analyze the effect of human development index (HDI), regency/city minimum wage (UMK), investment and unemployment rate on the number of poor people in bali province in 2012-2021.

METHODS

In order to analyze the effect of the human development index (HDI), regency/city minimum wage (MSE), investment and unemployment rate on the number of poor people in Bali province in 2012-2021, panel data regression was used, with the following formulation (Gujarati, 2015):

Information:
POV = Number of Poor People (souls)
HDI = Human Development Index (%)
UMK = Regency/City Minimum Wage (million rupiah)
INV = Total Investment (million rupiah)
TP = Unemployment Rate (soul)
e = Error term
β_0 = Constants
$\beta_{1...}\ \beta_n$ = Independent variable regression coefficient
i = Regency/city to i in Bali
t = year to

There are 3 analytical tools used to choose the best model, (Gujarati, 2015) namely:
1. Pooled Least Square (PLS)
   This method estimates panel data using the Ordinary Least Square (OLS) method. The PLS approach simply combines (pooled) all time-bound and interspace data, and assumes that both intercept and slope are considered equal for each time and individual. This method pays neither attention to individual dimensions nor to time.
2. Fixed Effect Model (FEM)

FEM assumes the existence of differences between individuals. This method adds a dummy variable to catch any intercept differences.

3. Random Effect Model (REM)
   REM assumes that intercept and slope have fixed values. If there is a difference in improving the efficiency of the process, at least square uses the calculation of the error between space and time sequence with the interference variable (error term).

The steps for testing panel data are (Gujarati, 2015):

1. Choose the best model by using:
   a. Chow Test
      The chow test is a test to compare the pooled least square (PLS) model with the fixed effect method (FEM). If the probability value or statistical empirical significance is $F > \alpha$, then H_0 accepted so that the selected model is pooled least square. Whereas if the value of probability or statistical empirical significance is $F < \alpha$, then H_0 rejected so that the selected model is fixed effect method.
   b. Hausmant Test
      The hausmant test is a test to compare fixed effect method (FEM) with random effect method (REM). If the probability value or statistical empirical significance of chi-square > α, then H_0 accepted so that the selected model random effect method. Whereas if the probability value or empirical significance of chi-square statistics < α, then H_0 rejected so that the selected model is fixed effect method.
2. Conducting statistical analysis including:
   a. Test t
      The t test is a test to analyze the degree of significance of the influence of free variables on non-free variables partially. If the free variable has no significant effect then its formulation $H_0: \beta_1 = 0$ and vice versa if the free variable has a significant effect then its formulation $H_a: \beta_1 \neq 0$. H_0 accepted when the value of probability or statistical empirical signification $t \leq \alpha$ and H_0 rejected if the value of probability or empirical signification of statistics $t \geq \alpha$.
   b. Test the existence of the selected model (test F)
      The F test is used to analyze the effect of free variables on non-free variables together. If there are four free variables in an econometric model, then the hypothetical formulation is: $H_0: \beta_1=\beta_2=\beta_3=\beta_4=0$ which means that together the variables of human development index (HDI), regency/city minimum wage (UMK), investment and unemployment rate have no effect on the number of poor people. While $H_a: \beta_1\neq0 \vee \beta_2\neq0 \vee \beta_3\neq0 \vee \beta_4\neq0$, which means that together the variables of the human development index (HDI), regency/city minimum wage (UMK), investment and unemployment rate affect the number of poor people. H_0 accepted when the probability or empirical signification of statistics $F > \alpha$ and H_0 rejected if the probability value or statistical empirical signification is $F \leq \alpha$.
   c. Coefficient of Determination (R^2)
      The coefficient of determination (R^2) is intended to measure the degree of goodness of the model (goodness of fit test), that is, how well the constructed econometric model can show the variation of non-free variables that can be explained by the free variables present in the model. The value of the coefficient of determination ranging from 0 to 1 is expressed in percentage form, where the value of the coefficient of determination of 0 means that the variation of non-free variables cannot be explained by the free variables in the model. Conversely if the value of the coefficient of determination is equal to 1 means that the variation of the free variable as a whole can be explained by the non-free variable in the model.

Panel data regression is a combination of time series data with cross sections. This cross-sectional data covers 9 regencies/cities in Bali Province, namely Jembrana Regency, Tabanan Regency, Badung Regency, Gianyar Regency, Klungkung Regency, Bangli Regency, Karangasem Regency,

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Buleleng Regency and Denpasar City. Secondary data in the study was obtained from the publication of the Central Statistics Agency (BPS) in 2012-2021. Some ofthe advantages of using panel data are:

1. Panel data is a combination of cross section and time series data in providing more poly data as a result of which it will form a greater degree of freedom.
2. Combining data information based on cross section and time series can solve the problem of removing variables.

The operational definition of variables is as follows:

1. Poverty (POV)
   Poverty is a person's inability to meet minimum living standards such as basic needs in the form of food, clothing, and shelter. The poverty data used in this study is data on the number of poor people in Regency/City in Bali Province in 2012-2021 which are measured in units of life (BPS Indonesia, 2021).
2. Human Development Index (HDI)
   The human development index is to measure the achievement of human development based on a number of basic components of quality of life. The human development index data used in this study is the Regency/City human development index data in Bali Province for 2012-2021 which is measured in percent (%) (BPS Indonesia, 2021).
3. Regency/City Minimum Wage (UMK)
   According to Regulation no.1 of Th. 1999 Article 1 paragraph 1, the minimum wage is the lowest monthly wage that every worker receives. The minimum wage data used in this study is data on the Regency/City Minimum Wage (UMK) in Bali Province in 2012-2021 which is measured in units of millions of rupiah (BPS Indonesia, 2021).
4. Investment (INV)
   Investment is the amount of investment made in regencies/cities in the province of Bali. The investment data used in this study is the total of foreign investment and domestic investment data for Regency/City in Bali Province in 2012-2021 which are measured in units of million money or rupiah (BPS Indonesia, 2021).
5. Unemployment Rate (TP)
   Unemployment is a resident who is not working or is looking for a job or is preparing for a business or a resident who is not looking for work because they feel it is impossible to get a job or who already have a job but have not yet started working. The Unemployment Data used in this study is data on the number of unemployed of each Regency/City in Bali Province in 2012-2021 which is measured in units of life per year (BPS Indonesia, 2021).

RESULTS AND DISCUSSION

The results of estimating econometric models with the Pooled Least Square (PLS), Fixed Effect Model (FEM) and Random Effect Model (REM) approaches along with the results of the model selection test are summarized in Table 1.

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Table 1.Econometric Model Estimation Results of Panel Data Regression - Cross section

Variabel	Koefisien Regresi		
	PLS	FEM	REM
C	62597.64	212257.1	71046.56
HDI	-609.3985	-2862.544	-759.0887
UMK	-0.001528	0.008050	0.001571
INV	0.000235	0.000169	0.000131
TP	0.624186	0.078445	0.143653
R^2	0.222576	0.942903	0.147975
Adjusted. R^2	0.181659	0.932827	0.103132
Statistik F	5.439687	93.57892	3.299828
Prob. Statistik F	0.000662	0.000000	0.015074

Model Selection Test
(1) Chow
Cross- Section F(8,68) = 107,2338; Prob. F(8,68) = 0,0000
(2) Hausman
Cross-Section random χ^2 (4) = 17,9388; Prob. χ^2 = 0,0013

Source: Data Processed (2022)

The results of the Chow test and the Hausman test showed that (FEM) was selected as the best estimated model, as can be seen from the probability or empirical significance of the F statistic worth 0,0000 (< 0,01) and the χ^2 statistic which is worth 0,0013 (< 0,01). The complete estimation results of the FEM estimated model, are shown in Table 2 and Table 3.

Table 2.Fixed Effect Model (FEM) Estimation Model

$$POV_{it} = 212257{,}1 - 2862{,}544\ HDI_{it} + 0{,}0080\ UMK_{it} + 0{,}0002\ INV_{it} + 0{,}07844\ TP_{it}$$
(0,0010)* (0,0028)* (0,2168) (0,1255)

R^2 = 0,9429; DW = 1,7809; F. = 93,5789; Prob. F = 0,0000

Source: Data Processed (2022)
Information:
* Significant at α = 0,01
** Significant at α = 0,05
*** Significant at α = 0,10
The number inside the brackets is the probability of the statistical value of t.

Table 3.Effects and Territorial Constants

No	Regency/City	Region Effects	Constant
1.	Jembrana Regency	-11542,92	200714,2
2.	Tabanan Regency	6012,377	218269,5
3.	Badung Regency	11136,60	223393,7
4.	Gianyar Regency	10119,38	222376,5
5.	Klungkung Regency	-16886,83	195370,3
6.	Bangli Regency	-22857,80	189399,3
7.	Karangasem Regency	-13597,21	198659,9
8.	Buleleng Regency	12105,55	224362,7
9.	Denpasar City	25510,85	237767,9

Source: Data Processed (2022)

Based on Table 2, it can be seen that the FEM estimated model exists with a statistical empirical probability or significance F of 0,0000 (< 0,01), with a coefficient of determination value (R^2) of 0,94 which indicates that the FEM estimated model has high predictability. Separately from the four

E-ISSN : 2549-5992, P-ISSN : 2088-0944
Available online at:
https://ejournal.itbwigalumajang.ac.id/index.php/wiga

variables in the econometric model, it turns out that only two variables, namely the Human Development Index (HDI) and the Regency/City Minimum Wage (UMK) variables have an influence on the number of poor people in Bali province in 2012-2021 with statistical empirical probability or significance t of 0,0010 (< 0.01) and 0,0028 (< 0.01).

The Human Development Index (HDI) variable has a regression coefficient value of -2862,544, with a liner-linear relationship pattern. This means that if the Human Development Indexes (HDI) increases by 1%, the number of poor people will increase by 2862,54 people. Preferably, if the Human Development Index decreases by 1% then the number of poor people will decrease by 2862,54 people. Meanwhile, the Regency/City Minimum Wage variable values the regression coefficient of 0,0080, with a liner-linear relationship pattern. Infact, if the regency/city minimum wage increases by 1 million rupiah, the number of poor people will increase by 0,0080 people. Preferably, if the regency/city minimum wage decreases by 1 million rupiah, then the number of poor people will decrease by 0,0080 people.

In table 4, it can be seen that the area with the highest constant value is Denpasar City, which is 237767,9. That is, related to the free variables of the human development index, regency/city minimum wage, investment and unemployment rate in its influence to cause the highest poverty in Denpasar City, which is 237767,9 compared to other cities. The next highest was followed by Buleleng regency and Badung regency. The lowest constant value is owned by Bangli County , which is 189399,3. That is, related to the free variables of the Human Development Index, Regency Minimum Wage, Investment and Unemployment Rate in its influence caused quite low poverty in Bangli Regency, which was 189399,3 compared to other cities. The next lowest was followed by Klungkung Regency and Karangasem Regency.

Discussion

Based on the results of the panel's estimated data, it is known that the variables of the human development index and regency minimum wage have an influence while the variables of investment and unemployment rate have no influence on the number of poor people in Bali Province in 2012-2021.

Human Development Index of the Number of Poor People

The Human Development Index negatively affected the number of poor people in Bali province in 2012-2021. This means that the higher the Human Development Index, the lower the number of poor people. The increasing number of Human Development Index indicates a better quality of life for the people, which is reflected in the improvement in health shown in education and the improvement of decent livelihoods, so that it can also increase the income that in the end the community is able to lift itself. This is in line with the research of Prassetyo and Arifin (2022) that increasing human development can also improve the quality of human resources, which is proven to increase competence by encouraging increased labor productivity. In the end, highly productive workers achieve better well-being. Thus, the hypothesis that the Human Development Index variable affects the number of poor people is proven.

Regency/City Minimum Wage Against the Number of Poor People

The Regency/City Minimum Wage has a positive effect on the number of poor people in Bali province. Based on the theory of the labor market, it is explained that as wages rise, the labor force decreases. This is due to wages that the company considers a burden because wages are costs that must be paid by the company to employees as production inputs. Therefore, higher wages affect the lower profits that the company can make. Thus, higher wages negatively affect companies, so when the government raises wages, labor demand falls Rahmawati et al., (2022). This is in line with the research of Pamungkas and Suman (2017) which states that the increase in the Regency/City Minimum Wage leads to an increase in the average wage and unemployment which leads to an

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increase in the number of poor people. Thus, the hypothesis that states the variable Regency/City Minimum Wage affects the number of poor people is proven.

Investment in the Number of Poor People

Investment has no effect on the number of poor people in Bali province. If there is an increase in investment, poverty will increase as well. Investment is the most important variable in the government's efforts to reduce the number of poor people in Bali Province, but these efforts have not succeeded in reducing the poverty it faces, even the investment has actually increased the number of poor people. This is because the return on investment cannot be experienced directly and evenly to realize human well-being, and it takes years to feel the benefits. The results of this study are in line with Hamzah et al., (2019) that investment has a positive effect on poverty. The results of this study are also inconsistent with Smith's theory and existing hypotheses, because investment is expected to improve people's welfare through equal employment opportunities and will increase people's income. Thus, the hypothesis that the investm

Unemployment Rate Against the Number of Poor People

The Unemployment Rate has no effect on the number of poor people in Bali province. This means that when the unemployment rate increases in Bali Province, the number of poor people also increases and vice versa. However, people in Bali Province do not directly experience an increase in unemployment. This variable unemployment rate is in accordance with the theory put forward by Sadono Sukirno, that the bad result of unemployment is the reduction in wealth that a person achieves. The declining welfare of the unemployed will certainly bring them into the trap of poverty due to lack of income. This research is in line with the research of Adawiyah and Febriani (2020) that the unemployment rate has no effect on the number of poor people. Thus, the hypothesis that the variable unemployment rate has no effect on the number of poor people is proven.

CONCLUSION

Based on the results of research analysis of the effect of the human development index (HDI), regency/city minimum wage (UMK), investment and unemployment rate on the number of poor people in Bali Province in 2012-2021, it can be concluded that the results of the selection test for the regression model of the selected cross section panel data fixed effect model (FEM) are the best model. Based on the fixed effect model (FEM), it is known that the results of the pegaruh validity test (t test) prove that the human development index (HDI) and the regency/city minimum wage (UMK) have a significant effect on the number of poor people at the level of $\alpha = 0{,}01$. Meanwhile, investment and unemployment rates have no effect on the number of poor people with $\alpha = 0{,}10$. The results of the existence test (F test) prove that the model used exists or together the variables of the human development index (HDI), regency minimum wage (UMK), investment and unemployment rate affect the number of poor people in Bali province in 2012-2021 at the level of $\alpha = 0{,}01$. The determinant coefficient (R^2) of 0,9429 means that 94,29% of the variable variation in the number of poor people can be explained by the variables of human development index (HDI), regency/city minimum wage (UMK), investment and unemployment rate. While the remaining 5,71% is explained by other free variables that are not included in the model. Based on the conclusions obtained, the implication is that the government should make poverty alleviation programs more of an empowerment of the poor (not in the form of cash) so as to increase their productivity. It can also be a training program that encourages people to become entrepreneurs independently and attracts investors to invest as much as possible to increase job opportunities while still paying attention to the quality of the investment itself which is not exploitative and the risk is minimal. For the sake of the results of the study, in the future it is possible for other researchers to use different analytical tools and variables.

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