ANALYSIS OF THE INCREASE IN POPULATION AND LIFE EXPECTANCY ON THE LEVEL OF COMMUNITY WELFARE IN GUNUNG SITOLI CITY IN 2018-2022

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ABSTRACT

The present study investigates the effects of rising life expectancy and population numbers on the state of community welfare in Gunungsitoli City between 2018 and 2022. Life expectancy rose along with the substantial population boom that Gunungsitoli City had throughout this time. Growing populations can make it more difficult to provide essential services such as infrastructure, healthcare, and education, but longer life expectations are a reflection of better living circumstances and health care. This study examines how these two factors relate to community welfare, which is determined by social, economic, and public facility accessibility. The findings of the study demonstrate that while longer life expectancies are good for welfare, rapid population expansion might make it more difficult for the government to provide for people's fundamental requirements, hence

***Keywords**: Increase In Population, Life Expectancy Rate, Community Welfare Level*

INTRODUCTION

Welfare and peace public is one of the the purpose of the country. One of method For reach objective This is through development economy. Government do various effort development economy for increase welfare. One of them with prioritize project development in the region with level low welfare. One of indicator main success development is decline amount poor people. Poverty is an issue that is of great concern to governments around the world, and Indonesia is not except. According to the Central Statistics Agency (BPS), poverty defined as inability For fulfil need base someone, good need food and also No food, which is measured from side expenditure. There are three reason poverty from corner view economy. Micro factors First is inequality in pattern ownership source power, which results in distribution income that is not balanced. Source Power available nature for the poor

Gunung Sitoli City, a strategic area in North Sumatra, has experienced complex population dynamics over the past decade. The phenomenon of increasing population and life expectancy (AHH) has become a major topic for many recent studies. This article aims to

answer the question of how increasing population and AHH impact the level of community welfare in Gunung Sitoli City. In this context, population growth is often associated with local economic and infrastructure growth. However, this phenomenon also brings new challenges, such as pressure on natural resources and public services. On the other hand, life expectancy, which is an important indicator of community quality of life, has increased significantly in several regions in Indonesia, including Gunung Sitoli City. This increase is thought to be influenced by various factors, such as improving health levels, improving living standards, and the effectiveness of health programs.

This study uses official statistical data from 2018 to 2022 to analyze the relationship between population growth and AHH with the level of community welfare in Gunung Sitoli City. By using appropriate analytical techniques, we can understand whether population growth and AHH together contribute to improving community welfare or whether they have different implications.

The results of this study are expected to provide useful discourse for local and national governments in revising more effective and sustainable development policies. Therefore, the author believes that this analysis will provide a complete picture of the interaction between demographic and socio-economic factors that affect the welfare of the community in Gunung Sitoli City.

RESEARCH METHODS

There are three variables studied in this study: variable X1 is population growth, variable X2 is life expectancy, and variable Y is the percentage of poverty in Gunung Sitoli City. This study uses a quantitative method using a secondary data analysis approach. Secondary data were obtained from the Central Statistics Agency (BPS) and population distribution reports.

RESULTS AND DISCUSSION

Tabel 1. Population Data, Life Expectancy (AHH) and Poverty Percentage in Gunung Sitoli City 2018 – 2022

YEAR	TOTAL POPULATION	AHH	POVERTY
2018	140,927	70.67	18.44
2019	142,426	71.02	16.23
2020	136,017	71.19	16.41
2021	139,371	71.32	16.45
2022	139,946	71.71	14.81

Data: BPS 2018 - 2022

The above data will be processed using SPSS regression. This data starts from 2018 - 2022, which is 5 years. It has 2 x variables, namely: Population and Life Expectancy. Then for the Y variable is the Percentage of Poverty. The place taken is Gunung Sitoli City. Regression using SPSS has 3 tests in it, namely:

1. **Descriptive Statistical Test**

2. **Classical Assumption Test**

    A. Normality test

    B. Multicollinearity test

    C. Autocorrelation test

    D. Heteroscedasticity test

3. **Hypothesis Testing**

    A. Multiple linear analysis test

    B. Test of coefficient of determination

    C. Simultaneous test (F test)

    D. Partial test (T test)

The following are the results of the regression using SPSS:

Descriptive Statistical Test

Tabel 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
TOTAL POPULATION	5	136.02	142.43	139.7374	2.38028
AHH	5	70.67	71.71	71.1820	.38284
POVERTY	5	14.81	18.44	16.4680	1.29403
Valid N (listwise)	5				

These descriptive statistics provide an overview of the data used, namely we can see that:

- The population fluctuated from 136.02 to 142.43 thousand, with an average of around 139.74 thousand. This indicates an increase in population during the period.

- AHH (Life Expectancy) is relatively stable with an average of 71.18 years and a small spread, indicating a small but steady improvement in quality of life.

- Poverty ranges between 14.81% and 18.44%, indicating significant variation in poverty levels.

Regression

Tabel 3. Variables Entered/Removed [a]

Model	Variables Entered	Variables Removed	Method
1	AHH, POPULATION NUMBER [b]	.	Enter

a. Dependent Variable: POVERTY
b. All requested variables entered.

Dependent Variable: The dependent variable in this regression model is POVERTY. This means that the regression model aims to predict or explain how poverty is affected by other independent variables.

Variables Entered (Variables Entered):

- POPULATION: Measuring the population in Gunung Sitoli City during 2018-2022.

- AHH (Life Expectancy): Measures the life expectancy of the community in the same period. This means that the regression model will analyze the effect of population and life expectancy on poverty levels.

Variables Removed: All variables requested for inclusion in the analysis were actually used in the model calculations because no variables were removed from the model.

Method: In this model, Enter is used, which means all independent variables are entered simultaneously into the model in linear regression. The model tries to find the relationship between the dependent variable (poverty) and all independent variables (population and AHH) simultaneously, without automatically removing variables.

Autocorrelation Test (Durbin Watson) and Determination Coefficient Test (Adjusted Square)

Tabel 4. Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.943 [a]	.890	.780	.60760	2.133

a. Predictors: (Constant), AHH, NUMBER OF POPULATION
b. Dependent Variable: POVERTY

Simultaneous test (F test)

To see whether it has an effect or not, you can look at the F and Sig tables.

Tabel 5. ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5,960	2	2,980	8,072	.110 [b]
	Residual	.738	2	.369		
	Total	6,698	4			

a. Dependent Variable: POVERTY
b. Predictors: (Constant), AHH, NUMBER OF POPULATION

Multicollinearity Test and Multiple Linear Analysis Test (Unstandardized Coefficients B) / Partial Test (T Test)

Partial test (T-Test) is seen from the T and Sig columns. The requirement for the SIG value to have an effect or not must be less than 0.05. From this data, it has no effect because the value is 0.58.

Tabel 6. Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	261,379	66,420		3.935	.059		
	TOTAL POPULATION	-.077	.133	-.142	-.583	.619	.922	1,084
	AHH	-3.289	.826	-.973	-3,980	.058	.922	1,084

a. Dependent Variable: POVERTY

Tabel 7. Coefficient Correlations [a]

Model			AHH	TOTAL POPULATION
1	Correlations	AHH	1,000	.278
		TOTAL POPULATION	.278	1,000
	Covariance	AHH	.683	.031
		TOTAL POPULATION	.031	.018

a. Dependent Variable: POVERTY

Tabel 8. Collinearity Diagnostics [a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	TOTAL POPULATION	AHH
1	1	3,000	1,000	.00	.00	.00
	2	.000	131,200	.01	.81	.03
	3	9.476E-6	562,635	.99	.19	.97

a. Dependent Variable: POVERTY

Tabel 10. Residuals Statistics [a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	14.7155	18.0597	16.4680	1.22063	5

Std. Predicted Value	-1.436	1,304	.000	1,000	5
Standard Error of Predicted Value	.293	.563	.461	.104	5
Adjusted Predicted Value	14.4521	18.6502	16.7554	1.61030	5
Residual	-.56258	.40746	.00000	.42964	5
Std. Residual	-.926	.671	.000	.707	5
Stud. Residual	-1.393	1,060	-.121	1.169	5
Deleted Residual	-2.24018	1.09145	-.28736	1.37780	5
Stud. Deleted Residual	-5,703	1.133	-1.332	2,921	5
Expensive. Distance	.133	2,629	1,600	.955	5
Cook's Distance	.059	3,884	1,077	1,599	5
Centered Leverage Value	.033	.657	.400	.239	5

a. Dependent Variable: POVERTY

Charts

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: KEMISKINAN

Heteroscedasticity Test

Scatterplot
Dependent Variable: KEMISKINAN
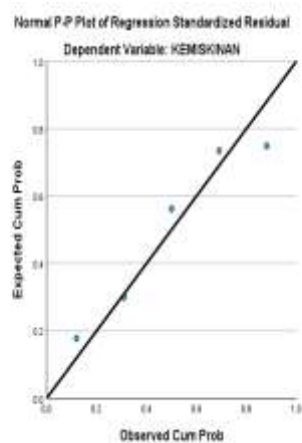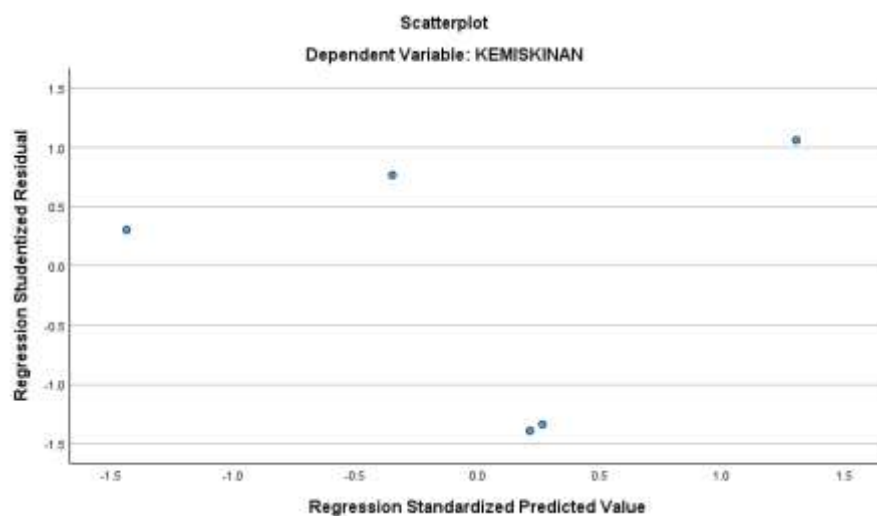
Normality Test

NPAR Tests

Tabel 11. One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			5
Normal Parameters [a,b]	Mean		.0000000
	Std. Deviation		.42963925
Most Extreme Differences	Absolute		.212
	Positive		.172
	Negative		-.212
Test Statistics			.212
Asymp. Sig. (2-tailed) [c]			.200 [d]
Monte Carlo Sig. (2-tailed) [e]	Sig.		.674
	99% Confidence Interval	Lower Bound	.661
		Upper Bound	.686

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.
e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

If asymp.Sig (2-tailed) [c] is greater than 0.05 then the data is normal and worthy to be used as research material. From the data above there is a number 200 then the data is normal.

There is welfare public included in title journal This is for show welfare, BPS data is used. For show percentage poverty in Gunung City Sitoli. Welfare House ladder can affected negative by poverty. Some factor like education, field work, and health also play a role role important in determine level poverty and welfare society; individual or living family in poverty often not can fulfil need base like food, education, and health , which contribute to the decline quality life them . Poor education and hardship For get work can to worsen poverty . From 2018 to 2019, poverty decreased, according to the data presented . The number of the population continues to grow increase Still impact positive on numbers hope long live the mountain city Sitoli .

Amount Population (Independent Variable): From the regression output, the number of resident own coefficient regression -0.077. This means that, with assumption other variables remain constant, level poverty projected down as big as 0.077 units If amount resident increase as big as one unit. Amount resident No own influence significant to level poverty in this model, because sig. value of variable This is 0.619, more big from 0.05. Life Expectancy (AHH) (Independent Variable): With improvement one unit at AHH, level poverty

will down amounting to 3,289 units, according to coefficient its regression is -3.289. However, the influence That Not yet considered significant in a way statistics Because The Sig. value is 0.58, which is slightly above the significance limit of 0.05.

Poverty (Dependent Variable): In this model, the variable poverty used as variable dependent . Based on change amount population and numbers hope life, purpose model For predict change poverty . Research results this , with coefficient determination (R Square) 0.89, indicating that the regression model with amount residents and AHH as variable independent can donate about 89% of variation level poverty . In Overall , the welfare of Gunungsitoli City show a number of improvements , especially from side welfare general (AHH), but Still There is challenge big For reduce poverty and increase welfare public in a way evenly .

CONCLUSION

Gunung Sitoli City experienced significant population growth between 2018 and 2022. Rapidly increasing population can impact various aspects of welfare, including the availability of jobs, housing, and public infrastructure. If not managed properly, population growth can increase pressure on available resources, reducing the level of community welfare. In addition, increasing life expectancy indicates an increase in health services, environmental cleanliness, and the availability of health facilities in Gunung Sitoli City. Sustainable policies are needed to balance population growth with increasing life expectancy, which is directly related to community welfare. Community welfare can be achieved if the local government can manage these two factors well.

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