

## Comparative Analysis of The Percentage of Poor People in Indonesia Between Urban and Rural Areas in 2023

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### ABSTRAK

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Penelitian ini bertujuan untuk membandingkan tingkat kemiskinan penduduk pedesaan dan perkotaan di Indonesia pada tahun 2023. Data kuantitatif berasal dari Badan Pusat Statistik (BPS) tahun 2023. Metode analisis yang digunakan meliputi analisis deskriptif, uji normalitas, uji homogenitas, dan uji Mann-Whitney. Uji normalitas dilakukan untuk memastikan sebaran data kemiskinan mengikuti sebaran normal. Uji homogenitas menguji apakah varian data kemiskinan di pedesaan dan perkotaan sama. Uji Mann-Whitney yang merupakan alternatif uji T nonparametrik digunakan untuk mengetahui apakah terdapat perbedaan yang signifikan antara angka kemiskinan di pedesaan dan perkotaan, dengan asumsi data berdistribusi normal atau homoskedastis. Hasil penelitian menunjukkan terdapat perbedaan angka kemiskinan yang besar antara pedesaan dan perkotaan, dimana angka kemiskinan di pedesaan lebih tinggi dibandingkan di perkotaan. Hasil-hasil ini menunjukkan bahwa diperlukan intervensi kebijakan yang lebih tepat sasaran dan strategis untuk mengurangi kemiskinan di pedesaan.

*Kata Kunci: Kemiskinan, Uji Normalitas, Uji Homogenitas, Uji Mann-Whitney*

### ABSTRACT

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This study aims to compare the poverty rates of rural and urban residents in Indonesia in 2023. Quantitative data comes from the Central Statistics Agency (BPS) in 2023. The analysis methods used include descriptive analysis, normality test, homogeneity test, and Mann-Whitney test. The normality test is conducted to ensure that the distribution of poverty data follows a normal distribution. The homogeneity test tests whether the variance of poverty data in rural and urban areas is the same. The Mann-Whitney test, which is an alternative nonparametric T-test, was used to determine whether there is a significant difference between rural and urban poverty rates, assuming the data is normally distributed or homoskedastic. The results show that there is a large difference in poverty rates between rural and urban areas, where poverty rates in rural areas are higher than in urban areas. These results suggest that more targeted and strategic policy interventions are needed to reduce rural poverty.

*Keywords: Poverty, Normality Test, Homogeneity Test, Mann-Whitney Test*

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### INTRODUCTION

Poverty is a complex and multi-faceted social problem that has a significant impact on the economy and the welfare of society. In Indonesia, poverty is a major issue that is continuously discussed by the government and society. One important aspect of poverty analysis is to understand the differences in poverty conditions between rural and urban areas. This is important to identify the factors that influence poverty in each region and formulate appropriate policies to effectively reduce the poverty threshold.

According to data collected in 2023 by the Central Bureau of Statistics (BPS), there is a significant difference in the perception of poverty between rural and urban areas in Indonesia. This

data shows that poverty rates in rural areas are consistently higher than in urban areas. This difference may be due to various factors such as access to daily information, work-related stress, education, and health services.

The purpose of this study is to compare the perception of poverty in Indonesia between urban and rural areas in 2023. This analysis was conducted using several statistical methods, including the Mann-Whitney test, normality test, and homogeneity test. The normality test is used to determine whether the distribution of data on the number of poor people in urban and rural areas follows a normal distribution. This is important because many parametric statistical tests require that the data being analyzed must be normally distributed.

The purpose of the homogeneity test is to determine whether the differences in the perceptions of the poor in the two regions are the same. This test is very important to determine the more detailed analysis method to be used, whether parametric or nonparametric tests. The Mann-Whitney test is a non-parametric statistical test used to compare two independent samples that do not follow a normal distribution and have inhomogeneous variations. This test will help determine if there is a significant difference between the perceptions of the poor towards penetration land and rural land. Through this analysis, it is hoped that it can provide further understanding of the characteristics of the poor in Indonesia and provide support for more effective policy making in both regions. This research is also expected to contribute to the academic literature on economic conditions and trends in Indonesia.

## METHODS

### A. Research Design

This study uses a quantitative comparative design with cross-sectional analysis. The aim is to compare the perceptions of the poor in rural and urban areas in Indonesia in 2023. This approach allows the analysis of differences at a single point in time using relevant statistical data.

### B. Population and Sample

**Population:** The population in this study includes all Indonesian citizens as reported in BPS statistics for 2023. This population includes various demographic, economic, and geographic groups, both at home and abroad.

**Sample:** The sample used in this study is data on the percentage of poor people in each province in Indonesia, which is divided into two main categories: urban and rural. Purposive sampling is the method used in the sample selection to ensure that the data collected is representative and in line with the research objectives. The total sample used is based on data from 34 provinces in Indonesia, which are then classified based on the BPS classification system for land area and land use.

### C. Data Source

The data used in this study is secondary data obtained from the Indonesian Central Bureau of Statistics (BPS). This data includes information on the percentage of poor people in urban and rural areas in 2023. BPS data was chosen because it is considered credible and accurate in providing national statistical information.

### D. Data Collection Technique

Data was obtained through searches conducted on the official BPS website and through other official publications issued by BPS. The data collected included the percentage of poor people in each province, which was then analyzed based on urban and rural areas. This data was systematically collected and incorporated into the software's analytical approach to determine further requirements.

#### E. Data Analysis Technique

The data analysis technique used in this research includes several stages as follows:

##### 1. Normality Test

The normality test is used to determine whether the distribution of data on the percentage of poor people in urban and rural areas follows a normal distribution.

This test is important because it shows how to perform more rigorous statistical analysis. Kolmogorov's test is used to assess normality because it is effective for sample sizes  $>30$ . The decision-making criteria are:

- 1) If  $p\text{-value} > 0.05$ , then the data is normally distributed.
- 2) If the  $p\text{-value} \leq 0.05$ , then the data is not normally distributed.

##### 2. Homogeneity Test

The homogeneity test was conducted to assess the similarity between two groups of data, namely the percentage of poor people in urban and rural areas. This test is important to ensure that the variances of the two groups are homogeneous, which is required for some more in-depth statistical analysis. Levene's test was conducted using the following criteria:

- 1) If  $p\text{-value} > 0.05$ , then the data variance is homogeneous.
- 2) If the  $p\text{-value} \leq 0.05$ , then the data variance is not homogeneous.

##### 3. Mann Whitney Test

The Mann-Whitney test was used to compare the median percentage of poor people between urban and rural areas. This test is used because it does not require assumptions of normality and consistency for data that are not normally distributed or have inhomogeneous variations. The decision criteria are:

- 1) If the  $p\text{-value}$  is more than 0.05, then there is no significant difference between the perceptions of the urban and rural poor.
- 2) If the  $p\text{-value}$  is less than 0.05, there is a significant difference between the perceptions of the urban and rural poor.

#### F. Research Procedure

- 1) **Data Collection:** The data were downloaded from the BPS website and checked to ensure completeness and validity. The data was then organized by urban and rural areas.
- 2) **Normality Test:** A normality test was conducted on the data of the percentage of poor people to determine whether the data was normally distributed or not.
- 3) **Homogeneity Test:** A homogeneity test was conducted to check whether the variance of the data between the two groups (urban and rural) was homogeneous.

- 4) **Mann-Whitney Test:** After the normality and homogeneity tests, because the data was not normally distributed, a nonparametric MannWhitney test was used to compare the percentage of poor people between urban and rural areas.
- 5) **Interpretation of Results:** The results of each stage of the test were analyzed and interpreted to draw conclusions about the differences in the percentage of poor people between urban and rural areas.

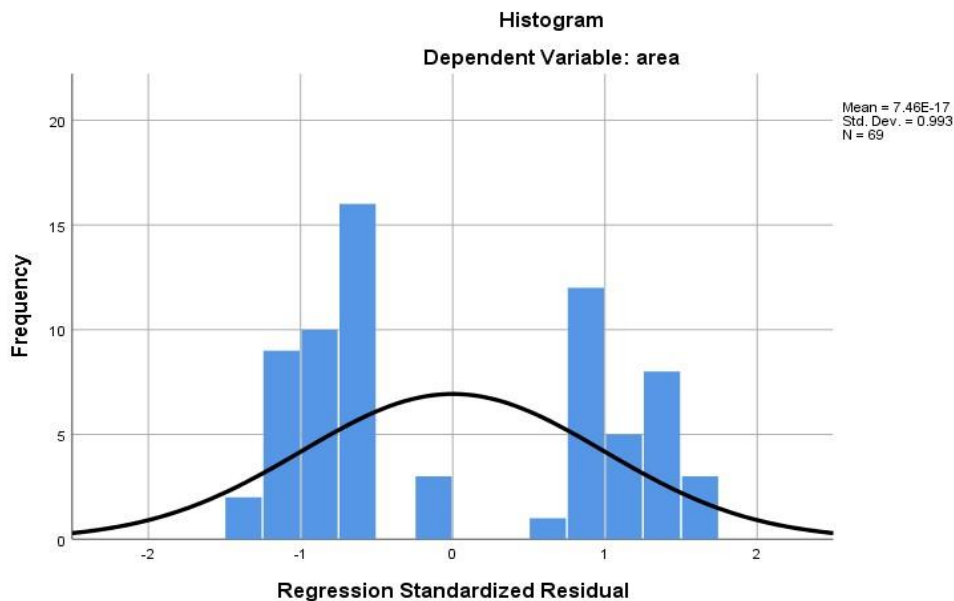
### G. Software Analysis

Data analysis was conducted using statistical software such as SPSS or R. These software techniques were used to conduct homogeneity, normality, and Mann-Whitney tests and interpret the results of the statistical analysis correctly.

With this methodology, it is hoped that the research can provide comprehensive information on the differences in poverty rates between provinces and regions in Indonesia, as well as a sharp reference for formulating more effective policy measures in poverty reduction in various regions.

## RESULT AND DISCUSSION

The Kolmogorov test serves as a Distribution Conformity Test, it compares the cumulative distribution of the sample data with the cumulative distribution of the expected theoretical distribution (in this case, the normal distribution). Generalization, can be used to test the suitability of data to other theoretical distributions, not just the normal distribution. Difference Detection, Identifies significant differences between the distribution of the sample data and the normal distribution.



**One-Sample Kolmogorov-Smirnov Test**

		Unstandardized Residual
N		69
Normal Parameters <sup>a, b</sup>	Mean	.0000000
	Std. Deviation	.44646492
Most Extreme Differences	Absolute	.247
	Positive	.247
	Negative	-.183
Test Statistic		.247
Asymp. Sig. (2-tailed)		.000 <sup>c</sup>

- a. Test distribution is Normal.
- b. Calculated from data.
- c. Lilliefors Significance Correction.

Based on the SPSS output table, it is known that both in the Kolmogorov-Smirnov test the significance value Asymp Signification (2-tailed)  $0.00 < 0.05$ . So in accordance with the basis for decision making in the Kolmogorov-Smirnov normality test above, it can be concluded that the data is not normally distributed. Thus, the assumption or requirement of normality in the regression model is not met.

**A. Homogeneity Test**

Homogeneity test is one of the testing methods in statistics to determine whether two or more samples from different populations have the same distribution of variance or characteristics. The homogeneity test was conducted as a prelude to the Independent Sample T Test and Analysis of Variance (Anova) analysis.

**1. Hipotesis**

The null hypothesis (H0) states that the two populations have the same distribution values, and the alternative hypothesis (H1) indicates that the two populations have different distribution values.

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
poverty rate indonesia	Based on Mean	9.937	1	67	.002
	Based on Median	8.591	1	67	.005
	Based on Median and with adjusted df	8.591	1	39.701	.006
	Based on trimmed mean	8.625	1	67	.005

Based on the SPSS output table, the significance value (Sig.) for all tests (based on mean, median, median with adjusted df, and trimmed mean) is  $0.02 < 0.05$ . So in accordance with the basis for decision making in the homogeneity test above, it can be concluded that the data is not normally distributed (H1). This indicates that there is a significant difference in the variance of poverty rates in rural and urban areas.

**B. Mann Whitney Test**

The Mann Whitney U Test is also known as the Wilcoxon Rank Sum Test. It is a nonparametric test option if the Independent T Test cannot be done because the normality assumption is not met.

Based on the normality and homogeneity tests that have been carried out previously, the data is proven to be abnormally distributed. So, to overcome this, the non-parametric Mann whitney u test is used.

**1. Hypotesis Testing Criteria**

- 1) If the p-value  $\leq 0.05$ , the null hypothesis (H0) is rejected.
- 2) If the p-value  $> 0.05$ , then the null hypothesis (H0) fails to be rejected.

The following is the SPSS output table for the mann whitney test

Ranks				
	area	N	Mean Rank	Sum of Ranks
poverty indonesia rate	rural	35	25.14	880.00

	urban	34	45.15	1535.00
	Total	69		

Test Statistics <sup>a</sup>	
	poverty indonesia rate
Mann-Whitney U	250.000
Wilcoxon W	880.000
Z	-4.141
Asymp. Sig. (2-tailed)	.000
a. Grouping Variable: area	

Based on the test results, the p-value (0.000) is much smaller than the significance level of 0.05, thus the null hypothesis (H0) is rejected and (H1) is accepted. This means that there is a significant difference in poverty rates between urban and rural areas.

**CONCLUSION**

Based on the research in the previous chapter, it can be concluded that there are significant differences in poverty rates between urban and rural areas in Indonesia. The main conclusion points follow:

1. Higher Poverty Rates in Rural Areas: The results show that poverty rates in rural areas are consistently higher than those in urban areas. This indicates that the problem of poverty is more severe in rural areas.
2. Normality and Homogeneity Test: The poverty data does not follow a normal distribution and has inhomogeneous variance. The Kolmogorov-Smirnov test and Levene test show that the data is not normally distributed and there is a significant difference in the variance of poverty rates between urban and rural areas.

3. Mann-Whitney Test: The Mann-Whitney non-parametric statistical test was used because the data was not normally distributed. The test results show a very low p-value (0.000), indicating a significant difference in poverty rates between urban and rural areas.
4. More Targeted Policies: The findings suggest that more targeted and strategic policy interventions are needed to reduce poverty in rural areas. The government needs to focus on factors that influence rural poverty, such as access to information, education, health services, and employment conditions.

Thus, this research provides important insights for the formulation of more effective policies in addressing poverty, especially in rural areas in Indonesia. The government may be able to reduce poverty inequality by improving village infrastructure, improving access to education and training for rural communities, improving health services, supporting the economy in both agriculture and village MSMEs, facilitating access to information, and improving cooperation between institutions. Improve cooperation between the central government, local governments, NGOs, and the private sector in developing and implementing holistic and integrated poverty alleviation programs. With this implementation, it is expected that there will be a reduction in the poverty rate in rural areas and an increase in the overall welfare of the population.

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