

The Impact of Infrastructure in Improving of Health, Education and Community for Increasing The Quality of Human Resources in Ngawi

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Abstract

Performance success in terms of human development. The quality of human development that has been achieved by an area can be done by measuring the quality of the development by using parameters with 3 (three) components, among others; (1) Success in health is seen from the ability to live physically, namely by looking at life expectancy; (2) Ability to reflect on the success of educational development by looking at literacy rates and length of schooling; (3) The amount of goods and services that can be provided by the community for its citizens, namely by observing the purchasing power parity of the community. In other words, the human development index is measured by three dimensions, namely (1) health index, (2) education and (3) economy. The health index is measured by the life expectancy rate, usually the life expectancy of the baby born. One of the ways education index can be measured by literacy rate. Then the economic dimension is measured from the people's purchasing power index. Currently, more than half of Indonesia's population live in urban areas. By 2030 it is projected that more than 60 percent of Indonesia's population will be residents who live in urban areas. This leaves urban areas with many planning challenges, as cities offer more efficient economies of scale at various levels, including the provision of goods, transportation and services. A green city is a city designed with environmental impacts in mind, inhabited by people who have the awareness to conserve energy, water and food use and minimize waste disposal, water pollution and air pollution. Green waste is an effort to manage waste / waste in order to create zero waste by implementing the 3R concept, namely reduce (reduce waste), reuse (add value to waste resulting from the recycling process), and recycle. Urban open space is a space that is always located outside the mass of the building which can be utilized and utilized by everyone and provides the opportunity to carry out various activities in urban areas. The open spaces in question include pedestrians, roads, environmental parks, sports fields, plazas, recreational parks and city parks. Every public space has its own spatial, historic, social, environmental and economic features. The indicator for the proportion of urban open space is a global indicator that needs to be developed. A green city is a city designed with environmental impacts in mind, inhabited by people who have the awareness to save energy, food and water and minimize waste, air pollution and water pollution. The proportion of green open space in the city area is at least 30% of the city area.

Keywords

Infrastructure, Quality Human Resources, Quality Urban Development

1. Introduction

Performance success in terms of human development. The quality of human development that has been achieved by an area can be done by measuring the quality of the development by using parameters with 3 (three) components, among others; (1) Success in health is seen from the ability to live physically, namely by looking at life expectancy; (2) Ability to reflect on the success of educational development by looking at literacy rates and length of schooling; (3) The amount of goods and services that can be provided by the community for its citizens, namely by observing the purchasing power parity of the community. In other words, the human development index is measured by three dimensions, namely (1) health index, (2) education and (3) economy. The health index is measured by the life expectancy rate, usually the life expectancy of the baby born. One of the ways education index can be measured by literacy rate. Then the economic dimension is measured from the people's purchasing power index. Currently, more than half of Indonesia's population live in urban areas. By 2030 it is projected that more than 60 percent of Indonesia's population will be residents who live in urban areas. This leaves urban areas with many planning challenges, as cities offer more efficient economies of scale at various levels, including the provision of goods, transportation and services. A green city is a city designed with environmental impacts in mind, inhabited by people who have the awareness to conserve energy, water and food use and minimize waste disposal, water pollution and air pollution. Green waste is an effort to manage waste / waste in order to create zero waste by implementing the 3R concept, namely reduce (reduce waste), reuse (add value to waste resulting from the recycling process), and recycle. Urban open space is a space that is always located outside the mass of the building which can be utilized and utilized by everyone and provides the opportunity to carry out various activities in urban areas. The open spaces in question include pedestrians, roads, environmental parks, sports fields, plazas, recreational parks and city parks. Every public space has its own spatial, historic, social, environmental and economic features. The indicator for the proportion of urban open space is a global indicator that needs to be developed. A green city is a city designed with environmental impacts in mind, inhabited by people who have the awareness to save energy, food and water and minimize waste, air pollution and water pollution. The proportion of green open space in the city area is at least 30% of the city area.

2. Literature Review

The impact of infrastructure in improving of health, education and community for increasing the quality of human resources in Ngawi, cited Setiawan, MI, et al (2020) sustainable mobility, maritime, airport, and regional government revenue and expenditure (APBD), describe sustainable transportation of seaport and airport impact on GDP and APBD, covered 296 official airports condition in Indonesia, the results are regional government revenues and expenditures (APBD) connected with passenger departures, passenger arrivals, and baggage. So with good infrastructure will impact increasing of regional income.

The impact of infrastructure in improving of health, education and community for increasing the quality of human resources in Ngawi, cited Setiawan, MI, et al (2020) sustainable cities, transportation, and warehousing GDP, describe sustainable transportation connected with cities and GDP of warehousing, covered 151 official airports condition in Indonesia, the results are transportation and warehousing GDP increase based on airplane arrived and departed, passenger, baggage, and cargo. So with good infrastructure will impact increasing of transportation and warehousing GDP

The impact of infrastructure in improving of health, education and community for increasing the quality of human resources in Ngawi, cited Setiawan, MI, et al (2018) the development of long apung airport as the central of economic in the border region with the support of regional renewable energy, describe sustainable transportation supported by renewable energy, as power energy in rural and border airport area of Indonesia. So with good infrastructure will impact increasing of regional GDP

The impact of infrastructure in improving of health, education and community for increasing the quality of human resources in Ngawi, cited Setiawan, MI, et al (2018) the correlations between airport sustainability and Indonesian economic growth, describe sustainable transportation of airport and airport performance impact to industry such as accommodation and food services activities. So with good infrastructure will impact increasing of regional industry activities.

The impact of infrastructure in improving of health, education and community for increasing the quality of human resources in Ngawi, cited Setiawan, MI, et al (2018) E-Business, airport development, and its impact on the increase of information on communication development in Indonesia, describe correlations of 151 airports performance and regional GDP of Information and Communication. So with good infrastructure will impact increasing of regional industry of Information and Communication.

The impact of infrastructure in improving of health, education and community for increasing the quality of human resources in Ngawi, cited Setiawan, MI, et al (2018) business centre development model of airport area in supporting airport sustainability in Indonesia, describe correlations of 151 airports performance and business centre development surrounding airport area. So with good infrastructure will impact increasing of business activities

The impact of infrastructure in improving of health, education and community for increasing the quality of human resources in Ngawi, in Setiawan, MI, et al (2017) the technology of web GIS and mobile GIS for airport business area development, describe correlations of 296 airports performance, local government budget (APBD) and local GDP, surrounding airport area. So with good infrastructure will impact increasing of local government budget (APBD) and local GDP

3. Methods

The data collection process is carried out using: (1) Interview techniques, which is done by interviewing directly with resource persons (Health Office, Education Office, Village Community Empowerment Service, and Indonesia Statistics); (2) Documentation is conducted by recording data straight from documents and reports relating to research problems.

Data from Indonesia Statistic, collected, include:

- BPS, 2019, Regional Statistics of Ngawi
- BPS, 2019, Regional Statistics of Ngawi, People's Welfare Statistics
- BPS, 2019, Regional Statistics of Ngawi, Figures of Ngawi Regency

The population chosen is closely related to the problem to be studied. The population used in this study are all 217 villages in Ngawi Regency.

According to the relationship between one variable and another, the variables in the study can be divided into: (1) Independent Variable. The variable is often referred to as the stimulus, predictor, or antecedent variable. In Indonesian, it is often referred to as an independent variable. Independent variables are variables that influence, which cause change, and which create the dependent variable (related); (2) Dependent Variable. The variables are often referred to as output, criterion, or consequent variables. In Indonesian, it is often referred to as the dependent variable. The dependent variable is the variable that is influenced by and is the result of the independent variables; (3) The study will examine the magnitude of the influence of the availability of health infrastructure, education, economy, and village funds or the allocation of village funds to strengthen human development in Ngawi Regency. The availability of health infrastructure, education infrastructure, economic infrastructure, and village funds or village fund allocations is the independent variable (X), while the HDI dimension is the dependent variable (Y).

The materials used in the study are as follows: (1) The health profile of Ngawi District in 2018. The author limits physical health infrastructure in hospitals, health centres, auxiliary health centres, clinics and maternity hospitals, village maternity clinics, family planning service-integrated health post, and sanitation facilities; (2) The Education Profile of Ngawi Regency in 2018 is limited to formal education facilities, namely in elementary schools (SD / MI), secondary schools (SMP / MTs, SMU / SMK / MA), and universities; (3) Village Road Data for Ngawi Regency 2018; (4) Subdistrict data in 2018 shows that there 19 Districts in Ngawi Regency.

The data analysis technique is performed using multiple linear regression analyses with the Stepwise method through SPSS 24.

Validity and reliability tests need to be done on research data. The validity test is used to determine the feasibility of a variable using the Product Moment (r) correlation technique. The formula used is as follows:

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}}$$

Where :

- r = Moment Product Correlation
- n = The number of respondents
- x = Respondent's answer to each question
- y = The number of answers per respondent to all questions

The results of the count test are compared with the table. If $r\text{-count} > r\text{-table}$, the question item is valid.

Reliability is a measure of the stability and consistency of research data. The reliability test was done by using the Alpha Cronbach test. The Alpha Cronbach formula is as follows:

$$\alpha = \left(\frac{K}{K-1} \right) \left(\frac{s_r^2 - \sum s_i^2}{s_x^2} \right)$$

Alpha Cronbach reliability coefficient

K: number of question items tested

$\sum s_i^2$: the amount of the item score variance

SX^2 : Variance of all the test scores

The Cronbach's Alpha value, which is getting closer to 1.0, indicates that the research is getting better, include:

- Cronbach's Alpha 0.8 - 1.0: good reliability
- Cronbach's Alpha 0.6 - 0.79: reliability is accepted
- Cronbach's Alpha <0.6: poor reliability

4. Results and Discussion

The results of the validity and reliability test by using SPSS, IBM SPSS Statistics is a powerful statistical software platform. SPSS Statistics can analyze and better understand data, and solve complex business and research problems through a user-friendly interface, more quickly understand large and complex data sets with advanced statistical procedures that help ensure high accuracy and quality decision making. Table 1 shows case processing summary and reliability statistics, are as follows:

Table 1. Case Processing Summary and Reliability Statistics

		N	%
Cases	Valid	217	100.0
	Excluded	0	.0
	Total	217	100.0
Cronbach's Alpha		Cronbach's Alpha Based on Standardized Items	N of Items
		6.987E-5	.827 30

From the Reliability Table above, it can be seen that the Cronbach's Alpha value is 0.827. It means that the Respondents' Data has good reliability.

Figure 1 shows the normal P – P Plot of the test data, the results of the normality test through the SPSS, are as shown in the following figure:

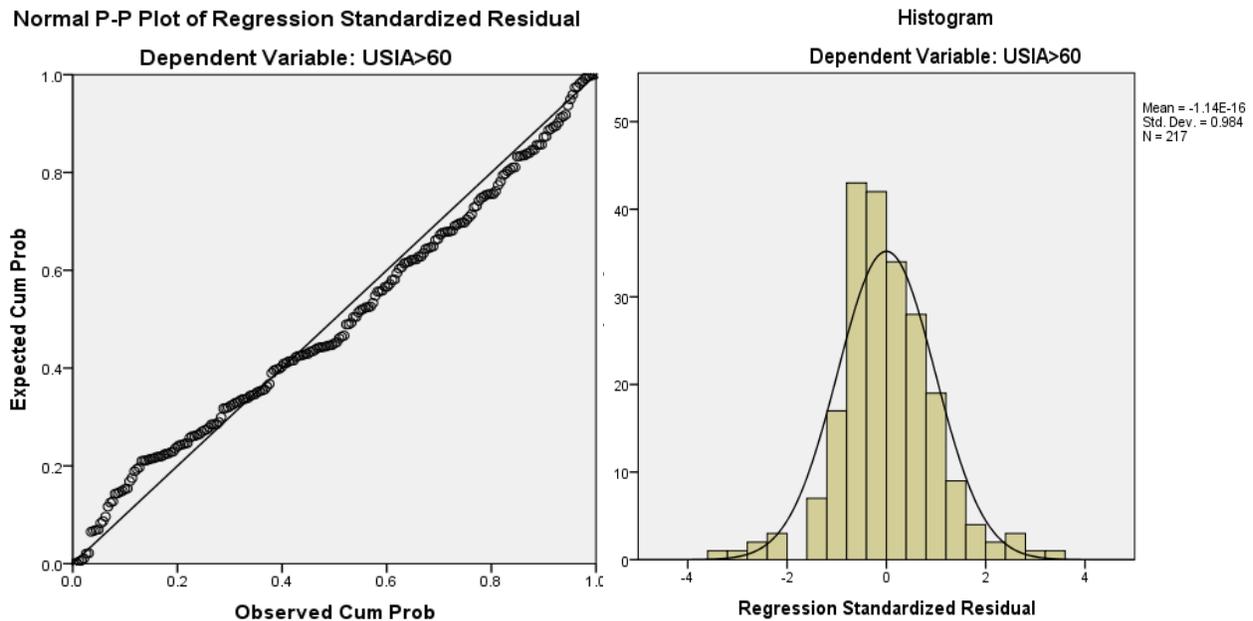


Figure 1. Normal P – P Plot of the test data

Figures show that the Normal Probability Plot of the data is scattered around a linear line. As it is spread normally, it means that further tests can be carried out.

Figure 2 shows scatter diagram image of Linear Regression, determines whether heteroscedasticity occurs or not in the study:

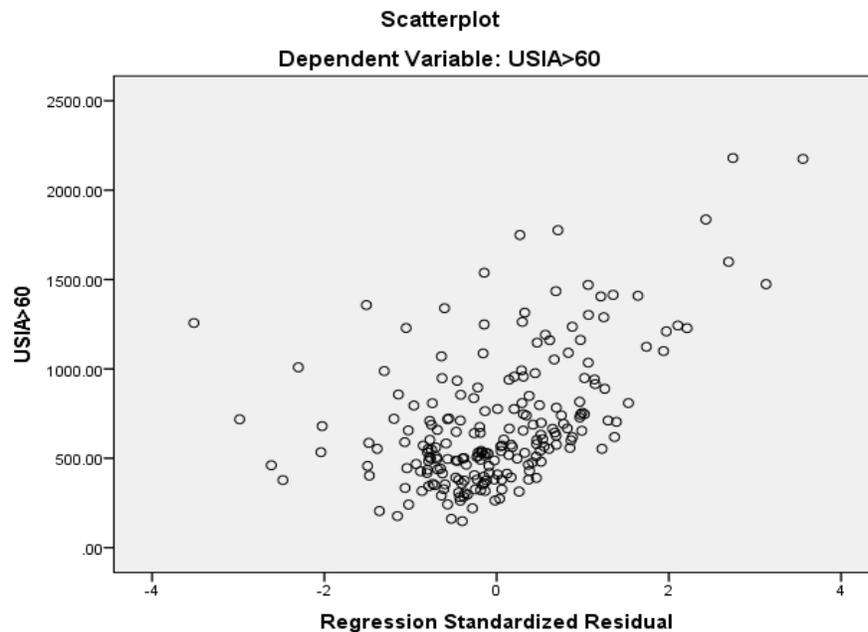


Figure 2. scatter diagram image of Linear Regression

Meanwhile, to determine the presence of multicollinearity or not can be seen from the results of the following analysis:

6. Conclusion

The above conclusion shows that the other infrastructure variables have less influence than some of the above components. However, of the three factors, the availability of schools, mostly IM, has the most significant impact on increasing life expectancy. Some of the efforts that can be made to improve Human Development in Ngawi Regency include: (1) initiating and assisting the management of village funds so that they are sharper in determining programs or activities to increase human development; (2) improve a prosperous family through the availability of economic infrastructure so that people's purchasing power will also increase; and Increase the average length of compulsory education for 12 years of basic education. It can be done through advocacy, initiation, and socialization about the easy access of the vocational schools, which can make the productive age ready to work.

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References

- BPS, *Regional Statistics of Ngawi*, Indonesia Statistics, BPS, 2019
- BPS, *Regional Statistics of Ngawi, People's Welfare Statistics*; Ngawi, Indonesia Statistics, BPS, 2019
- BPS, *Regional Statistics of Ngawi, Figures of Ngawi Regency*; Ngawi, Indonesia Statistics, BPS, 2019
- Setiawan, M. I., Nasihien, R. D., Razi, M. A. M., & Ting, I. H. Sustainable Mobility, Maritime, Airport, and Regional Government Revenue and Expenditure (APBD). *IOP Conference Series: Earth and Environmental Science* (Vol. 498, No.1, p. 012111). IOP Publishing. 2020
- Setiawan, M. I., Sukoco, A., Harmanto, D., Halim, P., Mursidi, A., & Ting, I. H. Sustainable Cities, Transportation, and Warehousing GDP. *IOP Conference Series: Earth and Environmental Science* (Vol. 498, No.1, p. 012112). IOP Publishing. 2020
- Setiawan, M. I., Mudjanarko, S. W., Nasihien, R. D., & Santosa, E. The Development Of Long Apung Airport As The Central Of Economic In The Border Region With The Support Of Regional Renewable Energy. *Proceeding Forum in Research, Science, and Technology (FIRST)*. Sriwijaya State Polytechnic. 2018
- Setiawan, M. I., Dhaniarti, I., Utomo, W. M., Sukoco, A., Mudjanarko, S. W., Hasyim, C., ... & Suyono, J. The Correlations between Airport Sustainability and Indonesian Economic Growth. *IOP Conference Series: Earth and Environmental Science*. IOP Publishing (p.12089). 2018
- Setiawan, M. I., Hasyim, C., Kurniasih, N., Abdullah, D., Napitupulu, D., Rahim, R., ... & Nasihien, R. D. E-Business, airport development, and its impact on the increase of information on communication development in Indonesia. *Journal of Physics: Conference Series* (Vol. 1007, No.1, p. 012046). IOP Publishing. 2018
- Setiawan, M. I., Surjokusumo, S., Ma'soem, D. M., Johan, J., Hasyim, C., Kurniasih, N., ... & Nasihien, R. D. Business Center Development Model of Airport Area in Supporting Airport Sustainability in Indonesia. *J. Phys. Conf. Ser* (Vol. 954, No.1, p.12024). 2018
- Setiawan, M. I., Fajarianto, O., Rahim, R., Simarmata, J., Abdullah, D., Ahmar, A. S., ... & Hidayat, R. (2017, November). The technology of Web GIS and Mobile GIS for Airport Business Area Development. *2017 International Conference on Education and Technology (2017 ICEduTech)*. Atlantis Press. 2017

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Tubagus Purworusmiardi is a Researcher, Lecturer, and Director of System and Technology Information, Narotama University, Indonesia. His research interests include system information, technology information and sustainability. He is also Editor of some journals, one of the IJEEIT International Journal of Electronic Engineering and Information Technology. Scopus author ID 57200261144, with 3 documents by author, 9 citations by 8 documents and 2 h-index

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