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The Existence of Village Development Facilities Against Poverty in Surakarta in 2018

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Abstract:
This research analyzes the role of village development facilities in influencing poverty levels, particularly through the lens of technological, social, and health-related aspects. The technological dimension includes variables such as the number of cellular operators operating in the area, the existence of internet cafes, the number of PLN (state electricity company) users or customers, and whether the area is traversed by high-voltage transmission lines (SUTET/SUTT/SUTTAS). Social infrastructure is represented by the presence of slums settlements as a proxy for community and social development. Meanwhile, health infrastructure is assessed through the number of midwife health workers available in the village. The research utilizes a cross-sectional data analysis method with a total sample of 51 villages located in Surakarta City. The data analyzed comes from the 2018 Village Potential Statistics (Potensi Desa or PODES). The findings of this study indicate that the availability of technological, social, and health facilities significantly affects poverty conditions in the village areas of Surakarta City.

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1. Introduction

Surakarta is one of the cities in Central Java. Becoming 1 of 35 districts/cities that are part of Central Java Province. Surakarta is located in the south, close to Jogjakarta province. The area of the city of Surakarta reaches 46.01 km. Surakarta has 51 villages divided into five sub-districts. According to BPS (2020) population growth in the city of Surakarta has increased. The population in a region is a vital subject in the development of a region, the role of the population being one of the factors that makes a major contribution to progress an area. The increasing population must also be balanced with adequate infrastructure so that human resources can optimize other production factors. From data on population development in the city of Surakarta in terms of gender, in 2018 there was a sex ratio of more women than men. With an increase ratio of around 0.39 percent compared to the previous year, namely around 516 thousand.

The Surakarta region has 5 sub-districts which have different mapping of population density and area area as well. If you look at BPS data (2018), the highest population density is in Pasar Kliwon District. Literature review shows that the density reaches 15,997 people/km2 in 2018, because Pasar Kliwon District is the center of government and an urban commercial area. Figure 1 below is data on the development of the population of Surakarta City from 2010-2018:
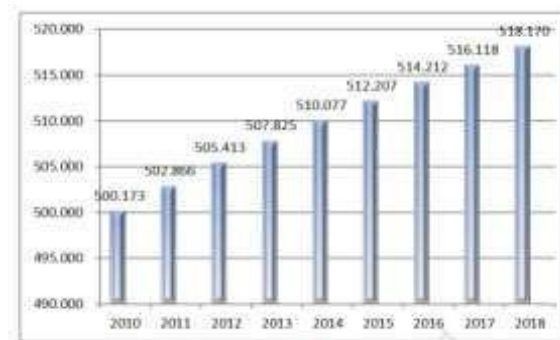

Figure 1. Population development in Surakarta City 2010-2018

Source: BPS, 2020

Regions in Central Java have their own characteristics. Both in physical and non-physical aspects. Physical aspects in the form of infrastructure and non-physical aspects in the form of population economy and socio-economic culture (Yunas, 2019; Solikatun & Masruroh, 2014; Wardiyanto et al., 2014; Yunas & Huda, 2018; Yunas & Isbahi, 2018; Zamroni et al., 2015). This aspect explains the area of each sub-district and even village. This condition can be seen through village or podes potential data. Coupled with economic development starting from the bottom, making villages the root of regional growth. Several characteristics of the aspects mentioned can be accessed through village potential data.

The basic assumption of development according to Suaedi & Widiono (2016) is a development process that involves the community. The goal is that there will be changes towards a better society. Because those who understand development problems in an area are the people in that area (Todaro, 2015; Easterly, 2007; Langer, 2005; Glaeser et al., 2004; Sen, 1999; La Porta er al., 1998). The development approach through community capacity is still not optimally utilized. Because society as a subject of development is still hampered in terms of reality and political interests.

The development approach colors the development process, including community empowerment, infrastructure availability and budgeting. The aim of this development is to achieve community welfare. Current development studies are driven from below or what is called bottom-up. The characteristic is development from the lower level or village/subdistrict community level. However, according to Suaedi & Widiono, (2016) the top-down and down-top development approach has advantages that can be optimized in terms of community development. Cahyono (2019) explains that the development goals of each country are different. There are scopes, namely increasing people's income, increasing economic growth, economic equality, opening up employment opportunities, and equalizing development. It was also explained that development is a process of planned change towards improvement with an orientation towards modernity, nation building and socio-economic progress of society.

Modernity is viewed from technological progress which is marked by industry 4.0, where currently humans are required to be increasingly sophisticated in mastering technology for the sake of continuity and smoothness of life. Developing information and regional conditions must also support this. The use of technology can be widely utilized to access information. It is known from data on cell phone users in Surakarta that around 78 percent of those aged 5 years have used telephones and other computer hardware. Apart from technological progress, people's welfare can be seen from access to social protection released by the government. The less the government disburses funds for community welfare programs, the more it can be measured that society has enough in terms of prosperity. Apart from that,

measuring asset ownership, such as electricity users, televisions, transportation equipment and others in Surakarta, shows data that is quite adequate.

Analysis of geographic, institutional and technological dimensions of the problem of poverty also shows that technology has an influence on poverty alleviation in the Karesidenan area of Surakarta (Hakim et al., 2021). Hakim's (2021) poverty study emphasizes that apart from geographical location, undeveloped technology causes obstacles in a region

to move forward. So that studies of poverty apart from technology are also seen from community access to infrastructure for regional development. It is necessary to carry out studies with adequate data, namely using Village Potential data (PODES) in 2018. Apart from that, what socio-economic factors will influence the existence of poor people as seen from the people who access health assistance.

2. Literature Review
2.1. Poverty

The root of the problem of poverty starts from the welfare gap, the high number of poor people and the lack of access to information and poor infrastructure in rural areas (Yunas, 2019; Muhyi et al., 2017; Eko, 2014; Novitasari 2014; Chambers, 1988). However, this was reduced due to Law No. 6 of 2014 which gave villages the authority to develop existing village potential. This is in accordance with the concept of down-up development which encourages villages to be independent in determining programs and developing infrastructure with the goal of alleviating poverty.

In other research, it is explained that problematic development is a program from the central government that fails to be implemented locally. One of the approaches explained in Setyaningsih (2009) is that the approach used by the government in assessing the poverty rate is seen from the category of pre-prosperous families, even though this perspective has no correlation. However, welfare as measured by the availability of adequate facilities or infrastructure can measure the level of poverty. Another program offered by the government in the context of poverty alleviation is that it must also pay attention to the cultural program of the village community so that the program does not only run at that time (Sari, 2018).

2.2. Village Development Facillities

Village development facilities in this research are measured from available data on village potential. Village development facilities include economic facilities, trade, access to technology, social, health and education. However, there are limitations for researchers not to use an overview of complete development facilities, so researchers use technological, social and health aspects.

3. Data and Methodology

This research is a type of quantitative research using data in the form of numbers. This research was processed as an empirical study in the form of the existence of village development facilities against poverty in Surakarta City using 2018 PODES (village potential) data published by BPS (Central Statistics Agency). Quantitative research with numerical data that is processed to provide a description and overview of data interpretation. This research took samples from 51 villages in 5 sub-districts in Surakarta City.

Researchers examine data from the dependent variable and independent variables. The dependent variable is to measure poverty and is measured from data on the number of BPJS Health participants receiving contribution assistance in 2017 covering 51 village areas in Surakarta City. Meanwhile, the independent variables include the variable quantity of operators, the presence of internet cafes, the

existence of slum settlements, PLN users, the availability of midwife health workers, the quantity of areas traversed by sutet.

The analysis method used is a multiple linear regression test with cross section data and processed using the E-Views10 program. The purpose of regression analysis is to examine and model the relationship between independent variables and the dependent variable. The multiple liner regression equation model in the research is as follows:

$$Y = \alpha + \beta_1 KO_t + \beta_2 KW_t + \beta_3 PK_t + \beta_4 PLN_t + \beta_5 TKB_t + \beta_6 WS_t + \varepsilon_t \qquad (1)$$

where Y represents the number of residents receiving BPJS assistance (proxy for poverty), α is the intercept, and β_1 to β_6 are the coefficients for each independent variable: KO_t (number of mobile service operators), KW_t (number of internet cafes), PK_t (presence of slum areas, dummy-coded), PLN_t (number of families using PLN electricity), TKB_t (number of midwife health workers in the village), and WS_t (presence of high-voltage power lines, dummy-coded). ε_t denotes the error term. This model enables the researchers to assess how each infrastructure or service factor is associated with poverty levels in urban village contexts.

Testing the data in this study uses the Classical Assumption Test, the significance test includes the coefficient of determination (R2), statistical t test, and F test. R test2 used to see variations in the independent variable in explaining the dependent variable (Gujarati & Porter, 2020). The statistical t test is used to find out how much influence one independent variable has on the dependent variable by assuming the other independent variables are constant (Gujarati & Porter, 2020). The F test is used to find out whether all independent variables can be included in the model and have a joint or simultaneous influence on the dependent variable (Gujarati & Porter, 2020).

4. Result and Discussion

Geographically, the city of Surakarta is located 105.27 km from the capital of Central Java Province, Semarang. The cultural conditions in the city of Surakarta or Solo, which are still strongly associated with the Kartasura kingdom, can be seen from the remaining buildings of the Solo palace. The city of Surakarta consists of 51 sub-districts from 5 sub-districts with an area of 44.04 km2 with data in figure 2 below:

No	Kecamatan	Luas Wilayah (km²)	Jumlah Kelurahan	Jumlah RW	Jumlah RT
1	Laweyan	8,64	11	105	457
2	Serengan	3,19	7	72	312
3	Pasar Kliwon	4,82	9	100	422
4	Jebres	12,58	11	151	646
5	Banjarsari	14,81	13	176	877
	Jumlah	44,04	51	604	2.714

Sumber: Surakarta Dalam Angka, 2018

Figure 2. Surakarta in Numbers
Source: Author, 2022

Another study said that people in the city of Surakarta had experienced shifting. The structure of society has also experienced shifts in accordance with technological advances (Zaida, 2010; Budihardjo & Sutarto, 1999; Carpenter et al., 1975; Kuntowijoyo, 2000; Sajid, 1984). The city of Surakarta, which is the center of cultural civilization in Central Java, is drained by the Bengawan Solo watershed. With the western and southern borders bordering Sukoharjo Regency, to the north Boyolali and Karanganyar Regencies, while the eastern border is the Bengawan Solo River.

Surakarta has regional potential that contributes to the terserie and secondary sectors which are dominant compared to the primary sector. During the last five years from 201-2018, Central Java's economic structure was dominated by 5 categories of business fields, namely processing industry, agriculture, forestry and fisheries, wholesale and retail trade, car and motorbike repair; construction; and educational services. However, socially and environmentally, the people in Surakarta City have the

characteristics of a traditional agrarian society. This is also proven by the UMR in Surakarta City which is it is still far from the city of Semarang, because there is a lack of industry in the city of Surakarta. However, with the progress of technology, the social landscape conditions in the city of Surakarta have become beyond the control of its citizens. In Suci Nur Aini Zaida's (2010) research, there are 3 components that form the component structure, namely society, rulers and entrepreneurs.

The regression results are in the image below. Researchers use the OLS model as follows:

Table 1. Multiple Linear Regression Result
Source: Analysis 2022

Variable	Coefficient	Std. Error	T-Statistic
C	-13947.53	6261.591	-2.227473**
IS	1169.115	894.6055	1.306849
KW	1123.177	787.5264	1.426208
PK	-376.3379	791.0500	-0.475745
PLN	0.959218	0.120766	7.942782***
TKB	540.0932	269.2132	2.006192*
WS	3148.991	1293.609	2.434268**
R Square	0.740026		
Observation	51		
Notes: Significant at ***1%, **5%, *10%			

From the regression results in table 1 above, it was found that there was significance in several variables. Based on table 1, the following regression equation is obtained:

$$Y = -13947.53 + 1169.115(KO) + 1123.177(KW) - 376.338(PK) + 0.959(PLN) + 540.093(TKB) + 3148.991(WS) \tag{2}$$

In this equation, Y represents the number of BPJS Health recipients, serving as a proxy for poverty levels in each village. The coefficient values indicate the magnitude and direction of influence of each independent variable: KO (number of cellular operators) and KW (presence of internet cafes) have positive coefficients, suggesting they are associated with higher numbers of BPJS recipients. The variable PK (presence of slum areas) has a negative coefficient, implying a reverse relationship. PLN (number of PLN electricity users), TKB (number of midwife health workers), and WS (village areas traversed by SUTET) also show positive coefficients. The constant term (α = -13,947.53) reflects the baseline level of the dependent variable when all independent variables are zero. These results suggest that village infrastructure and services have varying degrees of impact on local poverty levels, with some facilities potentially linked to greater government assistance coverage.

The regression results show that the constant coefficient value is -13947.53 which means that when all independent variables have a value of zero (0) then the dependent variable or Y has a value -13947.53 or experiencing a decrease. Data interpretation is:

1. The regression coefficient for the KO variable is positive, meaning that the number of operators has a positive effect on residents who receive BPJS
2. The regression coefficient value of the KW variable is positive at 1123.177, meaning that the existence of internet cafes has a positive effect on the number of residents receiving BPJS.
3. The regression coefficient for the PK variable has a negative value of -376.3379, which means that there is a negative influence between the slum settlement variable on the number of residents receiving BPJS
4. The coefficient of the PLN variable is positive with a value of 0.959218, meaning that PLN users have a positive influence on the number of citizens using BPJS
5. The regression coefficient of the TKB variable is positive with a value of 540.0932, which means that the midwife health worker variable in the village has a positive effect on the number of BPJS recipients.
6. Likewise, the coefficient value of the WS variable or the area through which SUTET passes is positive, which means that the WS variable has an effect on the Y variable.

The research results show that the highest coefficient value is the WS variable with a value of 3148.991, which means that the area through which SUTET passes is the dominant variable that influences the dependent variable on the number of BPJS recipients.

Interpretation of the variable t test shows that there are 2 variables that have a significance level, namely the PLN User variable (0.000) and WS (0.0190). because the prob sig value < alpha (0.05). This means that the PLN user variable has a significant influence on residents who receive BPJS, and the WS variable has a significant influence on residents who receive BPJS.

The results of the F test were obtained by prob F Statistics (0.00) < aplha (0.05), so H0 was not rejected, which means that the regression model was appropriate or fit in predicting the independent variable against the dependent variable. The results of the coefficient of determination test obtained an R-square value of 0.740026, this means that the influence given by the independent variable is 74% and the remaining 26% is influenced by other variables.
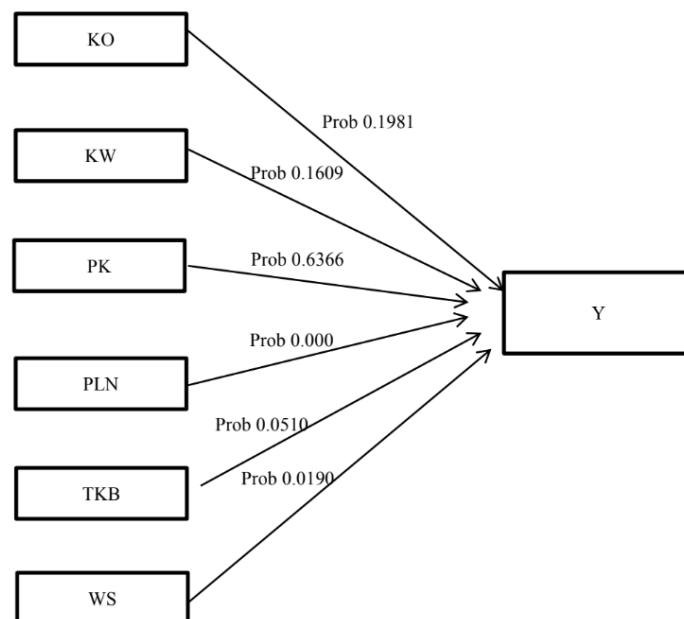

Figure 4. Multiple Linear Regression Test Results
Source: Analysis, 2022

From figure 4 above, the research results show that the number of cellphone operators in the village does not have a significant effect on the number of residents receiving BPJS, so H0 is accepted. This shows that the increasing number of cellular operators that have entered the village line area has no influence, because every family has experienced shifting. Almost all heads of families in the city of Surakarta have cell phones for communication purposes. It is proven from BPS data which shows that 78.41 percent of Surakart City residents aged 5 years and over use cellular or wireless telephones and

also data processing devices such as computers. This is also shown from the interpretation of the second variable, namely the quantity of internet cafes on BPJS recipients which has no effect. This is because communication tools are a primary need or have become the consumption of many people in the city of Surakarta.

The research results show that slum settlements do not have a significant effect on BPJS recipients. Judging from the results, probability > significance level (0.05). This happens because BPJS users are not only from the poor, but all groups can take advantage of BPJS facilities provided they meet their monthly contributions. So slum housing is not a variable that can influence BPJS recipients.

The research results show that the variable number of PLN users has a significant effect on BPJS recipients. This is not in accordance with Hakim's (2021) research where the number of electricity customers is not significant but is in accordance with the theory that technology as measured by electricity users will influence regional poverty. This is of course measured by the development of technology and the large use of cellphones in the city of Surakarta, so that operators and cellphones need power to recharge cellphones and support operator tower technology.

The interpretation of the TKB variable does not have a significant effect on the quantity of BPJS recipients, because almost every village has at least 1 midwife as a health worker and there are several villages that have more adequate health facilities. Apart from that, BPJS users have the 1st health facility that can be referred to, namely the community health center, so the presence of midwife health workers does not affect the quantity of BPJS recipients. In contrast, the results of research on regional variables through which SUTET has a significant influence on BPJS recipients. This shows that the dimension of village development facilities through SUTET/SUTT/SUTTAS is a means of supporting technological progress. Which is supported by PLN users which also has a significant influence on BPJS users.

5. Conclusion

Researchers want to try to examine and analyze the influence of several factors on village development facilities measured by technological supporting facilities, namely PLN users, areas traversed by SUTET/SUTT/SUTTAS, number of cellular operators, presence of internet cafes; the social impact of the existence of uninhabitable slum settlements; health from the presence of midwife health workers in the village to poverty as measured by the number of BPJS recipients. Researchers used cross section data analysis with data sources from BPS PODES data (village potential) in 2018 for the research area in 51 villages in Surakarta City. The results of the research show that technological, social and health supporting facilities have an influence on poverty in village areas in Surakarta City.

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