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Multidimensional Poverty, Social Networks: Spatial Neighbourhoods on Poverty Eradication in Tumpang District, Malang Regency

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Abstract: Poverty is multidimensional problem of the development that cause human difficulties in accessing public facility and infrastructure. Along with target of SDGs regarding poverty alleviation, main aims of this research are measure poverty level through three dimensions – health, education and standard of living of the Multidimensional Poverty Index (MPI), and scrutinize influential variables of the poverty through Spatial Regression Analysis whereby physical as well as social variables are put it together in the model. This research would like to propose a set of research approach on how dealing with poverty in a certain area. Area of study is Tumpang district in Malang Regency, East Java Province consist of 15 villages, wherein at about 36,61% family are receiver of the Raskin (Beras Miskin – Poor Rice) program as one of the poverty alleviations programs in Indonesia. Both field observation as well as depth interview are conducted towards 274 head of households. Result study finds out that there are five villages which have high value of MPI in Tumpang District, namely Duwet Krajan, Duwet, Benjor, Tulusbesar and Kidal, and the two dimensions – education and living standard give significant contribution to the poverty. Next, poverty in the research area has influenced by both social relations among residents within a village as well as geographical location of the nearest neighbourhoods. Then, eradication poverty is necessary to put consideration on strengthening 'constructive' social relations among residents through their existence community groups.

Keywords: poverty dimensions, social networks, infrastructure, spatial regression.

INTRODUCTION

Poverty is global issue, one of the greatest challenges on humanity. Among 17 goals of Sustainable Development Goals (SDGs), eradicated poverty in all form and dimensions by 2030 is the goal of number one. Globally, 836 million people still live in poverty, meanwhile in Indonesia there are at about 26.58 million people, mostly live in rural areas at about 16.31 million people (BPS, 2018). Indonesia poverty alleviation strategy has 3 focuses comprise of implementation of comprehensive social protection, expansion and improvement of public services, and sustainable livelihoods. Poverty alleviation assistance that has been provided by government covering *Beras Miskin* (Raskin – Poor Rice), *Kartu Indonesia Pintar* (KIP – Indonesia Smart Card), *Program Keluarga Harapan* (PKH – Family Hopes Program), *Kartu Keluarga Sejahtera* (KKS – Wealth Family Card), and *Kartu Indonesia Sehat* (KIS – Indonesia Health Card) (Bappenas, 2018).

Here, we assume that social is a non-physic aspect, meanwhile, infrastructure is the physic aspect, whereby both of them have to be considered by government equally and integrated in the development program. Along with the idea of multidimensional poverty measurement by UNDP (2010), an area which classified as not-poor in case of every household in the area have access to infrastructure such as clean water, electricity, and

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sanitation, as well as to education and health. Therefore, this research is integrating both social and infrastructure aspects as two important inseparable aspects in development program.

This is an empirical research with case study of Tumpang District in Malang Regency, wherein the regency has the highest number of poor people in East Java Province at about 293,740 people (11.49%). In addition, Tumpang District is the third highest ranking of Raskin recipients (7,522 households or 19.08%) among the whole 32 districts in Malang Regency (BPS, 2018). Therefore, having better understanding of poverty in Tumpang District is necessity in order to be able to dealt with the poverty problem. There are two main research aims. First, measure poverty level in the district through Multidimensional Poverty Index. Second, scrutinize neighbourhood relationship among 15 villages through spatial regression analysis combining both physical infrastructure and social network variables.

METHODS

Data Collection and Sampling

Using Slovin Formula with 5% error of level, number of respondents are 274 households, that the targeted of respondents are households who received Raskin. The slovin formula can be expressed as follow:

$$n = \frac{N}{1+Ne^2} = \frac{7522}{1+(7522x0{,}05)^2} = 274\ households \quad (1)$$

(1)

The number of respondents are divided proportionally within 15 villages among receiver of the Raskin program.

Analytical Method

a. Multidimensional Poverty Index (MPI)

Referring to Human Development Report (HDR) (2015) and Oxford Poverty and Human Development Initiative(OPHDI)(2010), the MPI has 3 dimensions consist of i) education, ii) health and living standard. It is calculated by using weigth of 3 dimension that is weigthed equally at 1/3. Since the first and second dimensions have 2 indicators for each, the weight for each indicator is 1/6, meanwhile the third dimension has 6 indicators, meaning that the weight for each indicator is 1/18.

Each person has deprivation score that is calculated by taking a weighted sum of the number of deprivations, so that the deprivation score for each person lies between 0 and 1. The two indicators of education are i) years of education and ii) school attendance. Based on Development Framework of Education (Bapennas, 2016), years of schooling is deprived if no household member has been graduated by minimum at senior high school, and school attendance is deprived if the household member did not attend the school between age of 6 – 23 years old. According to Minister Health Decree Republic of Indonesia No.1995/Menkes/SK/XII/2010, for health dimension, respondent will be deprived if in one household has one or more cases of malnutrition and cases of child mortality. Based on Technical Notes HDR (2016), standard of living consist of 6 indicators is deprived if the member of household using firewood for cooking, no sanitation and communal sanitation, using non piping drinking water (river, well, spring), have no acces to electricity, using not feasible floor pavement (soil, sandland, animal feces), and having less than 1 asset of information, mobility, and livelihood). A household is identified as poor household if the value of Ci ≥ 0.33, using the following formula (2).

The MPI is a multiplication of the percentage of people who are poor or multidimensional headcount ratio (H) with intensity of poverty (A):

$$MPI = HxA \quad (2)$$

b. Spatial Data Analysis

Spatial data analysis is analysis that considers spatial conditions and weight matrix. In this research, neighbors in Tumpang District are explained by Queen Weight Matrix. A Queen Weight Matrix defines a location's neighbors if that location shared border or vertex with another location. The spatial data analysis in this research has 2 sub-analysis comprise of spatial autocorrelation (SA) and spatial regression. And, spatial autocorrelation (SA) shows spatial clusters for high-high, low-low, high-low and low-high (Anselin, 2005).

This research measures spatial autocorrelation of poverty in Tumpang district by using MPI values as the dependent variable and queen weight matrix as the spatial locations. Positive spatial autocorrelation exists when high MPI values correlate with high neighboring values or when low MPI values correlate with low neighboring values. Local spatial autocorrelation indicates the location of local clusters and spatial outliers. The Moran scatter plot visualizes the type and strength of spatial autocorrelation in a data distribution. Local Indicators of Spatial Association (LISA) indicate the presence or absence of significant spatial clusters or outliers for each location (Anselin, 2005).

In this research there are dependent variable, and independent variables. The dependent variable used is the result of calculating the poverty index, MPI. The independent variables used are 5 variables, there are two analysis results using SNA, the Rate of Participation and Density, and 3 other variables from data such as travel time to Senior High School, Hospital, Tumpang District Centre.

c. Social Network Analysis (SNA)

Referring to Ari et.al (2011, 2017, 2019), this research proposes two indices of SNA namely density (Scott, 2000) and rate of participation (RoP) (Wasserman & Faust, 1994) in order to have independent variable of social networks of each village for the spatial regression analysis. Based on affiliation data that is formed from memberships of the respondents towards existence community groups, the incidence matrix (nxm) might change to adjacency matrix (nxn), that will give illustration of the level of social tie among respondents within a village. In other words, the two indices will describe respondents social interaction obtained by looking community groups that affiliated by respondents. The formula for calculating the rate of participation as follows:

$$\bar{a}i = \frac{\sum_i^g = 1 x_{ij}^N}{g} \quad (3)$$

Where, g is respondents; x_{ij}^N is affiliation matrix of the respondent i and respondent j. Value of RoP is vary from one network to others within a village, depend on the number of presence community groups. Nevertheless, the higher level of RoP might represents the more active respondents in a certain area of the network. Basically in this research, we classify level of RoP into three level – low, medium and high from the following formula, so that we might able to compare RoP among villages.

Density is used to get the average number of activities between respondents (Wasserman & Faust, 1994). The formula for calculating density as follows:

$$\Delta(N) = \frac{\sum_i^g = 1 \sum_i^g = 1 x_{ij}^N}{g(g-1)} \quad (4)$$

Where, g is respondents who have affiliation with other respondents; (g-1) is respondents who have not affiliation with other respondents. In addition, value of density is between 0 – 1. The higher density of a certain area describes the more dense social relations among respondents that is formed within the area.

Data that is being used in the SNA is formal organization that creates networks among people within each village. The formal organization consists of *Tahlil Putra*, *Tahlil Putri*, *Yasinan*, *Dibaan* and *Pembinaan Kesejahteraan Keluarga* (PKK). The *Tahlil Putra* and the *Tahlil Putri* are religious activities for moslem people which held once a week and participated by the people in *Rukun Tetangga* (RT) unit, it is quite similar to sub-hamlet. The *Tahlil Putra* is attended by youth men, meanwhile the *Tahlil Putri* is attended by youth women. *Yasinan* and *Dibaan* are also a religious activities which held once a week and attended by women in hamlet. While the PKK is an organization which focus on empowering women to participate in the village development. The PKK held once a month and attended by women in the village level.

Estimation Results and Discussion

Characteristic of Tumpang District

Tumpang District is one of districts in Malang Regency with an area of 72.69 km2 consist of 15 villages and inhabited by 75,605 people.

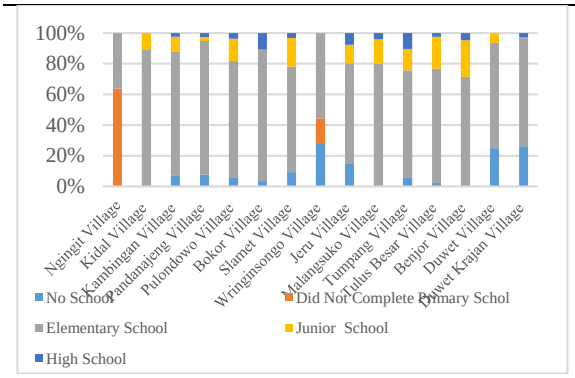

Figure. 1. Education Characteristic in Tumpang District

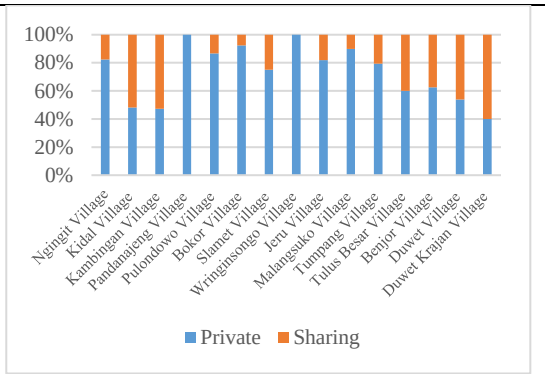

Figure. 2. Electricity Type of Households in Tumpang District

Figure 1 describes that majority level of education background of resident in Tumpang District is Elementary School. Referring to the Indonesia national regulation, minimum level of education background is graduate from high school, whereby Bokor Village has the highest number of resident who graduate from High School at about 11% from the total villagers.

Figure 2 illustrates that majority resident of Tumpang Distric use private electricity, whereby the highest user is resident who live in Wringinsongo Village (100%) and Pandanajeng Village (100%). Meanwhile, the highest users of sharing electricity live in Duwet Krajan Village (60%).

Figure 3 depicts 4 accesses to obtain drinking water. PDAM has served 5 villages in Tumpang District, namely Kidal, Jeru, Malangsuko, Tulus Besar and Duwet Krajan.

Based on Figure 4, most resident in Tumpang Distric use private sanitation. Pandanajeng Village and Jeru Village have the highest number of private sanitation user (100%). The highest user of sharing sanitation lives in Duwet Krajan Village (40%). Benjor Village has the highest communal sanitation user (38%). And Ngingit Village has the highest number of household with no sanitation (35%).

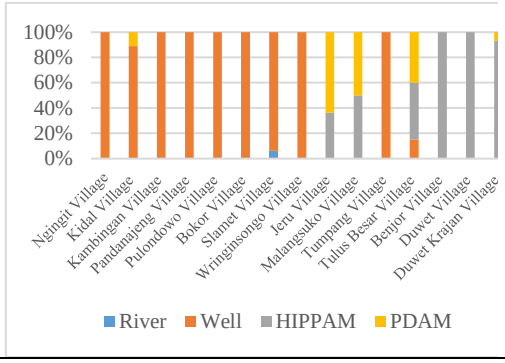

Figure. 3. Drinking Water Sources of Households in Tumpang District

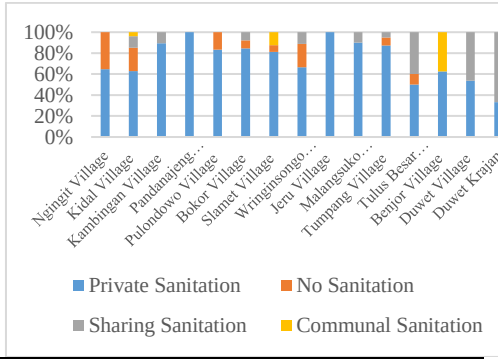

Figure. 4. Sanitation Type of Households in Tumpang District

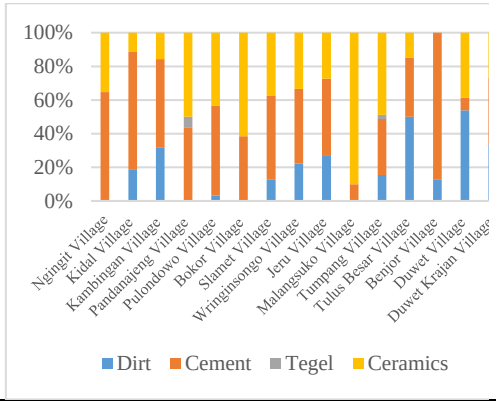

Figure. 5. House Floor Type of Households in Tumpang District

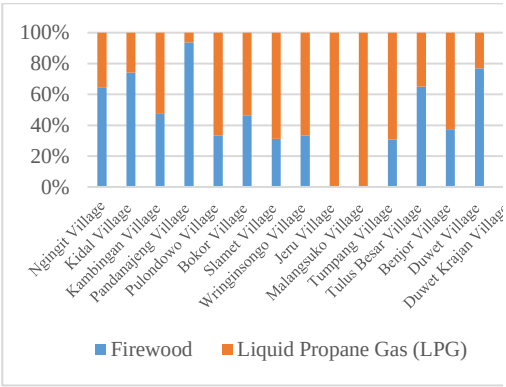

Figure. 6. Cooking Fuel of Households in Tumpang District

Figure 5 defines 4 types of house floor in Tumpang District, specifically : dirt, cement, tile and ceramic. House floor type is one of indicator in the MPI, that indicates poverty if house floor type is dirt. Duwet Village has the highest percentage of household with type of house floor with dirt (54%). Malangsuko Village becomes the highest household with type of house floor with ceramic (90%).

As seen on the Figure 6, there are 2 types of cooking fuel used by Tumpang District household namely firewood and Liquid Propane Gas (LPG). The household is classified as poor if they use firewood for their cooking fuel. The highest of firewood user in Tumpang District is Pandanajeng Village (94%).

Figure 7 illustrates that in general asset to access to information is the highest percentage compare to the other two assets. There are 4 villages with 100% access to information covering village of Jeru, Malangsuko, Tumpang, and Tulus Besar. Meanwhile, asset to support livelihood is the lowest than the other two assets. In addition, there is only one village who has asset to support livelihood above 50%, namely Ngingit Village (53%). For support mobility asset, there are 3 villages with number of household who have it under 50%, namely: Benjor Village, Duwet Village and Duwet Krajan Village, at about 38%, 38%, and 27%, respectively.

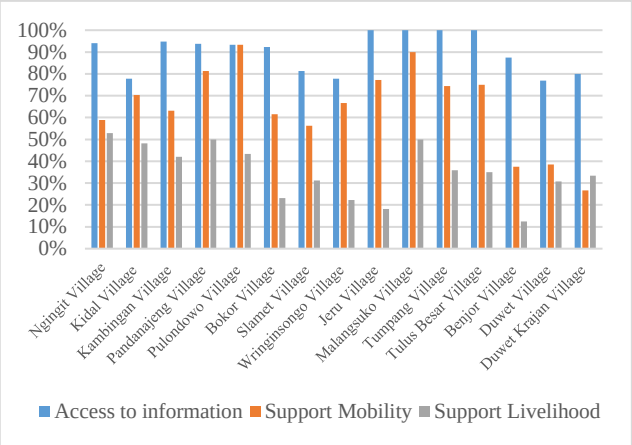

Figure 7. Assets of Households in Tumpang District

Social Network Analysis (SNA)

Rate of participation in general illustrates how high average participation of the residents towards community groups activity within a network. In this research, it might give insight on how active the community participation in the level of village. Then, value of density explains how dense social relations among residents within a village.

Table 2. Rate of Participation and Density for Each Village in Tumpang District

Village	Rate of Partticipation (RoP)	Classification of ROP	Density	Classification of Density
Ngingit Village	0.4	Low	0.015	Low
Kidal Village	0.7	Medium	0.077	Low
Kambingan Village	0.9	Medium	0.099	Low
Pandanajeng Village	1.7	Medium	0.11	Low
Pulondowo Village	1.7	High	0.11	Low
Bokor Village	1.8	Medium	0.5	Medium
Slamet Village	1.3	Medium	0.192	Low
Wringinsongo Village	1.1	Medium	0.361	Medium
Jeru Village	1.4	High	0.418	Medium
Malangsuko Village	1.5	High	0.4	Medium
Tumpang Village	1.2	Medium	0.139	Low
Tulus Besar Village	0.9	Medium	0.132	Low
Benjor Village	0.8	Medium	0.214	Low
Duwet Village	0.7	Medium	0.218	Low
Duwet Krajan Village	0.9	Medium	0.238	Low

As can be seen in Table 3, in one side, there are 3 villages which classified who have high in RoP, namely Pulondowo Village, Jeru Village, and Malangsuko Village. In the other side, there is only 1 village which classified as low in RoP. In addition, the rest of 11 villages are classified as having medium level of RoP. For density there is no village who has high value of density. There are 4 villages who have medium level of density consist of Bokor Village, Wringinsongo Village, Jeru Village and Malangsuko Village. Meanwhile, the other 11 villages are classified as low in density.

The higher value of RoP means the more organizations which the community joint on it, and then, the higher values of density mean the community in Tumpang District has closer

social relationship to each other (Scott, 2000; Wasserman & Faust, 1994). When we discuss about poverty alleviation, we assume that the two value of social networks might give insight on how high the possibility of the community to move out from the poverty through their power of social relationship (Putnam, 2000; Ari et.al, 2017, 2019). Therefore, in this research we put the two indices as social variables that we believe it is necessary to put into consideration along with the development of physical variable – infrastructure development. In other words, the two value of indices – RoP and density will placed as independent variable in Spatial Regression Analysis.

Multidimensional Poverty Index (MPI)

The MPI identifies multiple deprivations at the household level in three dimensions of education, health and standard of living. The following Table 3 indicates characteristic of MPI in Tumpang District as the result of MPI measurement. Among 5 levels of poverty, we found 4 types level of poverty in Tumpang District: High – Medium – Low – Very Low covering 5, 3, 3, 4 villages, respectively.

Table 3. MPI per Villages in Tumpang District

No	Villages	MPI Values	Classification	Contribution of deprivation in dimension to overall poverty (%)		
				Education	Health	Standard of Living
1	Bokor	0.10	Low	50	0	50
2	Pulungdowo	0.08	Very Low	67	0	33
3	Wringinsongo	0.04	Very Low	38	0	62
4	Tumpang	0.19	Medium	63	0	37
5	Malangsuko	0.07	Very Low	75	0	25
6	Pandanajeng	0.08	Very Low	86	0	14
7	Slamet	0.10	Low	46	0	54
8	Duwetkrajan	0.33	High	59	0	41
9	Duwet	0.35	High	60	0	40
10	Benjor	0.32	High	72	0	28
11	Tulusbesar	0.33	High	58	0	42
12	Jeru	0.14	Low	89	0	11
13	Ngingit	0.22	Medium	62	0	38
14	Kidal	0.31	High	59	0	41
15	Kambingan	0.27	Medium	62	0	38

The higher value of MPI, the more people live in poverty. Table 3 illustrates that the MPI values of 4 villages consist of Duwetkrajan Village, Duwet Village, Benjor Village, Tulusbesar Village, and Kidal Village are higher than another villages in Tumpang District. Duwet Village is the the poorest village in Tumpang District, whereby the MPI value of Duwet Village is 0.35. Those villages that categorized as High have a higher vulnerability to more extreme poverty, so it must be the priority on programs of eradicating poverty in Tumpang District. Meanwhile, the lowest MPI value could be found in Wringinsongo Village (0.04). Those villages that categorized as Low need to be maintained so it will not turn into poor village.

Then, to eradicate poverty in Tumpang District, it is important to scrutinize which dimension that contributed a lot in the MPI values. Calculating the contribution of each dimension to multidimensional poverty provides information that can be useful for revealing a district's deprivation structure and can help with policy targeting on Table 3, the 'contribution of deprivation in dimension to overall poverty' contains the percentage of the

MPI attributed to deprivations in each dimension. It can be seen at the Table 3 above, among the three dimension of the MPI (HDR, 2015; OPHDI, 2010), dimension of Education is the main problem of poverty in Tumpang District, followed by Standard of Living dimension. This result has similar phenomenon as occurred at Gedangan District of Malang Regency, whereby the poverty of the district is also formed by two dimensions of the MPI – Education as well as Standard of Living (Ari et.al, 2019). Hence, it can be concluded that the programs of eradicating poverty for the two districts in Malang Regency have to focus upon the dimension of Education and Standard of Living. Next, at the second research aim, the MPI value will put as dependent variable in the Spatial Regression Analysis.

Spatial Weight

This research uses Queen Weight Matrix to defines village's neighbors in the district. The characteristics of weights matrices summarized in Connectivity Histogram as it shown at Figure 8.

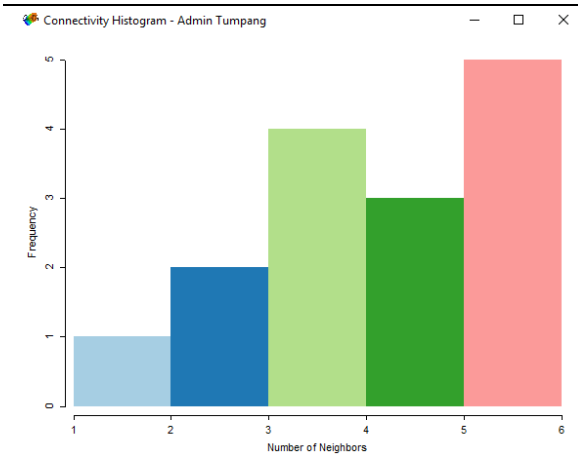

Figure 8. Connectivity Histogram of Tumpang District

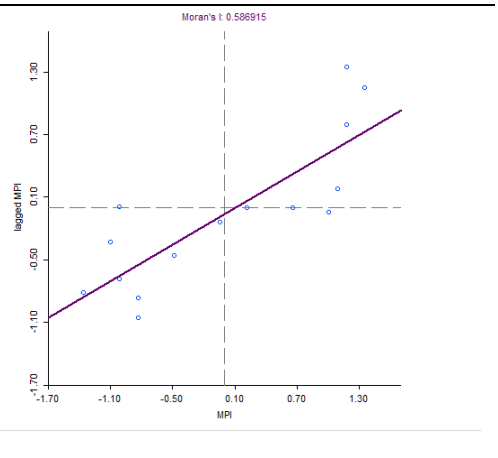

Figure 9. Morans Scatter Plot of Tumpang District

The Connectivity histogram displays in Figure 8 consists of frequency from each number of neighbors in Tumpang district. The bar with light blue color shows that there is one village in Tumpang district which has only one neighbor (minimum frequency). The pink bar shows there are five villages which have 5 neighbors (maximum frequency), and also become the dominant numbers of neighbors in the Tumpang District. It can be concluded that each village in the district has variation number of neighbors. Refers to the Tobler's First Law of Geography, there is a possibility that the nearest location has similar characters than the distant ones (in this case: multidimensional poverty based on the MPI values). So, we use this contiguity matrix and the MPI values as the input of spatial autocorrelation test to know the correlation of a MPI value with itself in space.

The Morans Scatter Plot in Figure 9 provides a statistic (Moran's I) to determine the extent of linear association between the MPI values in a given village (x-axis) with the MPI values in neighboring villages (y-axis). Each quadrant corresponds to a different type of spatial autocorrelation: high-high and low-low for positive spatial autocorrelation; low-high and high-low for negative spatial autocorrelation. The type of spatial autocorrelation in a data distribution (the MPI values in Tumpang District) is visualized in Moran Scatter Plot (Figure 9).

The slope of the scatter plot shows positive autocorrelation of village's MPI value in relation to its neighbors MPI values in Tumpang District. It means that closer areas tend to

have similar characters, so it can be found clusters of poor (high MPI value) and non-poor (low MPI value) villages in Tumpang District. The details of significant spatial clusters for each village in Tumpang District are visualized in LISA Cluster Map below (Figure 10).

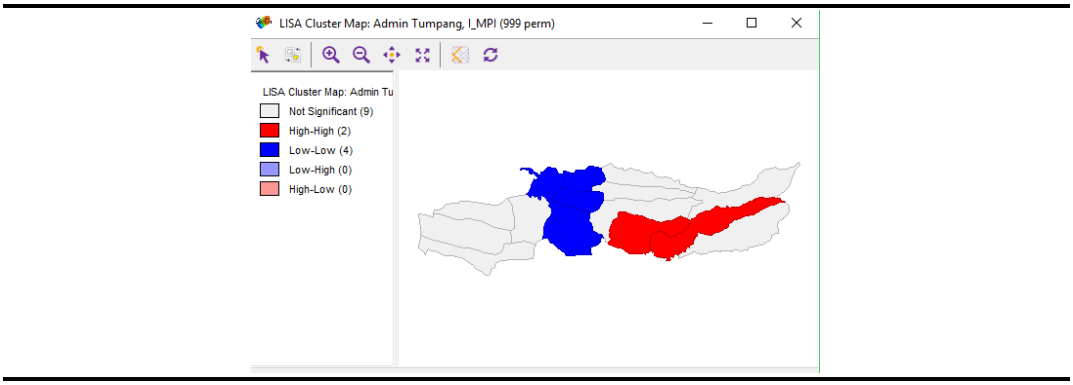

Figure 10.LISA Map of Tumpang District

Based on LISA Cluster Map, there are two types of cluster in Tumpang District:

a. The Low-Low Cluster covers 4 villages that have low MPI values correlate with low neighboring MPI values, which are Wringinsongo Village, Bokor Village, Slamet Village, and Pulungdowo Village. It means, there are non-poor villages which are located close to non-poor villages, thus indicating that there are 4 non-poor villages tend to form a cluster.
b. The High-High Cluster covers 2 villages that have high MPI values correlate with high neighboring MPI values, which are Duwet Village and Tulusbesar Village. Meaning that, there are poor villages which are located close to poor villages. Hence, it indicates that there are 2 poor villages tend to form a cluster.

In summary, it shows that the connectivity of spatial structure has effect on multidimensional poverty in Tumpang District, and vice versa, that is also found in Gedangan District, Malang Regency (Ari et.al, 2019). The tendency in Tumpang District is the cluster of poor and non-poor villages. It proves the first law of geography proposed by Tobler whereby closer areas are more similar in value than distant ones (Miller,2004). These conditions can be considered for programs of eradicating poverty in Tumpang District to:

a. Prioritize at the poorest village in Tumpang District (based on highest MPI value) and targeted at the villages in poor cluster.
b. Maintain the condition of the non-poor villages in Tumpang District, in order to keep it not turn into poor village and could give positive impacts to the neighbors villages which struggling in poverty.

Spatial Regression

The first step of Regression is running OLS model. We run 5 covariates (independent variables), which are Rate of Participation (X1), Density (X2), travel time to Senior High School (X3), travel time to Hospital (X4), and travel time to Tumpang District Center (X5). The hypothesis is all the covariates give impact to the Multidimensional Poverty Index Value. The result of OLS-1 is Density (X2) and travel time to Tumpang District Center (X5) are reject H_0. The result of OLS-2 is travel time to Senior High School (X3) and Travel time to Hospital (X4) are reject H_0. It means the only independent variable which accept H_0 is Rate of Participation (X1). The next step is spatial dependence test to know the proper alternative model to be used.

Table 3. Diagnostic of spatial dependence

No.	Coefficient	Prob.	Result
1.	Moran's I (error)	0.07060	Reject H0
2.	Lagrange Multiplier (Lag)	0.00890	Accept H0
3.	Robust LM (Lag)	0.00477	Reject H0
4.	Lagrange Multiplier (Error)	0.29529	Reject H0
5.	Robust LM (Error)	0.13642	Reject H0
6.	Lagrange Multiplier (SARMA)	0.01078	Reject H0

It is illustrated in Table 3, there is only LM-Lag which highly significant. It means Spatial Lag Model is an appropriate alternative to explain the impact of infrastructure and social network on multidimensional poverty in Tumpang District. Spatial Lag indicates the possibility of diffusion between MPI values that predict MPI values at neighbouring sites.

The Spatial Lag Model is as follow:

$$\hat{y} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots = 0{,}229458 + 0{,}641986 \sum_{j=1}^{n} i \neq j \; W_{ij}y - 0{,}136093 \; X_1$$

$\hat{y}$ = Multidimensional Poverty Index
Wy = Weight
X_1 = Rate of Participation

Spatial Lag Model of Tumpang District shows there is only 1 variable that has significant impact to reduce the multidimensional poverty value, which are attributes of rate of participation. In one side, the rate of participation is one of social infrastructure indices that is proposed in the research. The negative value means that the higher rate of participation of the residents into community groups will reduce the poverty level in the district. Meaning that in order to eradicate poverty in Tumpang District it is important to improve people participation in the village through higher membership of the presence community groups. So that, the more villagers might utilize their wider network of participation to have better ability to foster their self out of from the poverty trap, since they might able to mobilize their internal as well as external resources and information through their social ties within a network (Putnam, 2000; Ari et.al., 2017, 2019). On the other side, result of the spatial model indicates that none of the physical infrastructures give significant influence to the three dimensions poverty of the district. Even though, the MPI measurement displays result that dimension of education in the district is one of the poverty indicators as it also found in case of Gedangan District (Ari et.al, 2019). It seems that physically access to educational facility – in this sense, distance and transportation mode to reach senior high school facility are not a problem for the residents.

The weight matrix gives positive value, meaning that geographical distance gives also significant impact to the poverty level. Meaning that, in one hand, once a poor village has one or more nearest neighbourhood's poor villages, it will give negative influence wherein the village will face bigger challenge to struggle out of the poverty. On the other hand, if a non-poor village has surrounded by non-poor villages, it will share positive impact whereby the nearest neighbourhoods will trigger the village to evolve. In the research, amongst the four poor villages – villages with high MPI value, Duwet Village and Tulusbesar Village are physically neighbours and form a cluster of the poor – high-high cluster. So that, the two villages might have higher challenge to dealt with their poverty than the other villages.

In addition, the spatial model that is form in the research, has similar pattern with the spatial model of Tumpang District whereby the dependent variable applies Water Poverty Index (WPI) (Ari et. al., 2020). The rate of participation has positive value meaning that the higher rate of participation, the lower poverty level might become, since the higher value of WPI, the lower poverty level of a village. Then, the weight matrix is also significant and

positive, meaning that nearest neighbourhoods give influent to each other. As a whole, it might distinguish that cluster of poor villages is important to be noticed due to their higher difficulty on move out from the poverty than the cluster of non-poor villages.

CONCLUSION

There are five villages which have high value of MPI in Tumpang District, namely Duwet Krajan, Duwet, Benjor, Tulusbesar and Kidal. In addition, the two dimensions – education and living standard give significant contribution to the poverty in the research area. As recommendation, it is very important to put into consideration that improve level of education of the people in to minimum level of education as regulated by the government will be one best option for the research area to lessen their poverty level. In addition, improvement of living standard towards infrastructure development is also another strong recommendation to develop research area so that the residents might have better quality of access to basic infrastructure to ease their daily activity.

Social relations among residents in its function might form betterment community activity – in the form of collective action to develop their living condition through their endowment resources (Ostrom & Ahn, 2003; Putnam, 2000; Coleman, 1988). In the research area, in general residents have quite strong social relations from the result measurement of rate of participation and density. In this sense, it is important to have some activities in order to strengthen social tie among residents through their formal existence community groups.

Up most of it, poverty in the research area has influenced by both social relations among residents within a village as well as geographical location of the nearest neighbourhoods. Hence, eradication poverty is necessary to put consideration on strengthening 'constructive' social relations among residents through their existence community groups. Then, it is also important to keep fostering development of a non-poor village that is surrounded by some non-poor villages, and vice-versa.

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