DETERMINANT FACTORS OF HOUSEHOLD POVERTY: A CASE OF FAMILY PLANNING VILLAGES IN WEST SUMATERA PROVINCE, INDONESIA

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ABSTRACT: Poverty rate in Indonesia still relatively high reaches 10,12 % of Indonesia Population. In West Sumatera as a part of Indonesia, the poverty rate although lower than Indonesia, but it is still relatively high, reaches 6.75%. Several programs have been done to cope with poverty in Indonesia which have been successful to decrease the rate of poverty. However, in West Sumatera, the rate of poverty is stagnant in the last 5 years, even increase in the year 2016. To arrange the programs in FP villages, information about poverty is required. Among the important information needed are the factors that affect poverty in FP villages. A family planning village (FP village) is a village selected using certain criteria to be a development locality to help communities improve their quality of life and welfare through family planning and family development program in Indonesia. The objectives of this research were to describe characteristics of poor and non-poor households and to identify determinant factors of household poverty in FP villages of West Sumatera Province. The research was conducted in 17 FP villages, where 255 sample households were selected using multistage random sampling. Data were collected through interviewing the head of poor and non-poor households from July to September 2018. The dependent variable used in this research was status of household poverty, and independent variables were number of a family member, involvement in family planning program, number of a working family member, number of children under 5 years, age of household head, education of household head, the skill of household head, and working hour of the household head. Data were analyzed using descriptive statistics and logistic regression. The result shows that poor household has more household member, less involved in family planning, fewer household working member, younger household head, a higher number of children under 5 years, lower education, mostly having no technical skill, and higher working hour, while determinant factors of household poverty in FP villages were the number of a family member, involvement in family planning program, age of household head, education of household head, and skill of household head.

Keywords: Household Poverty, Determinant Factor, Family Planning Village

1. INTRODUCTION

Poverty is a condition where a human is unable to fulfil his/her basic needs. Poverty is the main problem faced by developing countries, including Indonesia. The poverty rate in Indonesia is still high, were in September 2017, the poverty population reaches 26.58 million people or 10.12 % of Indonesia population [1]. Likewise in West Sumatera province, although lower than in Indonesia, the poverty rate in West Sumatera is still relatively high. On September 2017 poverty population in West Sumatera reaches 359.990 people or 6.75 % of West Sumatera population [2].

The problem of poverty is a complex problem, where many factors cause the problem to occur. According to [3] at least three main factors cause poverty. First, low income and asset to fulfil the basic need like food, clothes, housing, health, and education. Second, lack of ability to speech and lack of power in front of state institution and society. The third factor is susceptibility to an unstable economy, related to lack of ability to cope with.

There were several programs have been done to cope with poverty in Indonesia, such as *Bimbingan Massal* (Bimas) program, *Inpres Desa Tertinggal* (IDT) program, Jaringan Pengaman Sosial (JPS) program, *Bantuan Langsung Tunai* (BLT) Program, *Program Nasional Pemberdayaan Masyarakat* (PNPM), and *Kredit Usaha Rakyat* (KUR) program. Based on the last ten year data, the program was quite effective to decrease the rate of poverty, wherein 2007 the poverty rate was 16.58% became 10.12% in 2017. Similarly in West Sumatera province, the poverty programs

have been successful to decrease the rate of poverty from 11.90% in 2007 became 6.75% in 2017, which is much lower than the Indonesian poverty rate.

However, although the programs have decreased the poverty rates, in the last 5 years, the rate is stagnant and increased in 2016 from 6.71% in 2015 become 7.14% in 2016, which means there were about 351.510 poor people left. For this reason, it is important to find out a new program which is more integrative and comprehensive to overcome poverty in this province. One solution proposed by the government of Indonesia to overcome poverty and control population is called Family Planning Village program (*Kampung* KB program).

A family planning village (FP village) is a village selected using certain criteria to be a development locality to help communities improve their quality of life and welfare through family planning and family development programs [4]. One of the criteria is the poverty rate of the village. With the poor conditions of FP village, the government launches multi-sector programs to improve the condition to better condition. Through FP Villages, the government expects the birth of good quality families with excellent generations [5]. Also, the government expects the success of FP villages will accumulate to the success of districts, provinces, and country.

In West Sumatera as a part of Indonesia, the poverty rate although lower than Indonesia, but it is still relatively high, reaches 6.75%. Several programs have been done to cope with poverty in Indonesia which have been successful in decrease the rate of poverty. However, in West Sumatera, the rate of poverty is stagnant in the last 5 years, even increase in the year 2016. To arrange the programs in FP villages, information about poverty in FP villages is required. Among the important information needed are the factors that affect poverty in FP villages. Until now there is no study to investigate the factors affecting the poverty in FP villages. For this reason, the study of poverty determinant is important to investigate information about factors that affect the poverty of household in FP villages.

There is some information needed to develop FP Villages, i.e the characteristics of the poor and non-poor household, and factors that significantly affect the household poverty in the FP villages. In this study, there are two questions are proposed: 1) What is the description of poor and non-poor household in FP villages; and 3) What are the determinant factors that affect the household poverty in FP villages. Based on the problem statement and research questions formulated above, the objectives of this study are 1) To describe the characteristics of poor and non-poor household in FP villages; and 2) To investigate determinant factors that affect household poverty in FP villages.

2. METHOD

2.1. Research Framework

According to [6], the main factors of poverty can be viewed based on 4 characterises: 1) regional characteristics; 2) society characteristics, 3) household characteristics; and 4) individual characteristics. Regional characteristics which influence the probability of household poverty can be identified by the difference of regions such as rural area and urban area or the difference of geographical location such as isolated and non-isolated area. Society characteristics can be viewed from the accessibility of household to the basic service facilities such as the distance of household from the basic facilities. The availability of basic facilities can be identified such as education facility, health facility, transportation infrastructure, water, electricity where the lack of these facilities will affect the poverty of household.

The household characteristics which determine the household poverty deals with the internal characteristics of the household such as the number of a family member, the number of a working family member, number of a family member under 5 years, and characteristics of the house where the family live. Individual characteristics which influence household poverty such as age, education, skill, and daily working hour of the household head.

This research is focused on the FP villages which have been set up since 2017 in West Sumatera province. To identify determinant factors of household poverty in FP Villages, assuming regional characteristics and social characteristics of households are uniforms, the attention is focused on the last two characteristics i.e household characteristics and individual characteristics of the household head. For this purpose, the population of the research is stratified into two categories that are poor household and non-poor household. The determinant factors of household poverty are identified by variables which influence the possibility of household poverty.

2.2. Data Collection

The sample was taken from FP villages using Multistage Random Sampling. The first stage was to select regencies and town in West Sumatera Province, second steps selecting FP villages, and the third steps to select households in the selected FP villages consist of poor household and non-poor households. The selected regencies were

Agam, Solok, and Pesisir Selatan, and selected towns are Padang and Payakumbuh. Total households selected from 3 regencies and 2 towns were 255 households consisted of 175 poor

households and 80 non-poor households. Data was collected through interviews with family heads from Juli to September 2018.

Household Characteristics:
Number of household member
Involvement in family planning program
Working member of household
Number of children under 5 year

Individual Charactweristics:
Age of household head
Education of household head
Skill of household head
Daily working hour of household head
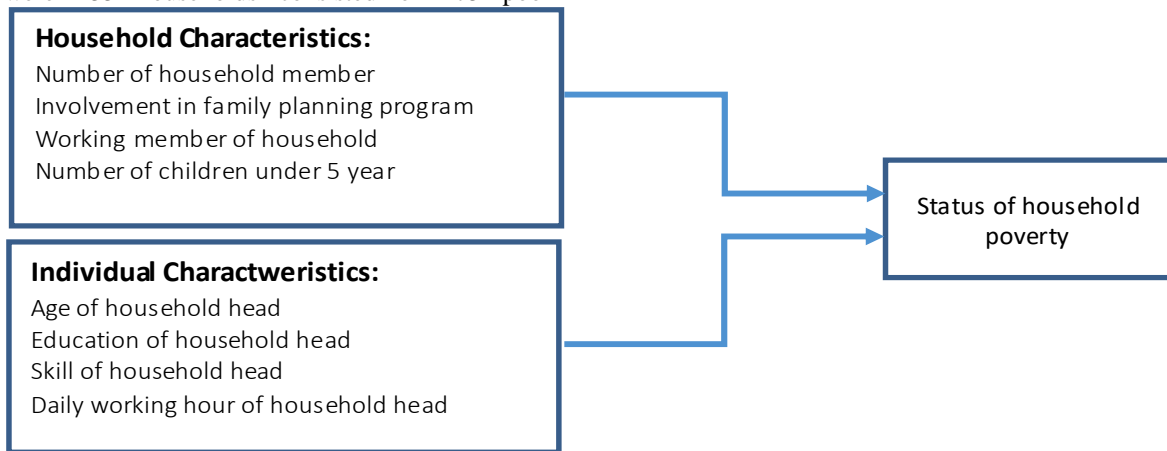
Status of household poverty

Fig.1 Research Framework

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To meet the first objective of this research, data were analyzed using descriptive statistics and for

the second objective, data were analyzed using logistic regression analysis. The dependent variable was the status of poverty (Y) as a dummy variable with value 1 for poor and 0 for non-poor. Independent variables were several household members (X_1), involvement in family planning program (X_2), the number working household member (X_3), number of a household member under 5 years (X_4), age of household head (X_5), education of household head (X_6), the skill of household head (X_7) as a dummy variable with having skill 1 and having no skill 0, and working hour of household head (X_8). The logistic regression model for this analysis is as follows:

$$\mathrm{Ln}\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8$$

Where p is the probability a household includes in poverty category (Y=1) and (1-p) is the probability that a household not included in non-poverty category (Y=0). The ratio of p to (1-p) is the odd-ratio, that is the ratio of probability a household classified into a poor category to the probability of the household classified into a non-poor category.

The precision of logistic regression is tested using several tests including a test of the significance of all variables (overall model fit), model feasibility (Hosmer and Lemeshow goodness of fit test), reliability of regression model (goodness of fit Nagelkerke *R Square*), an individual test for each variable in the model (*Wald test*). The overall model fit test using *Chi-Square* test with SPSS output is presented as

Omnibus Test of Model Coefficient. The significances of all variables in the model are identified using significant value (*p-value*), when sig < 0.05, all variable are simultaneously significant, otherwise not significant.

The goodness of fit test using Hosmer and Lemeshow test compare the probability of model prediction with the observed value. The test is done with the *Chi-Square* test. When *p-value* or sig < 0.05, the data doesn't fit the model prediction, otherwise, the data fit the model. The goodness of fit test determines the total variability of the dependent variable that can be determined by the variables in the model. The reliability was measured by *Cox* and *Snell R2* and *Nagelkerke R2* coefficient of determination. The model is reliable when the value of R^2 is close to 1. The individual

test of each variable is tested using the *Wald test*. When the value sig < 0.05, the independent variable significantly influence the dependent variable, otherwise not significant. All tests were applied to convince that the variables are significant and reliable in predicting the independent variable.

3. RESULTS AND DISCUSSION

3.1. Description of poor and non-poor households

There were 8 variables used to describe poor and non-poor households, i.e number of a family member, involvement in family planning program, number of working household member, number of children under 5 year, age of household head, education of household head, the skill of household head, and working hour of the household head. Observation of all variables for both poor and non-poor household is presented in Table 01.

From Table 01 we can see that the distribution of the percentage of several household members of the poor household is different from the non-poor household. Poor households have less percentage with several household member 2-4 people, but higher in the percentage of household member with more than 4 household member. In this case, 52.6% of the poor household has 5 or more member and 40% of the non-poor household has 5 or more member. Involvement in family planning program was measured by a qualitative variable which is explained by involving and not involves in the family planning program The comparison of the poor household and non-poor household data in involvement in family planning program can be seen in Table 01.

Working member of household measured by categories: 0-1 person; 2-3 person; and 4 or more person of the household member has a job. By comparing the working member of the poor household and the working member of non-poor household data, we can see that the percentage of working member between 0-1 person of the poor household is more than non-poor household i.e 62.2% in a poor household and 38.8 in a non-poor household. However when we see closely the percentage of working member between 2-3 person of poor household only 30.9% which is lower than non-poor household (57.5%). The Percentage of working member 4 person or more is higher in the poor household than non-poor household, i.e 6.9% in a poor household and 3.7% in a non-poor household. So, in a poor household, more working member than non-poor household.

Table 1. Description of Poor and Non-poor Households

No	Indicators	Poor Household		Non-Poor Household	
		Frequency	Percentage	Frequency	Percentage
	Number of a household member				
	2 person	9	5.1	5	6.2
1	3 person	23	13.1	14	17.5
	4 person	50	28.6	29	36.3
	5 person or more	93	52.6	32	40.0
	Involvement in family planning program				
2	Not Join	89	50.9	31	38.7
	Join	86	49.1	49	61.3
	Number of the household working member				
3	0-1 person	109	62.2	31	38.8
	2-3 person	54	30.9	46	57.5
	4 person or more	12	6.9	3	3.7
	Age of household head				
	20-29 year	3	1.7	1	1.3
4	30-39 year	54	30.9	15	18.8
	40-49 year	69	39.4	29	36.3
	50 year or more	49	28.0	35	43.9
	Number of Children under 5 year				
5	0-1 person	159	91.9	75	93.8
	2-3 person	14	8.1	4	5.0
	4 person or more	0	0.0	1	1.3
	Education of household head				
	Elementary School	96	54.8	5	6.3
6	Yunior High School	42	24.0	31	38.8
	Senior High School	36	20.6	28	35.0
	College	1	0.60	16	20.0
	The skill of household head				
7	Having no technical skill	89	50.9	31	38.7
	Having technical skill	86	49.1	49	61.3
	The daily Working hour of the household head				
8	0-4 hours	4	2.3	0	0.0
	5-8 hours	148	84.6	64	80.0
	8 hours or more	23	13.1	16	20.0

Age of household head is one of the important individual characteristics that influence household poverty. By comparing the age of household head between poor and non-poor household we can see that the age of household head of poor household is mostly in between 40-49 years (39.4%) and age between 30-39 years old (30.9%). The age household age of non-poor household is mostly in 40-49 years old (36.3%) and more than 50 years. It means that the age of household head in a poor household is mostly younger than non-poor household.

The number of children under 5 years old is one of the characteristics of individuals that influence household poverty. The number of children under 5 years old in household measured by categories 0-1 person; 2-3 person; and 4 person and more. By comparing the number of the children under 5 years old data in a poor household and non-poor household we can see that children under 5 years old in the poor household between 2-3 person (8.1%) is higher than non-poor household (5.0%). However, the number of children under 5 years old between 0-1 person is higher in the non-poor household (93.8%) than in poor household (91.9%). Poor households have more children 2-3 person than non-poor household.

Education of household head is an important characteristic to determine the poverty of the household. There are 4 categories of household head education, that is elementary school, junior high school, senior high school and college. Comparison of data from both poor and noon poor household, education of household head can be seen in Table 01. Most poor household heads have lower education 54.8% elementary school, 44.6% highschool, 24% junior high school and 20.6% senior high school, and only 0.6% college graduate. But for non-poor household head relatively higher education. Non-poor household head education 73.8% is a highschool, 38.8% junior high school, 35% senior high school, and 20% in college, only 6.3% from elementary school. So we can see that in the general poor

household have lower education than non-poor household. A household falls into the poverty category when the education of the household head is low.

The skill of household head will influence the kind of job they can have and finally will influence their earning. The household skill is also measured by a dummy variable which is 1 for having technical skill and 0 for having no technical skill. By comparing the skill of household head between poor and non-poor household, we can see that the percentage of technical skill of household head in the non-poor household (61.3), higher than poor household (49.1%). Most of the household head of poor household has technical skill, and most of the household of the non-poor household doesn't have technical skill.

The daily working hour of the household head is assumed to determine household poverty. Working hour is classified into 4 categories: 0-4 hours, 5-8 hours, and more than 8 hours. Most of the poor and non-poor household head work 5-8 hours a day, in this category poor household head work more than the non-poor household head. There are only 2.3% of poor household head work 0-4 hours, none of the non-poor household head has this working hour. A household with a working hour of 8 hours or more is higher in the non-poor household (20%). It means that all poor household head is working, but they are still poor because they have lower education and lower skill.

3.2. Determinant Factors of Household Poverty

The result of the logistic analysis shows that from 8 variables that include in the model, 5 variables were significant, i.e: number of a household member, involvement in family planning program, age of household head, education of household head, and skill of household head. Other variables that are the number of children under 5 years, the number of a working family member, and daily working hour of household head are not significant (Table 02).

Table 2. The Result of Logistic Regression Analysis

Variable	B	S.E	Wald	Df	Sig.	Exp(B)
Number of a household member	.484	.157	9.458	1	.002	1.622
Involvement in family planning	-1.088	.414	6.899	1	.009	.337
Household working member	-.202	.165	1.510	1	.219	.817
Children under 5 years	-.345	.293	1.386	1	.239	.708
Age of household head	-.080	.024	11.141	1	.001	.923
Education of household head	-.336	.064	27.293	1	.000	.714
The skill of household head	-.566	.378	17.152	1	.000	.209
The working hour of the household head	-.134	.116	1.333	1	.248	.875
Constant	8.179	1.866	19.214	1	.000	3564.456

The regression result of regression analysis supported by Omnibus Test for simulant test of *regression coefficient* in the logistic regression model is about 119.834 with the significant value 0,000. A significant test of logistic regression model fitness with value -2 log-likelihood about 195.898 is significant. Determination coefficient not relatively high, it is Nagelkerke *R Square* about 0.529. However, as a whole, it could be concluded that all of the independent variables in the model can explain the variance of poor household about 52.9%.

The test result to the fitness capacity of model prediction showed by Hosmer and Lemeshow test value with the *Chi-Square* value about 9.342 with significant value 0.314 it shows that probability of poverty case we predicted fit with observation, with accuracy prediction about 83.4%. The result of Individual test to variables in the model showed that five variables influence significantly the quantity of household member, the participation in family planning programme, the age, education and the skill of household head.

3.2.1. Number of a household member

From Table 01 we can see that the percentage of household with a number of a family member of the poor household is different from the non-poor household. The *regression coefficient* of several household member variables (B) is 0.484 with significance value 0.002. The value of odd-ratio Exp (B) for this variable is 1.622 (Table 02) Value of B with positive sign means that the increase of one household member will increase the possibility of a household to become poor about 1.622 times. This result shows that the increase in household member will increase the possibility of the household to be poor. This result is consistent with [7-9].

3.2.2. Involvement in family planning program

Involvement of household in the family program is measured by qualitative variable, i.e involve or not involved in the program of family planning. The result of logistic regression analysis shows that the involvement of a household family planning program variable is significant with the *regression coefficient* (B) is -1.088 and significance value 0.009. The value of odd ratio Exp (B) for this variable is 0.337. The value of B with negative sign means that engaging with family planning increase their probability of a household to become non-poor 0.337 times. This result explains that the more involvement of household to family planning program the higher possibility of a household to non-poor.

3.2.3. Age of household head

Variable age of household head is measured by 4 categories, i.e 20-29 years; 30-39 years; 40-49 years; and 50 years and up. The age of household head is an individual character in the household assumed influence on household poverty. The regression analysis shows that the age of the household head variable is significant with the *regression coefficient* (B) -0.080 and significant value about 0.001. This explains that the age of household head variable influence significantly to household poverty. Odd-ratio exp (B) about 0.923 mean that increasing the age of household head increases the possibility of the household to be poor. This result is consistent with [10, 11].

3.2.4. Education of household head

Education of household head is one of individual characteristic which is assumed to influence household poverty. The result of regression analysis shows that education of household head is significant with *regression coefficient* (B) is -0.336 and significance value 0.000. This explains that education of household head variable influenced the household poverty. The value of odd-ratio, Exp (B), is 0,714. The negative sign of B explains that the increase of education of household head will increase the possibility of the household to become non-poor or will decrease the possibility to become poor. This result is consistent with [7, 9, 11, 12].

3.2.5. The skill of household head

The skill of household head also one of individual character in the household which is assumed to determine the household poverty. The result of regression analysis shows that the skill of the household head is significant with regression (B) -1.566 and significance value 0.000. This result explains that the skill of household head significantly influences household poverty. The value of odd-ratio, exp (B), 0.209 shows that the increase of household head skill will increase the possibility of the household to be non-poor with probability 0.209 times.

4. CONCLUSION

Based on finding and discussion above, we can conclude: 1) Compare to non-poor household, in general, the poor household has more household member, less involved in family planning, fewer household working member, younger household head, higher children under 5 years, lower higher education, higher having no technical skill, and higher working hour; and 2) Determinant factors of household poverty in family planning village of West Sumatera are the number of a household member, the involvement of household in family planning program, the age of household head, the

education of household head, and the skill of household head.

5. ACKNOWLEDGEMENTS

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