

THE DETERMINANTS OF PARTICIPATION IN EMPOWERMENT PROGRAMS IN JAMBI PROVINCE, INDONESIA

Novyandra Ilham Bahtera^a, Fatimah Mohamed Arshad^b, Shaufique Fahmi Sidique^c,
Marcel Djama^d, Asnarulkhadi Abu-Samah^e

^{abcd}Institute of Agriculture and Food Policy Studies,
Universiti Putra Malaysia, Selangor, Malaysia

^eInstitute for Social Science Studies, Universiti Putra Malaysia, Selangor, Malaysia

Corresponding email: novyandra.ib@gmail.com

Abstract

Among the oil palm supply chain participants, the smallholders are relatively at a disadvantage because of their small farms, low production and other structural problems. An empowerment program is one of the effective measures to improve their economic status. An understanding of perception on empowerment program will help the policy makers to design an effective empowerment program. The study identifies the determinants of the oil palm farmers' participation in training for the empowerment program. Structured questionnaire and face-to-face data collection methods are employed to obtain the primary data from 194 oil palm smallholders in Tanjung Jabung Barat, Jambi Province, Indonesia. Logistic-regression is used to gain information on the determinant of smallholders' readiness to participate in the empowerment program. The principal component analysis indicates that knowledge and activities variables have significant effect on the probability of farmers' participation on the training related with the empowerment program. Income is the only variable derived from socio-economic variable that becomes the determinant of farmers in involving the training on empowerment program, while the other otherwise.

Keywords: Empowerment, Oil Palm Farmers, Human Development, and Agricultural Policy

1. Introduction

Currently the oil palm industry is the major force that drives growth of the agricultural sector in Indonesia (World Growth, 2011). In the last two decades, the production of oil palm in Indonesia has drastically increased from 721,172 tons in 1980 to 23,672,000 tons in 2012 indicating an increase of 3.182 % (Figure 1). The industry has attracted a significant number of laborers and entrepreneurs. The oil palm crop has encroached into the food production sector which is largely small-farm based. This crop is attractive as it provides higher return compared to other crops such as rubber, cocoa, coconut, and paddy (Basiron, 2007).

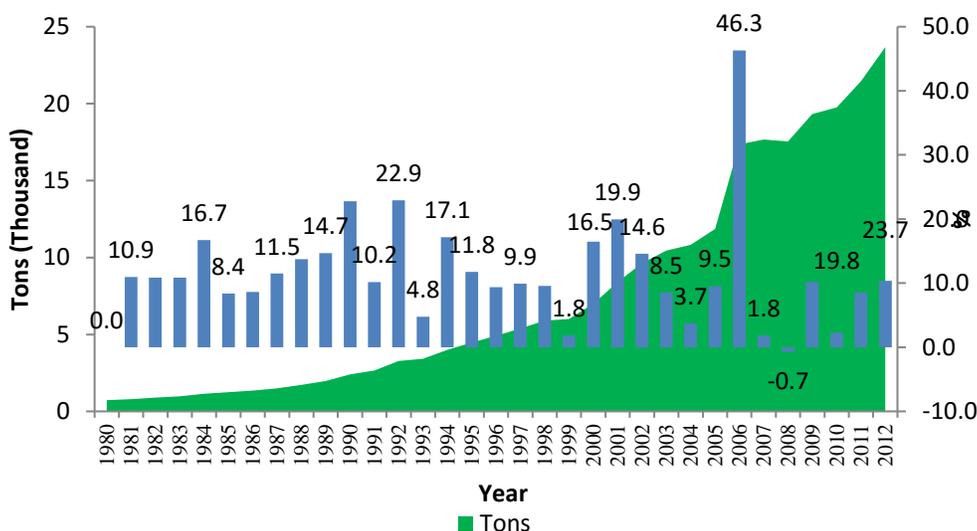


Figure. 1 Production of Crude Palm Oil in Indonesia (‘000 tons), 1980-2012

Source: FAO stat, (2013)

This study has chosen oil palm smallholder farming in Jambi as a case study which is a similar trend on the oil palm production in Indonesia. Despite the general improvement of oil palm production in this area, many of the smallholders are still living in poverty. The productivity of the smallholder is lower than those of the national and private estates since the farm practices of the smallholders are far from optimal as they are not exposed to good agriculture practices and relevant production technologies (Feintrenie, Chong & Levang, 2010; Obidike, 2011). The smallholders are poor with limited knowledge on oil palm farming. Furthermore, the expansion efforts of large-scale oil palm companies and smallholders are in environmentally and socially harmful (Marti, 2008; Lee et al., 2014). Hence, there is a need to study how these developments are impacting the smallholders in this area as well as the prospect of empowerment program to improve their welfare and well-being.

As far as the empowerment program is concerned, the local communities’ participation has been widely recognized as a better alternative to foster the sustainability of good agriculture practices (Coulibaly-Lingani et al., 2011). It has become an alternative due to lack of performance by government in fulfilling the necessities of rural people (Meinzen-Dick & Knox, 1999). It happens in few countries such as Indonesia, particularly in Jambi Province, as McCarthy, Gillespie and Zen (2012) argue that the government province of Jambi has a lack of interest in developing the rural people. It can lead to lack of direction of farmers towards good agriculture practices.

The similar idea raised by Mbeche and Dorward (2014) who also state that in the case of Kenya, the government plays an insignificant role in dealing with growth and poverty reduction. They suggest that in order to improve the processes on the agricultural sector, the farmers’ group needs to be empowered. The management of farmers’ group and the livelihood of farmers can be improved by strengthening the farmers’ group. It is, therefore, a need to work together among the actors in the agriculture sector such as farmers, NGOs, industries, and governments to achieve the sustainability of oil palm commodity for the better future.

Furthermore, farmers require having a bargaining position in order to be empowered. This can happen through strengthening the farmers’ group who are concerned on improving the productivity and quality of their commodities (FSG, 2011). Farmers, in the farmer’s group

activities, should have a better perception towards empowerment program so that they can fully participate in the given empowerment program (Geidam, Redzuan & Abu-Samah, 2012). Geidam, Redzuan and Abu-Samah (2012) suggest that the community should be guided professionally so that they can develop their fieldwork sector. As a result, the farmers can gain the benefits such as strong bargaining position, enhancing more knowledge on the given sector, having higher self-esteem, and better control over their lives (Quaedvlieg, Roca & Ros-Tonen, 2014; Monteza, Blanco & Valdivieso, 2015). Hence, the participation of farmers on the empowerment program is crucial to be taken into account in the agriculture development policy.

1.1 Problem Statement

The highest global producers and exporters of oil palm in the world is Indonesia (World Growth, 2011). This should be followed by the achievement of those participants in the oil palm industry with an increasing welfare. However, independent smallholders, as one of the participants in the oil palm sector, are still marginalized. They live in poor conditions. Even though Jambi, one of the provinces in Indonesia, is being one of the largest palm oil producers in Sumatera, the independent smallholders remain poor because they are unfairly treated by the big scale corporations (Syahza, 2004).

There are some researches that have been carried out to study the determinant of participation of afforestation program in Nigeria (Geidam, Redzuan & Abu-Samah, 2012), of forest management program in Burkina Faso, West Africa (Coulibaly-Lingani et al., 2011), in Haiti (Dolisca et al., 2006), in India (Lise, 2000; Behera & Engel, 2006), in Turkey (Atmiş et al., 2007), of European Union agri-environmental schemes (Lastra-Bravo et al., 2015) and of global value chain of tea and cut-flower in Kenya (Said-Allsopp & Tallontire, 2014). However, it is still limited to the study about the determinant of participation of independent oil palm farmers on farmers' empowerment program in Indonesia. Hence, it requires the author to study the determinant of participation on empowerment program in the given beneficiaries so that it can contribute to fulfilling the existing gap to provide some policy recommendations to address the poor institution of independent small farmers.

1.2 Objective of Study

The overall objective of this study is to examine the prospect of smallholder's involvement in the local NGO's empowerment program in the Tanjung Jabung Barat Regency, Jambi Province, Indonesia. It specifically attempts to identify the determinant of participation on farmers' empowerment program.

2. Theoretical Background

Even though in the past decade participation has been stated as the new tyranny in the development program for marginalized people (Cooke & Kothari, 2001), in the millennium era it has been considered as playing an important role in the development program which may offer answers to the various critiques against participatory development, and establish a legitimate and genuinely transformative approach to development (Williams, Hickey & Mohan, 2004).

Participation is the process of consultation with rural inhabitants which will increase the degree of involvement of local people in the development process (Storey, 1999). It is initiated by government employees, a local leader, or a strong community (Lise, 2000) which is one of the much vaunted elements on the program established for promoting the rural economic development (Storey, 1999).

Participation of the beneficiaries of a program can be useful. A study conducted by Van Uden-Kraan et al. (2009) which explores how far 528 patients of breast cancer, fibromyalgia, and arthritis experience being empowered by participating in the online support groups, found that those respondents are mostly better-informed and have enhanced social well-being. In other words, the participation of those patients in online support groups is able to make an important contribution to the empowerment program.

The participation of communities in the empowerment program can reform the economic policy. McHenry (2011) examines the role of arts as a tool on how to improve social and civic participation to construct resilience to inequity. She finds that the arts have the ability to strengthen sense of place and community identity. It is utilized as a tool for encouraging and enabling the civic participation, and also provides the chance for the people to interact and build networks which at the end of the day can lead to the well-being and healthy relationships of rural and remote inhabitants. She adds that art is used as a tool for building mutual understanding between divisive and disparate groups. These arts can also be named as the empowerment program in the development attempts. Hence, it can bring economic welfare to the communities (Parvin, Ahsan & Chowdhury, 2004).

Such a successful empowerment program can be achieved through a critical mass of the target group (Tsey et al., 2003). Tsey et al. (2003) suggest that the wellbeing of the family can provide the ability for the rural people to participate in taking control of their own problems. It, as a result, can improve the synchronization and capability to tackle issues within wider community such as farmer groups. Furthermore, the empowerment program should provide several behaviors on tackling the issues faced by the beneficiaries so that they can fully participate, as goes a study by Davis et al. (1987) who investigates the initial participation in worksite health promotion programs and underlying the determinant of participation found that multiple-component strategy as well as multi behaviors had a high participation level on the given program.

Based on the provided theoretical background, with regard to the objective of the study, the author intends to study the participation determinants of farmers on empowerment programs in Indonesia so that it can support or go against the theoretical background as mentioned above in order to contribute to the body of knowledge.

3. Research Design

3.1 Study Area

Tanjung Jabung Barat is one of the regencies in the province of Jambi, Indonesia. Its area is 5,009.82 km² with a population of 293,594 inhabitants in 2012. This regency is divided into 13 districts, which are subdivided into 20 sub-districts and 114 villages (Directorate General Estate of Jambi Province, 2013). The selection of location of study was conducted by purposive sampling technique. The four villages of the study's location selected are Sungai Rotan, Rantau Benar, Pulau Pauh and Lubuk Terap at Tanjung Jabung Barat Regency, Jambi Province, Indonesia. A local NGO has been conducting the empowerment program for the last three years in the mentioned four villages. A local NGO sees that Tanjung Jabung Barat has potential area for oil palm activities since it has one of the highest numbers of oil palm production among the other regencies in Jambi Province (Table 1).

Table 1: Area (ha), Production (tons) and Productivity of Oil Palm (t/ha) by Regencies, 2011

Regency	Area (Ha)	% of Area	Production (tons)	% of Production	Productivity (t/ha)
Sarolangun	8,502	6	12,043	4	1.4
Merangin	20,343	15	51,309	19	2.5
Bungo	9,454	7	13,160	5	1.4
Batanghari Muaro	6,160	5	7,946	3	1.3
Jambi	32,424	24	54,425	20	1.7
Tanjab Timur	22,044	16	25,564	9	1.2
Tanjab Barat	28,921	21	49,381	18	1.7
Total	136,239	100	277,043	100	2

Source: (Directorate General Estate of Jambi Province, 2013).

3.2 Location of Study

Figure 2 shows the location of Tanjung Jabung Barat Regency. The respondents of this study are taken from the four villages at Tanjung Jabung Barat in order to identify their socio-economic profile as well as the determinant's participation of farmers on empowerment program which is in line with the objective of the study.



Figure 2: Geographical location of Tanjung Jabung Barat

Source: Government of Jambi Province (2013)

3.3 Research Design

The questionnaire contained questions asking the socio-economic profile of farmers such as education, years of farming, farming size and income. The survey also asked about the access to production facilities such as pesticide, fertilizer and seed. In addition, the respondents were asked a set of questions evaluating their perception towards the empowerment program. The farmers read the statements and were guided by the trained enumerators to facilitate the farmers in answering the five-point Likert-scale type of the questions ranging from strongly disagree to strongly agree.

The preliminary survey was conducted on February 2014 in four villages in Tanjung Jabung Barat to improve the questionnaire before going to be conducted as the actual survey. It was conducted

in the four villages of the targeted area on the study. The real data collection was collected from September to October 2014. Furthermore, the selection of location was conducted by purposive sampling technique which was at four villages: Sungai Rotan, Rantau Benar, Pulau Pauh and Lubuk Terap at Tanjung Jabung Barat Regency, Jambi Province, Indonesia. The reason for choosing these four villages was that the local NGO had implemented the empowerment program to these four villages. In addition, the reason for choosing Tanjung Jabung Barat as the location for this study was that Tanjung Jabung Barat had one of the highest numbers of oil palm production among the other regencies in Jambi Province which had economic potential on oil palm commodity as mentioned earlier.

In this study, the research instrument was originally written in English. However, Indonesian was the official language of the Indonesian people, thus it was necessary for the instrument to be translated into Indonesian language. To make sure of some of the meanings, thoughts and concepts of the items remained unchanged from the English version. The questionnaire was translated by one local professional translator who was a native bilingual Indonesian. The raw data accumulated from the survey was analyzed using the Social Statistical Package for Social Sciences (SPSS) version 20. The study utilized descriptive analysis as well as logistic regression to profile and identified the participation determinants of farmers on empowerment program respectively.

4. Result and Discussions

In this part, it will provide the socio-economic profile of smallholders such as educational background, monthly income, year experience on oil palm plantation, farming size and access to production process. The findings show on the Table 2 below.

Table 2: Socio-Economic Profile of Respondents (n=194)

Variable	Frequency	Percentage (%)	Mean	SD
Education				
No Formal School	46	23.7		
Elementary School	70	36.1		
Junior High School	36	18.6		
Senior High School	35	18		
Diploma	2	1		
Degree	5	2.6		
Monthly Income (Rupiah)				
< 700 thousand	4	2.1	4,336,618	5,472,849
701 thousand-1.4 million	31	16		
1.41 million-3.5 million	75	38.7		
3.51 million-3.5 million	61	31.4		
> 7 million	23	11.9		
Years of Farming			8.42	4.7
1-5	59	30.4		
6-10	91	46.9		
11-15	33	17		

16-20	7	3.6		
>21	4	2.1		
<hr/>				
Farming Size (Ha)			2.75	3.1
< 2	126	64.9		
2.1-5	52	26.8		
5.1 - 10	12	6.2		
>10.1	4	2.1		
<hr/>				
The Ability of Access to the Production Facilities			.86	.35
Yes	166	85.6		
No	28	14.4		

In terms of educational background, only 2.6 % had university degrees, about 23.7 % had no formal education, 36.1 % received elementary school education, 18.6 % achieved junior high school education, and 18 % had senior high school education. The findings suggest that most of the respondents received only a low level of education.

The average monthly income was estimated at Rp 4,336,618. Most of the respondents (38%) had a monthly income between 1.41 million-3.5 million Rupiah while only 2.1% of respondents had an income per month of below Rp 700,000 and 16% of respondents had Rp 701,000-Rp 1,400,000 monthly income which was below poverty level and considered “poor” respectively in accordance to the World Bank’s definition.

About 30.4% of the farmers were relatively new to oil palm farming in which the period of their involvement was between 1-5 years, while 46% mentioned 6-10 years. These data suggest that majority of farmers are beginners in the oil palm farming industry.

In terms of farming size, close to two-thirds of respondents (64.9 %) had less than 2 ha. The mean score of farming size of farmers is 2.75 ha. This indicates that most of the respondents have a tiny amount of farming size while only 2.1 % of respondents owned a farming size of more than 10.1 ha.

More than three-fourths of the farmers (85.6%) answered “yes” on whether or not they had access to the production facilities such as pesticide, fertilizer and seed while there were only 14.4 percent of respondents who responded with the answer “no”.

4.1 Factor Analysis

Kaiser-Mayer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1974) and Bartlett’s test of sphericity (Kaiser, 1974) were the method used in this study to obtain the suitability of the data for the factor analysis (Hair et al., 2006). The KMO index ranges from 0 to 1, with .6 suggested as the minimum value for a good factor analysis (Tabachnick & Fidell, 2001) which is considered as acceptable. The Bartlett’s test of sphericity should be significant ($p < .05$) for the factor analysis to be taken into account appropriate. The result has been provided on the Table 3 that the data meet the prerequisite for the factor analysis.

Table 3: KMO and Bartlett’s test

Kaiser-Meyer-Olkin measure of sampling adequacy		.941
Bartlett’s test of sphericity	Approx. χ^2	11892
	Df	630
	Significance	P<
		.000

This study implements the factor analysis by using principal component analysis (PCA) in order to group the Likert-scale variable into a smaller number of interpretable underlying factors. The variables will be grouped by using factor analysis which will measure the same construct. Kaiser eigenvalue criterion and the scree test are used to choose how many factors to retain before proceeding with further analysis (Pallant, 2013). In here, factors with eigenvalues of more than one are retained while those with a value of less than one will be considered insignificant and will be excluded. Table 4 shows the initial factor extraction with the eigenvalues and percentage of variances for each successive factor. The five factors record eigenvalues above 1 (19.8, 5.7, 2.4, 1.3, 1.1). These five factors describe a total of 83.9% of the variance (cumulative %).

Table 4: Total Variance Explained

Factors	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	19.8	55%	55%
2	5.7	15.8%	70.8%
3	2.4	6.6%	77.4%
4	1.3	3.5%	80.9%
5	1.1	3%	83.9%

Pallant (2013) suggests that by mostly using Kaiser criterion, researchers will gain too many factors extracted which make a critical attempt to look at the scree plot provided by SPSS. Scree plot is a figure provided on the Catell’s scree test which is another method of knowing how to determine the appropriate number of factors to retain by using the graphical way (Cattell, 1966). It involves plotting each of the eigenvalues of the factors and inspecting the plot to find a point at which the shape of the curve changes direction and becomes horizontal. In order to retain the factors, Catell (1966) suggests retaining all factors above the elbow, or break in the plot, as these factors contribute the most to the explanation of the variance in the data set.

As what Catell (1966) suggests that the researchers require seeing a change or elbow in the shape of the plot that the factor(s) will only retain above this point. Figure 3 is quite a clear break between the second and the third factors. Both factor 1 and factor 2 show much more of the variance than the remaining factors. Hence, by using scree plot, the study retains 2 factors to be analyzed.

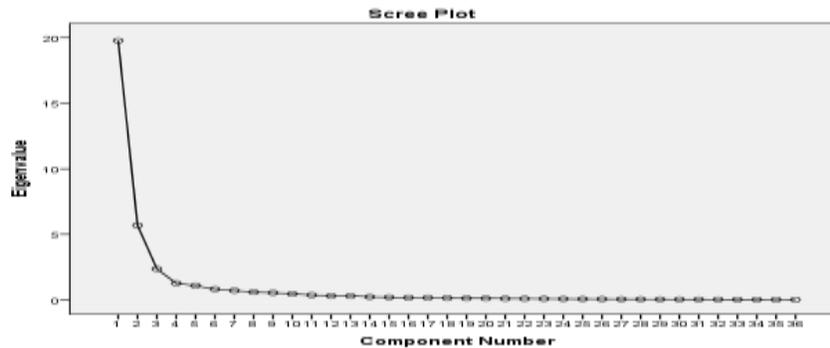


Figure 3: Scree Plot of eigenvalues and factors

However, since both Kaiser’s criterion and Catell’s scree test tend to overestimate the number of factors (Zwick & Velicer, 1986; Hubbard & Allen, 1987), Horn’s parallel analysis is used (Horn, 1965). It compares the size of the eigenvalues with those obtained from a randomly generated data set of the same size. The data will only be retained for those eigenvalues which exceed the corresponding values from the random data set. This is used to identify the correct number of factors to retain which has been shown to be the most accurate by both Kaiser’s criterion and Catell’s scree test.

The study uses the list of eigenvalues and some additional information that can be obtained from another little statistical program that is available on www.allenandunwin.com/spss/htm which is named as Monte Carlo PCA for Parallel analysis. The result of parallel analysis shows that the study should use 3 factors to retain for further analysis (Table 5) which has a different result with the Kaiser eigenvalue criterion (5 factors in Table 4) and the scree plot (2 factors in Figure 3).

Table 5: Comparison of eigenvalues between PCA and parallel analysis

Factor number	Actual eigenvalue from PCA	Criterion value from parallel analysis	Decision
1	19.8	1.9	Accepted
2	5.7	1.8	Accepted
3	2.4	1.7	Accepted
4	1.3	1.6	Rejected
5	1.1	1.6	Rejected

However, further results of data analysis show the component matrix that the loadings of each of the items on the five factors based on the Kaiser criterion which is used to retain all factors with eigenvalues above 1 as the default. It is found that most of the items load very strongly (above .6) on the first two factors. Only very few items load on factor 3, 4 and 5. Hence, the result explains to support the scree plot to retain only two factors for further analysis.

The study uses the Oblimin rotation method. Pallant (2013) suggests that if factors are more strongly correlated which is above .3 the study should implement Oblimin rotation method instead of using Varimax rotation method. It is found that two factors of the study derived from PCA are above .3. Hence, this study implements the Oblimin rotation method to rotate the two retained components in the solution.

4.2 Logistic Regression Method

To analyze the variables that are the determinants on the participation of oil palm farmers involved in empowerment program is the main objective of the study. In here, it expands a participation model to analyze the socio-economic profile, and the perception of farmers towards empowerment programs such as activities and knowledge derived from the factor analysis as the determinants of participation on empowerment program. The participation model is developed using logistic regression method. Logistic regression is used because the categorical data of the dependent variable which is appropriate for the response variable is based on a series of “yes”/”no” responses (Sheather, 2009).

The study will specifically use the basic of logistic regression since the study will observe those farmers who participate and not participate on the training regarding the empowerment program provided by local NGO. The model below is the logistic regression of participation to the function of knowledge, activities, education, years of farming, farming size, income, and access to production facilities:

$$P_{it} = \beta_0 + \beta_{1t}KNW_{it} + \beta_{2t}ACT_{it} + \beta_{3t}EDU_{it} + \beta_{4t}YRFRM_{it} + \beta_{5t}FARM_{it} + \beta_{6t}INC_{it} + \beta_{7t}ACC_{it} + \epsilon_i$$

Where P represents the status whether or not farmers participate on the training regarding the empowerment program at the time period of t. While KNW represents the knowledge of farmers on good agriculture practices at the time period of t. ACT is the activities that farmers gain on the farmer groups at the time period of t. Both KNW and ACT are the variable derived from the PCA. While EDU (education), YRFRM (years of farming), FARM (farming size), INC (monthly income) and ACC (access to production facilities such as seed, fertilizer and pesticide) are the variables taken from the socio-economic profile of farmers at the time period of t. Whereas, β_0 and ϵ represent the intercept of regression equation and the error term (the random in nature due to uncertain event) respectively.

In the statistical data analysis using logistic regression, it was found that the model passes the test named ‘goodness of fit’ test. It can be shown the significant value of the model which was .000 ($p < .0005$). The goodness of fit test used the Omnibus Test of Model Coefficients. This test also reported the chi-square value 74.9 with 7 degree of freedom (Table 6).

Table 6: Omnibus Tests of Model Coefficients

	Chi-Square	Df	Sig.
Model	74.9	7	.000

Furthermore, the Hosmer and Lemshow test (Table 7) provided important information that the model of the study was worthwhile. To prove that the model was accepted by using this test was by identifying the significant value of this test should be more than .05. It was shown on this test that the significant value was .77 ($p > .05$), and the chi-square was at 4.9 which was greater than .05 as well. The given sets of variables could be explained between 32% (value of Cox & Snell R Square) and 48% (value of Nagelkerke R Square) of the variability whereas the model of the study was correctly classified by 87% of cases overall from the percentage accuracy in classification (PAC) information (Table 7).

Table 7: Hosmer and Lemeshow Test, Model Summary, Percentage Accuracy in Classification (PAC)

Chi-square	Df	Sig.	Cox & Snell R Square	Nagelkerke R Square	PAC
4.9	8	.77	.32	.48	87%

The significance of the test can be shown from the Table 8 that those variables below .05 would be considered as the significant result. KNW has the value .02 ($p < .05$) which indicates that KNW variable has the significant impact on the participation. It is supported by Coulibaly-Lingani et al. (2011) that participating in the protection of forests has a significant impact on the participation in forest conservation. This is similar with the KNW variable which represents the knowledge on how to treat the agricultural sector by not damaging the environment, not implementing the excessive of using pesticide and avoiding the erosion at the surrounding of oil palm plantation. However, the results indicated that the impact is negatively significant which means the less knowledge on GAP, the more likely farmers would be participating in the training.

It can be seen from the B value which shows the negative value (-.09) on the KNW indicating that the lesser the score that farmers gain on knowledge of good agriculture practices, the more likely they will participate in the training provided on the empowerment program.

As suggested by Longtin et al. (2010) that when the trainers are on the field, the empowerment program to educate beneficiaries must be provided to the beneficiaries so that there is some knowledge owned by beneficiaries as the requirement to participate on such program. Since there is an intention for those who have lack of knowledge to get more experience from the training and motivate them looking for the learning opportunities whereas it expects to gain skills and knowledge (Department for Business, Innovation and Skills, 2013) by recognizing that the training program can improve the levels of knowledge (Jina et al., 2014; da Cunha et al., 2015).

Table 8: Ordered Logistic Regression Analysis

	Estimate (B)	Std. Error	Wald	Df	Sig.	95% Confidence	
						Lower	Upper
KNW	-.09	.04	5.5	1	.02	.85	.99
ACT	.09	.01	43.6	1	.00	1.06	1.12
EDU	-.07	.05	1.6	1	.20	.84	1.04
YRFRM	.07	.05	1.9	1	.17	.97	1.17
FARM	-.07	.06	1.3	1	.26	.82	1.05
INC(1)	.96	.47	4.1	1	.04	1.03	6.61
ACC(1)	.76	.76	1.0	1	.32	.48	9.48

Furthermore, Table 8 shows that ACT value is .000 ($p < .05$), indicating that there is significant impact of ACT towards the participation. The positive B value presents on the ACT variable (.09) indicating that those farmers who have high score of activities on the farmers group are more likely to participate in the training provided on the empowerment program. It is supported by Lise (2000) that the indicators of social are the consideration in participation. A better perception of farmers towards empowerment program in the farmer's group activities has the ability to make farmers participating on the empowerment program (Geidam, Redzuan & Abu-Samah, 2012).

Using the terminology of Woolcock (1998) on defining the indicators of social is somehow near the ACT variable on this study. It is about how the information, trust and norms of reciprocity inherent in one's social network are seemingly obvious opportunities for mutually beneficial

collective action. Woolcock argues that when the group member will get access to privileged, 'flexible' resources and psychological support, the positive social capital will occur, and it may have a negative side when individual expressions and advancement are restricted. This social capital can be positively created by the communities in which it is absent or being eroded which is nurtured and maintained in large formal organization (Portes & Sensenbrenner, 1993; Geidam, Redzuan & Abu-Samah, 2012). Furthermore, the result is also supported by Van Uden-Kraan et al. (2009) that find that enhancing the social well-being can make people more likely to participate in the empowerment program. McHenry (2011) indirectly supports the study, stating that by the participation of communities in the empowerment program, it provides a chance for people to improve the social activities among member groups which strengthens the relationship among them.

In terms of socio-economic profile, INC is the only variable among five provided socio-economic variables which has a significant effect on participation (.04) while EDU (.20), YRFRM (.17), FARM (.26), and ACC (.32) have no significant result on the model given (Table 8).

It is supported by Dolisca et al. (2006) who examines the determinant factor of farmers to participate in forest management. Dolisca argues that by the opportunities to increase income it can lead to stimulation in environmental participation. Maskey, Gebremedhin and Dalton (2003) suggests that income of household among rural people has significant impact on participation in community forest management. A similar result is found by Adekunle and Bakare (2004), stating that there is a significant effect of income on participation among 184 farmers in the Taungya Agro-forestry system in Nigeria.

The result is also supported by Atmiş et al. (2007) that there is no significant effect on level of education in influencing participation. There is an absence of significant result by using education as the determinant on the participation (Dupraz & Ducos, 2007). It means that the behavior of farmers on deciding to participate on the empowerment program cannot be determined by using educational levels (Defrancesco et al., 2008). In France, a case study conducted by Bonnieux, Rainelli, and Vermersch (1998) about the voluntary agreements of farmers on complying with the conservation program finds that the level of education has no significant effect on participating in such program. It is further supported by Jongeneel, Polman, and Slangen (2008) who study about the determinants of farmers on participating in multifunctional agriculture program which finds that the level of education also has an insignificant effect on participating in such a program.

The finding is also supported by Dupraz et al. (2003) that farming sizes have no significant effect on the participation. The study of Dupraz et al. (2003) in Belgium analyzes farmers' participation in two environmental schemes known as Agri-Environmental Measures (AEM) at both late mowing and reduced used farm inputs which have no significant effect with farm size measured as total utilized agricultural area in ha. This AEM can be related to the participation of farmers in the empowerment program since the purpose of AEM is to build awareness of farmers in protecting and enhancing the environmental condition around their farmland which has a similar purpose to the empowerment program in this study.

Similar results are found that farming size have no effect on the participation studied by Wossink and van Wenum (2003). They examine the participation on Dutch arable farmers in the program of biodiversity conservation both actually and contingently. They hypothesize that large farms would typically be more attractive to biodiversity conservation. In fact, their study finds that the size of the farm has no significant impact on complying with biodiversity conservation measured

for both actual and contingent behavior typologies. The other studies on the background of northern Italian (Defrancesco et al., 2008) and of EU-6 member states (Polman & Slangen, 2008) perspectives also support the result of the study that farm size has no significant impact on participation on AEM. This insignificant impact will probably due to the other motivation of farmers such as how important the program will benefit them in terms of the farming productivity (Sattler & Nagel, 2010).

Conclusion

There are huge studies considering the determinant of farmers' participation in forest management program, while the lack of studies on participation determinant of oil palm farmers on empowerment program remains. The main objective of the study is to identify the socio-economic profile of the respondents and to determine the determinant of participation on farmers' empowerment program in Tanjung Jabung Barat Regency, Jambi Province, Indonesia. The findings provide the important input to the government in supporting the marginalized farmers on the rural area so that farmers can improve their welfare.

It is suggested that lack of knowledge of farmers on GAP leads farmers to be more likely to participate in the training, hoping it can enhance their knowledge. Since the motivation of having training to farmers is to develop farmers' understanding on the knowledge of GAP indicating the main target for empowering the beneficiaries is achieved. Activities on the farmers group are found to be the determinant in the participation of farmers in empowerment program since the positive perception of farmers towards the social activities can more likely make them get involved in the given training. The result finds that income is the only socio-economic variable which has the ability to be the predictor on the possibility of farmers to participate on training related with the empowerment program while the other have no such role on as the predictor.

This would probably be due to the other farmers' perception on how important the program will be useful for them in the aspect of farming productivity. It may also be the condition whereby the local conditions were difficult to make cooperative and collective action or participation is manipulated by employing agencies to rationalize their own actions or low performance (Brett, 2003). Hence, it is recommended for further research to identify the approach used by the agency on providing such a program so that there may be more input to know the determinant of participation on the empowerment program.

Acknowledgements

We thank to CIRAD (French Agricultural Research Centre for International Development) for the financial support on the process of fieldwork activities.

References

- i. Adekunle, V. A. & Bakare, Y., 2004. Rural Livelihood Benefits from Participation in the Taungya Agroforestry System in Ondo State of Nigeria. *Small-Scale Forest Economics, Management and Policy*, 3(1), pp. 131-138.
- ii. Atmiş, E., Daşdemir, İ., Lise, W. & Yıldıran, Ö., 2007. Factors Affecting Women's Participation in Forestry in Turkey. *Ecological Economics*, 60(4), pp. 787-796.
- iii. Basiron, Y., 2007. Palm Oil Production Through Sustainable Plantations. *European Journal of Lipid Science and Technology*, 109(4), pp. 289-295.
- iv. Behera, B. & Engel, S., 2006. *Who Forms Local Institutions? Levels of Household Participation in India's Joint Forest Management Program*. ZEF (Center for Development Research) discussion papers on development policy, No. 103.
- v. Brett, E. A., 2003. Participation and Accountability in Development Management. *The Journal of Development Studies*, 40(2), pp. 1-29.
- vi. Bonnieux, F., Rainelli, P. & Vermersch, D., 1998. Estimating The Supply of Environmental Benefits by Agriculture: A French Case Study. *Environmental and Resource Economics*, 11(2), pp. 135-153.
- vii. Cattell, R. B., 1966. The Scree Test for The Number of Factors. *Multivariate Behavioral Research*, 1(2), pp. 245-276.
- viii. Cooke, B. & Kothari, U., 2001. *Participation: The New Tyranny?* Zed Books.
- ix. Coulibaly-Lingani, P., Savadogo, P., Tigabu, M. & Oden, P., 2011. Factors Influencing People's Participation in The Forest Management Program in Burkina Faso, West Africa. *Forest Policy and Economics*, 13(4), pp. 292-302.
- x. da Cunha, D. T., Cipullo, M. A. T., Stedefeldt, E. & de Rosso, V. V., 2015. Food Safety Knowledge and Training Participation Are Associated with Lower Stress and Anxiety Levels of Brazilian Food Handlers. *Food Control*, 50, pp. 684-689.
- xi. Davis, K. E., Jackson, K. L., Kronenfeld, J. J. & Blair, S. N., 1987. Determinants of Participation in Worksite Health Promotion Activities. *Health Education & Behavior*, 14(2), pp. 195-205.
- xii. Defrancesco, E., Gatto, P., Runge, F. & Trestini, S., 2008. Factors Affecting Farmers' Participation in Agri-Environmental Measures: A Northern Italian Perspective. *Journal of Agricultural Economics*, 59(1), pp. 114-131.
- xiii. Department for Business, Innovation and Skills. 2013. *Government of UK*. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/70141/bis-13-548-motivation-and-barriers-to-learning-for-young-people-not-in-education-employment-or-training.pdf (Accessed October 19, 2015)
- xiv. Directorate General Estate of Jambi Province. 2013. *A Report*.
- xv. Dolisca, F., Carter, D. R., McDaniel, J. M., Shannon, D. A. & Jolly, C. M., 2006. Factors Influencing Farmers' Participation in Forestry Management Programs: A Case Study from Haiti. *Forest Ecology and Management*, 236(2), pp. 324-331.
- xvi. Dupraz, P. & Ducos, G., 2007. *Agri-Environmental Contract Adoption Under Fixed and Variable Compliance Costs*. European PhD Workshop, European Association of Agricultural Economists, Agrocampus De Rennes, pp. 4-5.

- xvii. Dupraz, P., Vermersch, D., De Frahan, B. H. & Delvaux, L., 2003. The Environmental Supply of Farm Households: A Flexible Willingness to Accept Model. *Environmental and Resource Economics*, 25(2), pp. 171-189.
- xviii. Feintrenie, L., Chong, W. K. & Levang, P., 2010. Why Do Farmers Prefer Oil Palm? Lessons Learnt from Bungo District, Indonesia. *Small-Scale Forestry*, 9(3), pp. 379-396.
- xix. FSG. 2011. Available at: <http://www.fsg.org/publications/improving-livelihoods-palm-oil-smallholders#download-area> (Accessed September 20, 2015).
- xx. Geidam, A. A., Redzuan, M. & Abu-Samah, A., 2012. The Background Factors, Participation and Empowerment among Participants of Afforestation Programme in Toshia, Northeast, Nigeria. *Social Science*, 51, pp.10738-10742.
- xxi. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. & Tatham, R. L., 2006. *Multivariate Data Analysis*. Upper Saddle River, NJ: Pearson Prentice Hall.
- xxii. Horn, J. L., 1965. A Rationale and Test for The Number of Factors in Factor Analysis. *Psychometrika*, 30(2), pp. 179-185.
- xxiii. Hubbard, R. & Allen, S. J., 1987. An Empirical Comparison of Alternative Methods for Principal Component Extraction. *Journal of Business Research*, 15(2), pp. 173-190.
- xxiv. Jina, R., Jewkes, R., Christofides, N. & Loots, L., 2014. A Cross-Sectional Study on the Effect of Post-Rape Training on Knowledge and Confidence of Health Professionals in South Africa. *International Journal of Gynecology & Obstetrics*, 126(2), pp. 187-192.
- xxv. Jongeneel, R. A., Polman, N. B. & Slangen, L. H., 2008. Why Are Dutch Farmers Going Multifunctional? *Land Use Policy*, 25(1), pp. 81-94.
- xxvi. Kaiser, H. F., 1974. An Index of Factorial Simplicity. *Psychometrika*, 39(1), pp. 31-36.
- xxvii. Lastra-Bravo, X. B., Hubbard, C., Garrod, G. & Tolón-Becerra, A., 2015. What Drives Farmers' Participation in EU Agri-Environmental Schemes? Results from a Qualitative Meta-Analysis. *Environmental Science & Policy*, 54, pp. 1-9.
- xxviii. Lee, J. S. H., Abood, S., Ghazoul, J., Barus, B., Obidzinski, K. & Koh, L. P., 2014. Environmental Impacts of Large-Scale Oil Palm Enterprises Exceed That of Smallholdings in Indonesia. *Conservation Letters*, 7(1), pp. 25-33.
- xxix. Lise, W., 2000. Factors Influencing People's Participation in Forest Management in India. *Ecological Economics*, 34(3), pp. 379-392.
- xxx. Longtin, Y., Sax, H., Leape, L. L., Sheridan, S. E., Donaldson, L. & Pittet, D., 2010. Patient Participation: Current Knowledge and Applicability to Patient Safety. *Mayo Clinic Proceedings*, 85(1), pp. 53-62.
- xxxi. Marti, S., 2008. *Losing Ground: The Human Rights Impacts of Oil Palm Plantation Expansion in Indonesia*. FoE, LifeMosaic and SawitWatch.
- xxxii. Maskey, V., Gebremedhin, T. G. & Dalton, T., 2003. *A Survey Analysis of Participation in A Community Forest Management in Nepal*. Northeastern Agricultural Resource Economics Association, Portsmouth, New Hampshire, June, pp.8-10.
- xxxiii. Mbeche, R. M. & Dorward, P., 2014. Privatisation, Empowerment and Accountability: What Are the Policy Implications for Establishing Effective Farmer Organisations? *Land use Policy*, 36, pp. 285-295.

- XXXIV. McCarthy, J. F., Gillespie, P. & Zen, Z., 2012. Swimming Upstream: Local Indonesian Production Networks in “Globalized” Palm Oil Production. *World Development*, 40(3), pp. 555-569.
- xxxv. McHenry, J. A., 2011. Rural Empowerment Through the Arts: The Role of the Arts in Civic and Social Participation in the Mid West Region of Western Australia. *Journal of Rural Studies*, 27(3), pp. 245-253.
- xxxvi. Meinzen-Dick, R. & Knox, A., 1999. *Collective Action, Property Rights, and Devolution of Natural Resource Management: A Conceptual Framework*. Workshop on Collective Action, Property Rights, and Devolution of Natural Resource, Puerto Azul, Philippines, June, 21-24.
- xxxvii. Monteza, M. d. P. P., Blanco, J. L. Y. & Valdivieso, M. R., 2015. The Educational Microcredit as an Instrument to Enable the Training of Women. *Procedia-Social and Behavioral Sciences*, 197, pp. 2478-2483.
- xxxviii. Obidike, N. A., 2011. *Library Philosophy and Practice*. Available at: <http://www.webpages.uidaho.edu/~mbolin/obidike.html> (Accessed January 4, 2015)
- xxxix. Pallant, J., 2013. *SPSS Survival Manual*. Open University Press, Buckingham (UK): McGraw-Hill Education.
- xl. Parvin, G. A., Ahsan, S. R. & Chowdhury, M. R., 2004. Women Empowerment Performance of Income Generating Activities Supported by Rural Women Employment Creation Project (RWECP): A Case Study in Dumuria Thana, Bangladesh. *The Journal of Geo-Environment*, 4, pp. 47-62.
- xli. Polman, N. & Slangen, L., 2008. Institutional Design of Agri-Environmental Contracts in The European Union: The role of Trust and Social Capital. *NJAS-Wageningen Journal of Life Sciences*, 55(4), pp. 413-430.
- xlii. Portes, A. & Sensenbrenner, J., 1993. Embeddedness and Immigration: Notes on the Social Determinants of Economic Action. *American Journal of Sociology*, 98(6), pp. 1320-1350.
- xliii. Quaedvlieg, J., Roca, M. G. & Ros-Tonen, M. A., 2014. Is Amazon Nut Certification A Solution for Increased Smallholder Empowerment in Peruvian Amazonia? *Journal of Rural Studies*, 33, pp. 41-55.
- xliv. Said-Allsopp, M. & Tallontire, A., 2014. Pathways to Empowerment? Dynamics of Women's Participation in Global Value Chains. *Journal of Cleaner Production*, 107, pp. 114-121.
- xlv. Sattler, C. & Nagel, U. J., 2010. Factors Affecting Farmers' Acceptance of Conservation Measures—A Case Study from North-Eastern Germany. *Land use Policy*, 27(1), pp. 70-77.
- xlvi. Sheather, S., 2009. *A Modern Approach to Regression with R*. New York: Springer Science & Business Media, pp. 263-304.
- xlvii. Storey, D., 1999. Issues of Integration, Participation and Empowerment in Rural Development: The Case of LEADER in the Republic of Ireland. *Journal of Rural Studies*, 15(3), pp. 307-315.
- xlviii. Syahza, A., 2004. Distorsi harga tandan buah segar (TBS) kelapa sawit dan pengaruhnya terhadap pendapatan petani di pedesaan. *Dalam Jurnal Pembangunan Pedesaan*, 4(4), pp. 45-57.
- xlix. Tabachnick, B. G. & Fidell, L. S., 2001. *Using Multivariate Statistics*, Chapter 13, 4th edn, New York: Harper Collins.

- I. Tsey, K., Whiteside, M., Deemal, A. & Gibson, T., 2003. Social Determinants of Health, The 'Control Factor' and The Family Wellbeing Empowerment Program. *Australasian Psychiatry*, 11(sup1), pp. S34-S39.
- li. Van Uden-Kraan, C. F., Drossaert, C. H., Taal, E., Seydel, E. R. & van de Laar, M. A., 2009. Participation in online patient support groups endorses patients' empowerment. *Patient Education and Counseling*, 74(1), pp. 61-69.
- lii. Williams, G., Hickey, S. & Mohan, G., 2004. *Participation: From Tyranny to Transformation? Exploring New Approaches to Participation in Development*. New York: Zed books.
- liii. Woolcock, M., 1998. Social Capital and Economic Development: Toward A Theoretical Synthesis and Policy Framework. *Theory and Society*, 27(2), pp. 151-208.
- liv. World Growth. 2011. *The Economic Benefit of Palm Oil to Indonesia*. VA: Arlington.
- lv. Wossink, G. & van Wenum, J. H., 2003. Biodiversity Conservation by Farmers: Analysis of Actual and Contingent Participation. *European Review of Agricultural Economics*, 30(4), pp. 461-485.
- lvi. Zwick, W. R. & Velicer, W. F., 1986. Comparison of Five Rules for Determining the Number of Components to Retain. *Psychological Bulletin*, 99(3), p. 432.

