

FARMER WELFARE IN COAL MINING AUTHORITY AREA: ANALYSIS OF ENVIRONMENTAL, SOCIAL AND ECONOMIC FACTORS

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Abstract: This study aims to analyze the influence of environmental factors, social factors, and economic factors on the welfare of farmers in the concession areas of coal mining, either partially or simultaneously. Questionnaires are used as data collection instruments. The number of samples is determined by using the Slovin formula. Determination of sample by Proportionate Stratified Random Sampling method. Further selection of members of farmer groups as respondents with simple random sampling method. Analytical technique using multiple linear regression analysis using Program Statistic Products and Service Solution (SPSS) version 22.0 for windows. The research results show that environmental factors, social factors, and economic factors simultaneously significant affect the welfare of farmers in coal mining concession areas. Environmental factors and economic factors have a significant effect on the welfare of farmers, while the influence of social factors is not significant.

Keywords: environment factors, social factors, economic factors, welfare.

1. INTRODUCTION

Economy in Kutai Kartanegara Regency East Kalimantan province, Indonesia is still dominated by mining sector. Based on the data by National Statistic Center Kutai Kartanegara regency, there are four sectors still dominating the non oil-gas structure of Gross regional Domestic Product (GRDP), including mining sector (52,76 percent), agricultural sector (15,90 percent), construction sector (11,95 percent), and trade, hospitality and restaurant sector (5,24 percent) (BPS Kutai Kartanegara, 2016). Mining sector does not only give negative effects, it also gives positive effects on regional economy. The expected positive effect from this mining sector is that it can improve farmer community welfare in the area of coal mining concession.

To achieve the community welfare, it is necessary for coal mining management to consider environmental and social factors. There are several negative effects by coal mining; one of which is problem of water source availability for agriculture. Also, the coal mining affects on community social life. Results of a research by Suprihatin (2014) concluded that there was a decreased intensity of community mutual cooperation. Thus, other researches also indicate that the coal mining affects on community economic social life, such as researches by Warman (2012); Siska (2013); and Ma'mun (2016).

As expressed by Albert Fry in Arijanto (2011) the biggest enemy for the environment is poverty. A research by Sugiri and Adiputra (2011) concluded that it is necessary for local community to be fairer in utilizing natural resource management. Although, Kutai Kartanegara has abundance natural resources, but its community unautomatically does not face any poverty problem. There were 56,99 thousand poor people in Kutai Kartanegara Regency in 2015 and this number was decreased in 2017 namely 56,57 thousand people (BPS East Kalimantan Province, 2018). Therefore, natural resource management should be done as wise as possible. It not, then it will be impossible to be any curse of natural resources faced by Kutai Kartanegara.

Sach and Warner (2001) mentioned that a country with abundance natural resources does is not necessarily have high level of economic growth. Torvik (2002) described that owning abundance natural resources can decrease income and welfare. Gosmawi (2014) coal mining has negative effects on the environment, agricultural activities as well as community prosperity. Based on theoretical and empirical study, this research aims to analyze effects of environmental, social, and economic factors on farmer welfare in coal mining concession area, both partially and simultaneously.

2. LITERATURE REVIEW AND HYPOTHESES

Environment

As explained in the Law number 32 of the year 2009 concerning Protection and Management of Life Environment, live environment is a spatial unity of all objects, power, conditions and creatures, including human and its behaviours, giving effects on its nature, life survival as well as human and other living creature prosperity. According to Albert Fry in Arijanto (2011) the biggest enemy for the environment is poverty. Also as found out in Kutai Kartanegara, coal mining activity is inseparable from environmental problems and prosperity level of community surrounding the coal mining authority area. Effects of environmental changes by coal mining business will affect on welfare level of the farmers n the coal mining concession area.

Research finding by Suharto (2015) stated that coal mining business affects on decreased welfare quality (can be seen from economic, healthy, social and infrastructure dimensions) that are caused by changing environment conditions. A research by Mubarak and Ciptomulyono (2012) concluded that most community show their positive response on environmental preservation and control efforts taken in mining areas. Juniah, et.al. (2013) concluded that coal mining affects on environmental service and benefit values for the community and further effect is various health disorders. Goswami and Goswami (2015) stated that coal mining affects negatively on the environment and agricultural activities.

Based on the theoretical and empirical study, it can be said that environmental factor affects on farmer community welfare surrounding the coal mining. Then, the hypothesis proposed in this research states that; **H1**: Environmental factor affects significantly on farmer welfare surrounding coal mining authority area (Arijanto, 2011; Suharto, et.al., 2015).

Social factors

Community social factor analyzes community welfare as an effects of environmental changes or construction that are rarely done. In this research, it measures social factors consisting of farmer knowledge and experience, perception to coal mining business, farmer group existence and farmer group togetherness indicators. Experiences are seen as all of things found out in one's life history. By growing age, one's experiences will increase.

Ruky (2006) said that work experiences are source of additional knowledge and experiences by someone. Farmer works to achieve better welfare level is inseparable from their knowledge, experiences, mental attitude and social relations (norms). These characteristics are realization of farmer competences. Spencer and Spencer in Ruky (2006) described that there are components forming competences, namely (a) motives, (b) personal traits, (c) self concept, (d) knowledge, and (e) skill.

Motive is something consistently that is done or should be done by a person, and then will direct, guide, and select specific behaviour on a number of action or goals. Personal characteristics are physical and reaction or response characteristics that are conducted consistently on certain situation or information. Self concept is a set of attitude, value system, or self image owned by a person. Knowledge is information owned by a person concerning certain specific area.

Skill is an ability to conduct a series of certain physical or mental tasks. Ruky (2006) said that model competence is (1) a series of personal characteristics, knowledge and skills having mutual correlation to affect the biggest part of a work, (2) having causal correlation with work show, (3) that can be measured with an acceptable standard correctly, (4) that can be improved through training and development. A research by Hafizianor (2016) concluded that coal mining activity causes community social changes. There are researches related to social factor in coal mining business on the community welfare among others Risal, et.al. (2013) and Suharto, et.al. (2015).

Based on the study above, then in this research, it is proposed the second hypothesis as follow. **H2**: Social factor affects significantly on farmer welfare (Spencer and Spencer in Ruky, 2006 and Suharto, et.al.,2015).

Economic

Kutai Kartanegara Regency, East Kalimantan Province, Indonesia includes as a rich area of natural resources, one of which is coal. Its natural resources are used optimally for improved community welfare. Coal mining is expected to have positive effects on the welfare. In general, the coal mining can improve the community welfare surrounding the mining area. A research by Suhartini and Abubakar (2017) concluded that small scale mining activity improves social income and welfare.

Profit in farming business is expected to improve by the existence of coal mining business, namely better price of agricultural product by increased number of consumers. There is also increasing support of work labours and assurance that there will be no any land conversion function of agricultural area. The economic factors are measured from agricultural land function conversion that can provide effects on the welfare. As seen in the research by Wahed (2015) that land area affects significantly on farmer welfare. A research by Fatah (2008) indicated that small scale mining in South Kalimantan Province has some negative economic effects.

The following hypothesis proposed in this research is **H3** : economic factor affects significantly on farmer welfare in area of coal mining concession (Fatah, 2008 and Wahed, 2015).

Welfare

An area with abundant natural resources is not necessarily considered as an area where the people can live prosperous. As expressed by Sachs and Warner (2001) that countries with abundant natural resources are stagnant in economic growth. There are some researches on mining related to community welfare such as conducted by Dutt and Mahy (2007); Fatah (2008); Irawan (2013); and Suharto, et al. (2015).

Stiglitz et al. (2011) suggested that defining the meaning of welfare, it should use a multidimensional formulation. These dimensions include material living standards (income, consumption, and wealth), health, education, individual activities including work, political voice, and governance, social relationships and kinship, environment (present and future conditions), insecurity , both economic and physical.

The whole dimension shows the quality of social life and to measure it, it is required objective and subjective data. Based on theoretical and empirical studies as shown above, then it is developed the following research hypothesis. **H4**: Social factors, economic dimensions, and environmental dimensions simultaneously and significantly affect on farmer welfare surrounding the coal mining concession areas (Stiglitz et al., 2011; Dutt and Mahy, 2007; Fatah, 2008); and Suharto, et al., 2015)

Theoretical and empirical studies show that environmental factors, social factors, and economic factors affect on the welfare. Similarity of this research with previous research is equally researching about community welfare surrounding coal mining concessions. Besides having similarities, this study also has differences, namely this research emphasizes on the effects of environmental factors, social factors, and economic factors on welfare. The similarities and differences of this study with previous research are fully explained in the discussion section.

To clarify this study conceptual framework on the description of the effects of environmental factors, social factors, and economic factors on welfare, it is described in the following Figure 1.

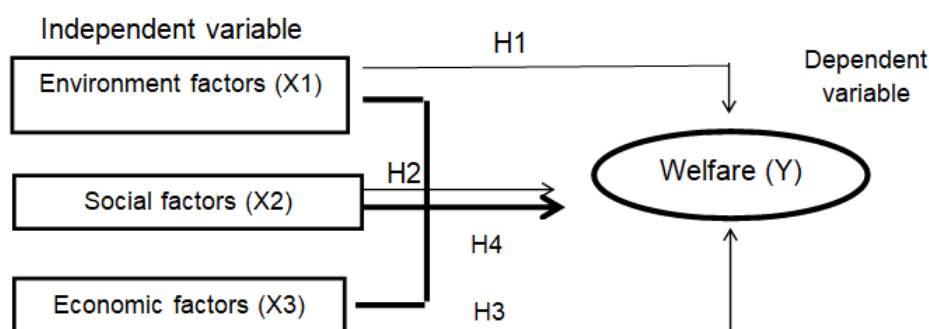


Figure 1. Conceptual Framework of Independent Variable Effect on Dependent Variables

3. RESEARCH METHODS

This research design is quantitative design. Sugiyono (2012) described that a research design using quantitative methods is one type of systematic, well planned and clearly-structured research from the beginning until the research design. Object of this research is farmer welfare in coal mining concession areas taking the case on Loa Tebu Sub district and Loa Ipuh Darat Subdistrict Tenggara District Kutai Kartanegara East Kalimantan Indonesia. Both villages are the coal mining concession areas.

Research variables include *dependent variable* namely Farmer Welfare (Y) and *independent variables* consisting of environment factor (X_1), social factor (X_2), economic factor (X_3). This study uses primary data and secondary data. The primary data are data collected and obtained directly from the respondents. The secondary data are data collected from Central Bureau of Statistics of Kutai Regency and Central Bureau of Statistics of East Kalimantan Province.

There are 152 people as the research population using Slovin formula (Sedarmayanti and Hidayat, 2002) with 10 percent of sampling error rate so that there are 60 respondents. Sampling determination is used *Proportionate Stratified Random Sampling* method.

As stated by Sekaran (2006) population stratification can be done by region. Thus, the population stratification is done based on working area of farmer group. Furthermore, the number of samples of each farmer group is determined proportionally (Sugiyono, 2012), so it is obtained number of samples for farmer group in each village. There are some farmer groups included as the research samples, namely Rias Harapan farmer group (Loa Tebu district) consisting of 10 people, Malabang Farmer Group (Loa Tebu Tebu district) consisting of 12 people, Kendoya Farmer Group (Loa Ipuh Darat Tebu district) consisting of 8 people, Ketipang Permai Farmer Group (Loa Ipuh Darat Tebu sub district) consisting of 12 people, Sidodadi Farmer Group (Loa Ipuh Darat district) consisting of 10 people, Harapan Jaya Farmer Group (Loa Ipuh Darat district) consisting of 8 people. Selection of these farmer group members as the respondents is done by *simple random sampling*.

Collecting data in scientific research is intended to obtain relevant data, accurate, and reliable. Thus, it is necessary for proper and suitable data collection methods. In this research, the data collection technique is used by questionnaires, structured interviews, and observation (Sugiyono, 2012). The research instrument used is questionnaire (structured interview). Measurement of independent variable and dependent variable uses Likert scale with score 1 to 5. Measurement of research variables is based on indicators in the form of questions and statements so that these are considered as the research instruments. Previously, the researcher used the instruments to collect the data, and then the data are arranged based on the literature review, then there are conducted reliability and validity tests.

The validity and reliability tests of question items are conducted by using 30 respondents as a pre-survey through assistance of SPSS version 22 program. The reliability test results obtained by *Cronbach's Alpha* value of 0.904 that is greater than 0.6 (Triton in Sujianto, 2009), then it is concluded that the question items used are reliable. Furthermore, the validity test results indicate the item is valid (r count > 0.3). Sugiyono (2012) stated the question is valid if it has correlation value count (r count) greater than correlation value of 0.3.

The analysis model used to test the proposed hypothesis is the *Multiple Regression Linear* model. The multiple regression analysis with the least square equation is formulated as follow (Supranto, 2001).

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + e \dots\dots\dots (1)$$

Notes:

Y = Farmer Welfare

b_0 = Constant

$b_{1,2,3}$ = Regression Coefficient of each independent variable

X_1 = Environmental factors

X_2 = social factors

X_3 = economic factors

e = residual variables

F test is used to prove whether social capital (independent variable) has simultaneous effects on dependent variable. T test is used to test the effect of each independent variable used in this research on the dependent variables partially.

In order to use the model, it is necessary to test the model feasibility *through Classical Assumption Test* consisting of normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test.

a. Normality Test

Through the assistance of computer program, SPSS version 22 based on *table One-Sample Kolmogorov-Smirnov*, it is obtained probability value or *Asym.Sig.(2-tailed)* greater than 0,05. This indicates normal distribution data (Sujianto, 2009), as shown in Table 1.

Table 1. Normality Test

Variables	Asymp. Sig. (2-tailed)	Information
Environment factors (X1)	0.534	Value $p > 0.05$ = normal
Social factors(X2)	0.099	Value $p > 0.05$ = normal
Economic factors(X3)	0.555	Value $p > 0.05$ = normal
Welfare (Y)	0.101	Value $p > 0.05$ = normal

Source: Result of Primary Data Processing by Researchers

b. Multicollinearity

Test results indicate that VIF value for all dependent variables (X) is smaller than 10 as shown in Table. Thus, it is concluded that there is no multicollinearity classical assumption for the dependent variables (Sujianto, 2009).

Table 2. Multicollinearity Test

Variables	Tolerance	VIF	Information
Environment factors(X1)	0.680	1.470	No multicollinearity
Social factors(X2)	0.456	2.193	No multicollinearity
Economic factors (X3)	0.523	1.913	No multicollinearity

Source: Result of Primary Data Processing by Researchers

c. Heteroscedasticity

Heteroscedasticity test is conducted to correlate independent variables with ABRES. If the p value (significance) $> 0,05$, then, it is concluded that there is no heteroscedasticity. Testing results show that Pvalue $> 0,05$ as shown in table 3.

Table 3. Heteroscedasticity Test

Variable	P Value (Sig.)	Information
Environment factors (X1)	0.864	No heteroscedasticity
Social factors (X2)	0.398	No heteroscedasticity
Economic faktors (X3)	0.089	No heteroscedasticity

Source: Result of Primary Data Processing by Researchers

d. Autocorellation

Autocorellation test is conducted by using Durbin Watson test (DW test). The test results indicate that there is no autocorellation. This is shown by dW value by 1,732, dU by 1,689, and dL = 1,4797. The assessment criteria as expressed by Makridaktis in Sujianto (2009) if $dU < dW < 4-dU$, then there is no autocorellation ($1,689 < 1,732 < 2,311$).

4. RESULTS AND DISCUSSION

General Description of Research Areas

Tenggarong Sub-district is geographically located at the equator area and in the position of 116047' East Longitude - 117004' East Longitude and 0021' South Latitude - 0034' South Latitude. Tenggarong sub-district is one of the subdistricts in Kutai Kartanegara regency, East Kalimantan Province which is passed by Mahakam river as the biggest river in Indonesia. Administratively, the borders at west is Sebulu subdistrict, at east is Tenggarong Seberang subdistrict, at south is Loa Kulu subdistrict, at west is Sebulu sub-district. Tenggarong sub-district has an area of 398,10 km² and is the capital city of Kutai Kartanegara Regency. In 2016 Tenggarong Sub-district consisted of 14 districts (villages) namely Jahab, Bukit Biru, Timbau, Melayu, Loa Ipuh, Maluhu, Panji, Sukarame, Baru, Mangkurawang, Loa Tebu, Rapak Lambur, Loa Ipuh Darat, Bendang Raya with the capital city of the sub district was located in Timbau district. Tenggarong sub-district is a tropical area with average quite high rainfall, so this district includes as fertile land district with advanced agricultural sector in some areas. Based on *Kecamatan Dalam Angka 2016* - Sub District In Figures 2016, Tenggarong District has paddy field area of 3.116 hectares while for Loa Tebu district, it has paddy field area of 96 ha and Loa Ipuh Darat district by 169 ha.

The population of Tenggarong sub-district was 103,075 people with details, there were 53,087 male and 49,988 female in 2015. Loa Tebu and Loa Ipuh Darat districts are the research loci. Loa Tebu district has population of 5,332 people consisting of 2,837 male and 2,495 female. Loa Ipuh Darat district has population of 2,824 people, consisting of 1,501 male and 1,323 female (Kutai Kartanegara, 2016).

Description of Research Variables

The variables used to analyze farmer welfare surrounding coal mining concession area consist of independent variables and dependent variables. The independent variables are (1) environmental factors (X_1) with indicators of cultivated land condition ($X_{1.1}$), reclamation and re-vegetation conducted by the company ($X_{1.2}$), company commitment to reduce pollution ($X_{1.3}$), protection on water sources for agriculture ($X_{1.4}$), and company commitment not to conduct any agricultural land function conversion ($X_{1.5}$), (2) social factors (X_2) with indicators of knowledge and experiences of farmer works ($X_{2.1}$), farmer perception to coal mining ($X_{2.2}$), counselling intensity and effectiveness ($X_{2.3}$), existence of farmer group ($X_{2.4}$), and togetherness in farmer group, and (3) economic factors (X_3) with indicators of increased profit in farmer works ($X_{3.1}$), clear status of cultivated lands ($X_{3.2}$), supports of work labours from the family ($X_{3.3}$), stability of grain price ($X_{3.4}$), and better social interest at farmer work. The dependent variables are welfare (Y) with indicators of health (Y_1), level of education (Y_2), asset ownership (Y_3), income of farmer work (Y_4), as well as relation and political role (Y_5).

Table 4. Descriptive Statistics of Research Variable

Variables	Indicators	Score										Mean
		1		2		3		4		5		
		f	%	f	%	f	%	f	%	f	%	
Environment factors (X1)	X1.1	1	1.7	6	10.0	19	31.7	29	48.3	5	8.3	3.52
	X1.2	0	0	5	8.3	20	33.3	30	50.0	5	8.3	3.58
	X1.3	2	3.3	8	13.3	27	45.0	18	30.0	5	8.3	3.27
	X1.4	4	6.7	16	26.7	21	35.0	17	28.3	2	3.3	2.95
	Total X1	1	1.7	8	13.3	24	40.0	20	33.3	7	11.7	3.40
												16.72
Social factors (X2)	X2.1	1	1.7	5	8.3	14	23.3	29	48.3	11	18.3	3.73
	X2.2	2	3.3	4	6.7	16	26.7	38	63.3	0	0	3.50
	X2.3	10	16.7	17	28.3	17	28.3	15	25.0	1	1.7	2.67
	X2.4	2	3.3	5	8.3	11	18.3	36	60.0	6	10.0	3.65
	X2.5	3	5.0	7	11.7	4	6.7	37	61.7	9	15.0	3.70
Total X2												17.25
Economic factors	X3.1	2	3.3	13	21.7	22	36.7	22	36.7	1	1.7	3.12
	X3.2	1	1.7	5	8.3	14	23.3	29	48.3	11	18.3	3.73

(X3)	X3.3	1	1.7	6	10.0	5	8.3	41	68.3	7	11.7	3.78
	X3.4	3	5.0	17	28.3	21	35.0	12	20.0	7	11.7	3.05
	X3.5	1	1.7	10	16.7	13	21.7	31	51.7	5	8.3	3.48
Total X3												17.16
Welfare	Y1	1	1.7	5	8.3	14	23.3	36	60.0	4	6.7	3.62
(Y)	Y2	0	0	1	1.7	10	16.7	44	73.3	5	8.3	3.88
	Y3	3	5.0	15	25.0	23	38.3	14	23.3	5	8.3	3.05
	Y4	2	3.3	12	20.0	26	43.3	19	31.7	1	1.7	3.08
	Y5	0	0	4	6.7	20	33.3	31	51.7	5	8.3	3.61
Total Y												17.24

Source: Result of Primary Data Processing by Researchers

Environmental factors are included in the medium category with the respondent's answer by 16,72 (Table 4). The indicator having the lowest answer by the respondents is the condition of water irrigation for agriculture; the answers are grouped in less good category. Respondents' answers about social factors are categorized as good answers, with indicator having the lowest answer is the counselling intensity and effectiveness agent and categorized in enough category. Condition of limited counselling agents affects on the service given the community. Respondents' answers to economic factors indicate the good category. Farmer welfare surrounding the coal concession areas is given attention by various parties. These research findings indicate that the respondents' answers on the welfare are grouped in fairly prosperous answers.

Hypotheses Testing

Quantitative analysis is conducted by using inferential statistical approach. Before the statistical analysis, it is started by testing the econometric classical requirements. The results show that the econometric classical requirements have been fulfilled. Furthermore, the hypotheses testing and analysis model used to test the proposed hypotheses is *Multiple Regression Linear Model* with confidence level of 95 percent ($\alpha = 0.05$). Through assistance of a computer program, SPSS version 22.0 it is obtained the summarized results as presented in Table 5. below.

Table 5. Summary of Multiple Regression Analysis Result of The Effect of Welfare, 2018

Variables	Coefficients	t statistics	Sig.
Environmental factor(X_1)	0,182	2,089	0.041
Social factors (X_2)	0,068	0,702	0.485
Economic factors(X_3)	0.645	7,490	0.000
Constant = 1,946	F statistics = 52,145	Sig.=0.000	
R =0,858	R ² = 0,736	F table = 2,84	t table = 1,67

Source: Result of Primary Data Processing by Researchers

Table 5, summarizes the regression results of the effects of environmental factors, social factors, and economic factors on the farmer welfare surrounding the coal mining concessions. Based on the table, then, the regression equations are prepared as follows.

$$Y = 1.946 + 0.182X_1 + 0.068X_2 + 0.645X_3 \dots\dots\dots(2)$$

Based on the equation (2), several things can be explained as follows. The constant value of 1.946 implies that if there are no environmental factors, social factors, and economic factors, the farmer welfare surrounding the coal mining concessions is 1.946 units. Regression coefficient for environmental factor variable is 0,182 units meaning that every addition to one activity related to environmental factor will increase farmer welfare by 0,182 unit. Regression coefficient for social factor variable is 0,068 meaning that every change per one activity related to social factor will increase farmer welfare by 0,068 unit. Regression coefficient for economic factor variable is 0,645 meaning that every change per one activity related to economic factor will increase farmer welfare surrounding the coal mining concession area by 0,645 unit.

The result of statistical test shows that R value is 0,858 meaning that the variables of environment factor, social factor, and economic factor have very strong relation to farmer's welfare. The value of R square (R²) is 0.736 meaning that environmental factors, social factors, and economic factors can explain their effect on the farmer welfare in coal mining concession area by 73.6 percent so that it can categorize as the strong one (Sugiyono, 2012), while the rest of 26,4 percent is explained by other factors beyond the model.

The t test is used to test the significance of each independent variable on the dependent variables, namely by comparing t arithmetic value on t table value at a significant level of 0.05 or at 95 percent of confidence level (dk) by n-k (number of samples - number of variables) . Based on the results of statistical calculations for environmental factor variables (X₁), it is obtained t arithmetic by 2.089 and significance level by 0.041. if t arithmetic that is consulted with t table indicates that t arithmetic is greater than t table; it means that environmental factors affects positively and significantly on the farmer welfare surrounding the coal mining concession areas. Hence, the proposed hypothesis (H1) is accepted. The result of statistical calculation for social factor variables (X₂) is obtained t value by 0.702 and significance level by 0,485. The t arithmetic value for social factor variables is smaller than t table; meaning that social factors have positive effects but not significant on farmer's welfare. Hence, the proposed hypothesis (H2) is rejected. The result of statistic calculation for economic factor variable s(X₃) is obtained that t arithmetic value is 7,490 and significant level is 0.000 This means that there are significant relationships and effects between the variables of economic factors on the farmer welfare surrounding the coal mining concession areas. Hence the proposed hypothesis (H3) is accepted.

It is obtained the F arithmetic value by 52.145 is it is consulted with F table value, it shows that the F arithmetic is greater than F table. The significance value of F value by 0.00 is smaller than the standard significance by 0.05 ($\alpha = 0.05$). Based on the data given, it means that the hypothesis proposed (H4) is accepted, namely the environmental factor, social factor, and economic factor simultaneously and significantly affect on farmer welfare surrounding the coal mining concession area.

Effects of Environmental Factors on Farmer Welfare

Environmental factors affects positively and significantly on farmer welfare surrounding the coal mining concession area. It means that environmental management affects positively on increased welfare. Proper protection at water sources for agriculture conducted by the company will affect on increased agricultural products, which ultimately it can increase farmer income. If there is increased farmer income, then there will be improved welfare. These research findings are in line with an opinion by Albert Fry in Arijanto (2011) stating that the biggest enemy for the environment is poverty. It means that proper environmental management, mainly on agricultural water sources will be able to improve welfare. Also, this research is in line with a research by Suharto, et.al. (2015) stating that coal mining activity affects on decreased quality of environment leading to decreased welfare.

Effects of Social Factors on Farmer Welfare

The research findings indicate that social factors affect positively but insignificantly on welfare. Farmer knowledge and experiences in farmer works serve an important role in the efforts to improve the welfare. Knowledge about farmer works that is obtained from generation to generation gives no actual effects on improvement of farmer welfare. It is also worsen by yet optimal role of counselling agents. Farmer perceptions on the existence of coal mining are categorized in medium category; this also causes yet optimal farmer efforts in taking advantage of business opportunity. These research findings are different to the opinion by Ruky (2006) which stated that knowledge and experience can improve performance. The findings are in line with findings by Suharto, et al. (2015) which stated that coal mining does not have positive effects on welfare (especially in terms of health dimensions).

Effects of Economic Factors on Farmer Welfare

For farmers in surrounding coal mining concession area, it is expected that the existence of company can improve their welfare. Based on the research results in Table 5, is can be seen that economic factors significantly affects on the farmer welfare surrounding the coal mining concession. These research findings are in line with research results by Fatah (2008). For low-income communities, the coal mining will give positive effects, but there will also increasing environmental damage effects. The existence of work labor support from the family is increasing and certainty that there will be no conversion of agricultural land function encourage the farmers to make better efforts so that they can increase their

income and ultimately increase their welfare. This study is in line with the findings by Wahed (2015) stated that land has significant effects on farmer welfare.

5. CONCLUSION AND RECOMENDATION

There are simultaneously significant effects of environmental factors, social factors and economic factors on farmer welfare surrounding the coal mining concession areas. The environmental factors and economic factors affect significantly on the farmer welfare. The social factors affect positively but insignificantly on the farmer welfare. To improve the farmer welfare surrounding the coal mining concession area, it is necessary for business use right holders to improve their roles in the environmental management.

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