Business Diversification in Increasing the Income of Farmer Households

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Article Info	Abstract
	_____ The aim of this research is identifying the socio-economic condition of farmer households and the development of business diversification, knowing the income of farmer households from business diversification activities and the contribution to income of farmer households, and knowing the level of kindness business of farmer households in the Delanggu District of Klaten Regency. The research data used primary data. The sample of this research was 95 farmer households in Delanggu District. The method of data analysis used quantitative descriptive analysis and entropy index. The results showed that business diversification developed in the horizontal form of rice farming, off farming and non-farm. The average income of respondents from rice farming IDR. 12,914,737, - per year, off farming IDR. 12,906,667, - per year and non-farm IDR. 34,197,095, per year. The level of diversity of the average farmer household business works in 2 types of businesses. The lowest index value was 0.500, with an average 0.754 and a mode 0.693. .

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INTRODUCTION

The agricultural sector still plays an important role in national economic development, the role of the agricultural sector includes providing national food, forming Gross Domestic Product (GDP), absorbing labor in rural areas, generating foreign exchange, and functioning as a controller of inflation (Masruroh, 2013). The sector's contribution is second only to the processing industry. One of the food crop agricultural commodities that contributes greatly to the economy is one of them is rice food crops.

In 2013-2017 the contribution of the agricultural sector, especially food crops, contributed significantly compared to other agricultural contributions, despite a downward trend. In 2013 the contribution of the food crop sector was 3.48 percent, then in 2014 it decreased to 3.25 percent and in 2015 it had increased to 3.45 percent. In 2016 and 2017 there were decreases in a row of 3.43 percent and 3.22 percent, respectively (BPS, 2018). The role of the agricultural sector, especially food crops is still used as a national buffer for Central Java (Mambu, 2013). Central Java is known as a rice barn area in Indonesia after East Java and West Java.

Based on data from the Indonesian Ministry of Agriculture, the development of rice production according to concentration areas in Indonesia can be seen in table 1. below:

Based on table 1. shows that rice production in Java according to concentration areas in Indonesia occupies the first position in Indonesia. Central Java ranks third after East Java and West Java with production of 11,420,881 tons. Overall, when viewed from the contribution of GRDP, Central Java contributed to the contribution of the agricultural sector in the second place after the processing industry, when compared to East Java and West Java which ranked third. This indicates that the role of the contribution of rice in Central Java is superior to that in East Java and West Java.One area in Central Java which is known as the rice producing area with its special product in the form of "Rice Delanggu" is Klaten Regency (Prabowo T. H., 2012). Based on the Agriculture Office of Klaten Regency, Delanggu Subdistrict was made into the territory of the Regional Agricultural Technical Implementation Unit (UPTD) II. Keadaam is currently the Brand image of Delanggu District as a rice granary in Central Java with its superior product in the form of 'Delanggu Rice' which is starting to wear off (Wibowo, 2015).

Table 1. Rice Production by region Concentrations in Indonesia, 2017

Area Of Concentration	Land Area (Ha)	%	Production (Ton)	%	Productivity (Kw/ton)
Jawa Timur	2.291.982	14,52	13.125.414	16,13	57,27
Jawa Barat	2.122.781	13,54	12.517.736	15,38	58,97
Jawa Tengah	2.012.212	12,74	11.420.881	14,03	56,76
Sulawesi Selatan	1.184.325	7,5	6.016.016	7,39	50,80
Sumantra Utara	996.180	6,31	5.145.204	6,32	51,65
Sumantra Selatan	983.168	6,23	4.766.837	5,86	48,48
Sub amount	9.590.648	60,74	52.992.088	65,11	55,20
Other provinces	6.197.727	39,26	28.390.363	34,89	45,81
Amount	15.788.375	100,00	81.382.451	100,00	51,55

Source: Ministry of Agriculture of the Republic of Indonesia 2018

The area of rice fields which are the main capital in agriculture decreases every year, the decrease in paddy fields in Klaten Regency is caused by the shift of land from agriculture to non-agriculture.

The development of the broad transfer of agricultural land to non-agriculture in Klaten Regency can be seen in table 2. as follows:

Table 2. An area of Rice Farmland in Klaten Regency in 2013-2017 (Ha)

Year	Rice Land Area (Ha)	Agricultural land (no rice) (Ha)	Land is not farm (Ha)	Area (Ha)
2013	33.220	6.581	25.755	65.556
2014	33.220	6.581	25.755	65.556
2015	33.111	6.581	25.864	65.556
2016	33.066	6.581	25.909	65.556
2017	33.021	6.581	25.954	65.556

Source: Klaten Regency Statistics Agency 2018

Based on table 2. the above shows that the area of paddy farming in Klaten Regency in 2013-2017 has always decreased. In 2015 it decreased by 109 ha. In 2016 and 2017, it decreased again by 45 ha each from the previous year. According to the Agriculture Office of Klaten Regency, five sub-districts were designated as regions of the Regional II Agricultural Technical Implementation Unit covering Juwiring, Wonosari, Delanggu, Polanharjo, and Karanganom Districts. Based on the five regions, Delanggu Subdistrict experienced the largest land transition during 2013-2017, even though the area was known as a producer of premium quality rice. Delanggu District besides being used as the UPTD, it is also used as the center of economic growth in the northern part of Klaten and the strategic route that connects the City of Surakarta and the City of Yogyakarta. The developments in Delanggu District have an impact on the development of the non-agricultural sector such as industry, trade and services. According to Karsinah (2013) there was a change in the structure of the business field in agriculture, so that the agricultural sector tended to decline, especially in terms of population and employment conditions. This decline in the agricultural sector can be seen from changes in land controlled by farmers who experience land shifts from year to year. he development of the area of agriculture to non- agriculture can be seen from table 3.

Based on table 3. the above land area shows that the largest shift in agricultural land to non-

agriculture occurred in Delanggu District, which amounted to 35.66 ha. The land area in Delanggu District is currently narrow and there is a lot of land shifting. The problem of shifting agricultural land to non- agriculture has resulted in limited ownership or control of land. The impact of the shift in agricultural land is farmers' income. The area of land cultivated by farmers is narrow, so production and productivity also decline, which will result in decreased farmer income

The control of land cultivated by farmers in the District of Delanggu varies, which can be differentiated into farmers, cultivators, tenants, perceptions, owners of cultivators and penyapap. The activities of rice farming in the District of Delanggu are carried out 2 or 3 times a year, but because farmers only control a small amount of land, lead to free time for farmers and if the results of low rice farming require farmers to work in other fields as a manifestation of growing business diversification (Zahri & Febriansyah, 2014). According to Setiawan and Prajanti (2011) in increasing agricultural production as an effort to increase income can be done by means of intensification and extensification of agriculture. But the efforts made in the research area are by diversifying the business. Business diversification can be done in the production and non-production sectors. The scope of the production sector of rural households applies business diversity as one of the strategies undertaken by households in increasing income.

Table 3. Extensive changes to the conversion of farmland to Non Agriculture Based Region UNIT Area II in Klaten Regency 2013-2017 year (Ha)

Sub disctric	2013	2014	2015	2016	2017	The total number of
Juwiring	4,25	1,41	2,82	2,23	3	13,71
Wonosari	4,14	1,2	3,47	2,28	4	15,09
Delanggu	**15,12**	**5,62**	**4,50**	**6,42**	**4**	**35,66**
Polanharjo	0,77	0,71	1,01	1,32	1	4,72
Karanganom	4,36	3,97	2,92	0,92	2	14,17

Source: Klaten Regency Statistics Agency 2018

A number of family members after work, they participated in earning a living in various sources, both in the agricultural sector which consisted of on farm outside off farms and outside the agricultural sector (White, 1976 in Zid & Alkhudri, 2016). This diversification of business is carried out within the scope of farmer households as an effort to increase farmer household incomes made by the head of the family and other family members such as his wife and children

Strategic issues and issues that occurred in Delanggu District regarding the condition of rice farming and the diversification of business carried out by farmer households need to be known in order to increase farmer household income. The purpose of this study was to identify the socio-economic conditions of farmer households and the development of business diversification, to know the income of farmer households from business diversification activities and their contribution to farm household income and to know the level of diversity of farmer households in Delanggu Subdistrict, Klaten Regency.

RESEARCH METHODS

The type of research used is quantitative descriptive research. The type of data used in this study is primary data. Primary data was obtained from observations, and questionnaires were given to 95 household heads of farmers who carried out rice farming.

Data analysis in this study is quantitative descriptive analysis used to describe the socio-economic conditions of farm households and the

development of business diversification. The data processing stage is done by tabulation. Data on farmer household characteristics such as farmer's age, farmer's education level, number of family members, number of working family members, number of family cries, area of land occupied, and number of businesses undertaken by farmer households.

Income of farmer households comes from rice farming (on farm), outside farming (non-farm) and off-farm (off farm) (Mambu, 2013). Can be calculated mathematically as follows:

$$Y = \sum(1) + \sum(2) + \sum(Y) \dots\dots\dots\dots\dots\dots(1)$$

Description:

Y = The total income of peasant household

Pi1 = Rice farming income

Pi2 = Outside of farming income Np Income outside

Suci Setiyowati/ Economics Development Analysis Journal Vol (Number) (Year), Meanwhile, according to Hidayatulah (2011) in Mambu (2013) to calculate the contribution of income to the total income of farmer households can be explained as follows:

$$K1 = .100\% \dots\dots\dots\dots\dots\dots\dots\dots 2$$

$$K2 = .100\% \dots\dots\dots\dots\dots\dots\dots\dots 3$$

$$K3 = .100\% \dots\dots\dots\dots\dots\dots\dots\dots 4$$

Description

Kpi1 = Contribution revenue farming rice

Kpi2 = The contribution of income outside of farming

KNP = The contribution of income outside agriculture

The purpose of the study is the level of diversity of farmer household businesses using the entropy index. Entropy index analysis divides the type of work into three businesses, namely farming (on farm), outside farming (off farm), and outside agriculture (non farm). This entropy index was analyzed in farm household units in each study sample village in Delanggu District. According to Theil and Finke (1983) to find the magnitude of the entropy index formulated as follows:

$€$ $= -$ pi Ln pi
Pi $= li/L$
Where :
$€$ $=$ Indeks Entropy
Li $=$ The amount of labor that families who worked at each job to the i
L $=$ total labor absorbed in all sectors of work
pi $=$ The share of household labor working on the type of work i to the total workforce households are absorbed in the whole type of work good jobs or integrated with the main n $=$ the number of types of jobs, as a source of household income.

The maximum index value is equal to ln the total type of work. The meaning of the maximum value in measuring the index means that all types of work in the research area are distributed to each type of sector equally. The minimum index value is zero, which means there is no diversification in that area.

RESULTS AND DISCUSSION

The sample farmers studied by the researchers were farmers who were domiciled in the District of Delanggu as well as the heads of families who sought rice farming within the scope of one farmer household in Delanggu District as many as 95 respondents. The income of farmer households comes from two sectors, namely the agricultural sector (farm) and the non-agricultural sector (non-farm). Income from the agricultural sector comes from farming (on farm) and outside of farming (off farm). Revenues derived from farming (farms) in this study are rice farming, while those included in

income originating from outside the farm (farms) and farms. Non-farm businesses in the research area are construction workers, odd jobs, factory workers, artisans, traders, services, retired employees and home businesses. The farming pattern carried out adheres to the rice-paddy- rice pattern, the pattern has been carried out for generations since long ago.

The analysis of the socio-economic conditions of farmer households discusses the conditions of farmer households and the development of business diversification which includes the age of the head of the family, education of the family head, number of farmer household members, number of family members working, family dependents, area occupied the development of business diversification which consists of farming (farms), off farms (off farm) and outside agriculture (non farm) conducted by 95 respondents in the District of Delanggu. The following are the socio-economic conditions of farmer households in the Delanggu District of Klaten Regency.

Based on table 4, the socio-economic conditions of farm households in Delanggu District are dominated by farmer respondents with a productive age category of 80 respondents or 84.2 percent. Respondents of farmers with a non-productive age category were 15 respondents or 15.8 percent. The more productive the age of the farmer, the more energy released will be greater than the farmers who are not productive.

The average percentage of education of the largest respondents is high school with 37 respondents or 39.9 percent, then elementary school with 24 respondents or 25.3 percent. Graduated from junior high school as many as 22 respondents or 23.2 percent, then the family heads who did not go to school were 8 respondents or 8.4 percent and the last ones were 4 respondents or 4.2 percent. Another socio-economic condition is the number of farmer family members

The number of members of farmer households that have 1-2 members is 25 respondents or 26.3 percent, the number of members ranging from 3-4 people is 51 respondents or 53.7 percent, and the number of

members> 4 people is 19 respondents or 20 percent. Other economic social conditions, namely the number of farmer family members working in the District of Delanggu, Klaten Regency, showed that of the 95 number of members of farmer households who worked 1-2 people there were 72 respondents or 75.8 percent. The number of household members working ranged from 3-4 people to 23 respondents or 24.2 percent.

Table 4. Socio-Economic Conditions of Farmers Households in Delanggu District Klaten Regency

No	Component	Unit	Amount (RT)	Persen (%)
1	Age of Family Head	Year		
	a.Age of produtive		80	84,2
	b.Non productive		15	15,82
2	Education of the Family Head	Level		
	a.No school		8	8,4
	b.Primary school		24	25,3
	c.Junior High School		22	23,2
	d.Senior high school		37	38,9
	e.Bachelor		4	4,2
3	Number of family members	Person		
	a.1-2 people		25	26,3
	b.3-4 people		51	53,7
	c.<4 people		19	20
4	Number of Members working	Person		
	a.1-2 people		72	75,8
	b.3-4 people		23	24,2
5	Number of family dependents	Persen		
	a.0 people		15	15,8
	b.1 people		42	44,2
	c.2-3 people		32	33,7
	d.>3 people		6	6,3
6	Area of land controlled	Hectare		
	a.<0,5 ha		48	50,5
	b.0,5- 1,0 ha		33	34,8
	c.>1,0 ha		14	14,7

Source: Primary data processed in 2018

The respondent's demographic conditions based on the number of farmer household expenses in Delanggu District, Klaten Regency showed that of the 95 respondents the total household members' burden was 0 people, 15 of them were respondents or 15.8 percent. The number of members is 1 person, 42 respondents or 44.2 percent, the number of members of the farmer's household ranges from 2-3 people to 32, or 33.7 percent. The total burden of more than 3 farmer family members is 6 respondents or 6.3 percent The head of the respondent's family in the District of Delanggu, Klaten Regency, was dominated by farmers with land ownership <0.5 ha, 48 respondents from all respondents or 50.5 percent, and respondents who controlled the land between 0.5 - 1.0 ha 33 respondents or 34.8 percent. Respondents who controlled the land <1.0 ha were 14 respondents or 14.7 percent. Respondent farmers in Delanggu District are dominated by farmers who do not

own land and cultivate paddy fields with a penyakap system or profit sharing system

The development of business diversification in the District of Delanggu is one of the researches. Rice farming in the research area can be done two to three times a year. The availability of water and soil types in the study area affected the cropping pattern in Delanggu District. Farmers in the study area recognize the rice-paddy-rice cropping pattern throughout the year. The situation that occurred at this time began to change, there was a lot of shifting of agricultural land to non-agriculture which was used for housing and other infrastructure facilities as the District of Delanggu developed as the center of the growth area of the northern part of Klaten Regency which resulted in the welfare of farmers.

The impact of the shifting of agricultural land to non-agriculture resulted in diminishing paddy fields cultivated by farmers, decreasing production and productivity, which would result in farmers' income also decreasing. The impact of these circumstances resulted in farmers being considered less prosperous and prosperous than farmers in ancient times. Low land productivity causes rice farming to be relatively low, so many farmers make strategies to increase their income by diversifying their business or working more than one type of work.

Business diversification can be divided into 2 sectors, namely the agricultural and non-agricultural sectors. The shape of the farmer's household income source is divided into the agricultural sector including rice farming (on farm), and outside farming (off fram), while non-agricultural businesses are non-agricultural. Based on the results of research on the sources of farmer's household income from business diversification activities can be known as follows :

Table 5. Characteristics of Respondent Farmer Households in Delanggu District Based on Business Diversification Conducted, 2017

Revenue Sources	The Owner Of The Peasants		Tenants		For results		The owner and for results		The total number of	
	RT	%	RT	%	RT	%	RT	%	RT	%
On farm dan off farm	5	5,3	2	2,1	5	5,3	0	0,0	12	12,6
On farm dan non farm	19	20	2	2,1	33	34,7	5	5,3	59	62,1
On farm, off farm dan non farm	1	1,1	1	1,1	21	22,1	1	1,1	24	25,3
The total number of									95	100,00

Source: Primary data processed in 2018

Based on table 5. above, it can be seen that the business diversification carried out by 95 respondents which is mostly carried out by farmer households, namely rice farming (on farm) and outside agriculture (non farm) is 59 respondents or 62.1 percent. The second largest business diversification is business originating from rice farming (on farm), outside of farming (off farm) and, outside agriculture (non farm) a number of 24 respondent households or equal to 25.3 percent.

The least amount of business diversification is done by farmer households originating from paddy farming (on farm) and outside farming (non farm) with a total of 12 households or as much as 12.6 percent. The second research objective is to calculate farmer household income from business diversification activities and income contribution to farmer household income which can be explained below as follows:

Table 6. Range and Average Revenue of Farmer Households Respondents Who Diversify Businesses by Sector Employment, 2017.

Livelihoods by sector	Farmer's Household Income							
	The Owner Of The Peasants		Tenants		For results		The owner and for results	
	RT	(Rp/Year)	RT	(Rp/Year)	RT	(Rp/Year)	RT	(Rp/Year)
On farm	25	400.725 .000	4	112.550.000	60	548.962.500	6	164.662.500
Of farm	6	80.640.000	2	18.720.000	27	355.920.000	1	9.360.000
Non Farm	20	752.097.304	3	66.499.584	54	1.848.402.832	6	171.359.168
Average		24.185.535		21.974.398		19.526.846		26.567.821

Source: Primary data processed in 2018

Based on table 6. the average household income of the farmer respondents obtained from three types of businesses according to the land ownership status of the farmer is from the farmer owner of Rp. 24,185,535, - per year, tenant farmers are Rp. 21,974,398, - per year, penyapap farmers amount to Rp. 19,526,846, - per year and farmers owning cultivators and penyakap Rp. 26,567,821, - per year. From these results, it can be seen that the overall average income of farmer households is the owner of cultivators and paddy farmers, and then followed by farmers who are cultivators. Business diversification by the average farmer household that comes from rice farming income is Rp. 12,914,737, - per year, outside income for farming is Rp. 12,906,667, - per year and income from outside agriculture isRp. 34,197,095, per year. In addition to farmer household income, this study also calculates income contributions to farmer household income which can be seen below asfollows::

Table 7. Contributions to Business Diversification of Respondent Farmers Household Income by Employment Sector, 2017
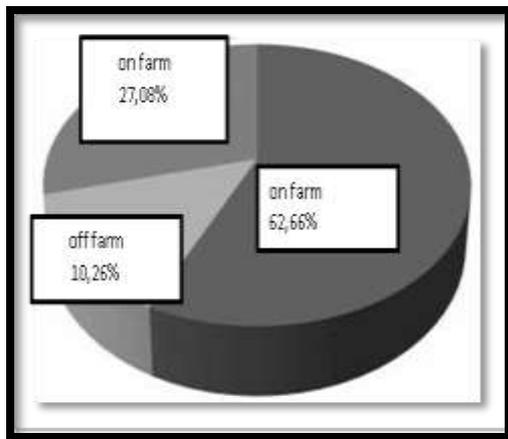
Form of Business Diversification	Farmer's Household Income									
	The Owner OfThe Peasants		Tenants		For results		The owner and for results		The total number	
	RT	%	RT	%	RT	%	RT	%	RT	%
on farm	25	8,85	4	2,48	60	12,12	6	3,64	95	27,08
off farm	6	1,78	2	0,41	27	7,86	1	0,21	36	10,26
non farm	20	16,60	3	1,47	54	40,80	6	3,78	83	62,66

Source: Primary data processed in 2018

Based on table 7. above, it can be seen that the contribution of household respondents to 95 households consists of three types of businesses which include rice farming (on farm) of 8.85 percent per year for cultivating farmers, tenant farmers of 2.48 percent per year, penyapap

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farmers amounted to 12.12 percent per year and cultivators and cultivators owned by 3.64 percent per year. Off-farm contributions from cultivating landlord farmers were 1.78 percent per year, tenant farmers were 0.41 percent per year, penyapap farmers were 7.86 percent per year and cultivators and farmers were 0.21 percent per year. Non-farm contributions from cultivating farmers are 16.60 percent per year, tenant farmers are 1.47 percent per year, penyapap farmers are 40.80 percent per year, and farmers are tenants and are 3, 78 percent per year. Overall, the contribution of income to the largest farmer household income is the contribution from non-farm businesses of 62.66 percent per year. Then the contribution of farming is 27.08 percent per year and outside farming is 10.26 percent per year. Based on the details of the above research, it can be seen from the picture that of the three types of businesses carried out by farm households, namely rice farming (on farm), outside farming (off farm), and outside agriculture (non farm).

Figure 1. Contribution of Income of Households of Farmers who Conduct Business Diversification by Sector of Employment in District of Delanggu 2017
Source: Primary data processed in 2018

The next objective is to know the level of diversity of farmer household businesses. Business diversity can be calculated using the entropy index. The first step taken in the calculation using the entropy index begins with dividing the types of work carried out by farmer households into 3 types of existing businesses which include rice farming (on farm), outside farm (off farm) and outside agriculture (non farm). The next step is to find the total number of household workers absorbed into all types of work, both main and secondary jobs and to find the number of household workers absorbed in each job.

The next step is calculated Pi for each type of work that is in the farmer's household, by multiplying the value of Pi with Ln Pi. That total value is the entropy index value that exists in each family. The more types of businesses carried out by farmer households, the higher the value of the entropy index.

The maximum value in measuring the index means that all types of work in the research area are distributed to each type in a balanced manner or implies that household labor distributes all types of income equally. The minimum index value is 0, which means there is no diversification, or in other words the household income source to the area leads to specialization.

The calculation results using the entropy index can be known as follows:

Table 8. Description of the Respondent's Household Entropy Index in Delanggu District, Klaten Regency, 2017

Description	Value
Avarage	0,754
Mode	0,693
Lowest index	0,500
Highest index	1,098

Source: Primary data processed in 2018

Based on table 8. it is known that the diversity of businesses carried out by 95 respondent farmer households has business types 2 to 3 types of businesses which include rice farming (on farm), outside farm (off farm) and outside agriculture (non farm). The highest value is 1,098 which means that the farmer's household has 3 types of business in the household. Based on the research of farmer household respondents who have 2 types of businesses as many as 71

households or by 75 percent, while the respondent farmer households that have 3 types of businesses are 24 households or 25 percent. The lowest index of respondent farmer households is 0.500 which means that the area has 2 types of businesses, with an average of 0.754 and a mode of 0.693.

CONCLUSION

The majority condition of socio-economic of farmer households have a family head in productive age which graduated from senior high school (SMA) and most of them have small rice field about (<0.5 ha) which relativamente estrecho. Respondent business diversification has developed in a horizontal form, namely rice farming activities (on farm), off farm and non-farm. The farmer household income of the respondent according to the business sector carried out from rice farming activities (on farm) was IDR 12,914,737, - per year, off farm IDR 12,906,667, - per year - and outside agriculture (non-farm) of IDR 34,197,095, - per year. The contribution of on farm income of respondents to farmer household income averaged 10.26 percent per year, the contribution of off farm income was 27.08 percent per year, while the contribution of non-farm income was 62.66 percent per year. The ordinary of household businesses diversification of respondents in Delanggu District has of 2 types. The lowest index of respondent farmer households is 0.500, with an average is 0.754 and a mode is 0.693.

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