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FARMERS' WELFARE LEVEL BASED ON FARMER'S TERMS OF TRADE (FTT) INDEX

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ABSTRACT

The role of agriculture in labor absorption is still relatively high. In 2014, the agricultural sector employment reached 34%. In contrast with this condition, the added value generated by the agricultural sector accounted for only 14.43%. This causes the high poverty in rural communities who generally work in the agricultural sector (63% Household poor live in rural areas). Therefore, the government made many policies to improve farmer's welfare. The purpose of this study was to assess the welfare of farmers by calculating Farmer's Terms of Trade (FTT) Index. The study was conducted in Jombang Regency. Data was gathered by survey method on 183 households of farmers. The results showed that Farmer's Terms of Trade (FTT) Index in Jombang in 2015 decreased from the year 2014 amounted to 0.117% from 112.1 became 112.0. The decreasing of FTT index was caused by the growth rate of price received index (IT) is lower than the growth rate of price paid index (IB). Agricultural policy using price producer instrument will be effective to improve farmer's welfare when policy on price control at the consumer level also conducted in the same time.

KEY WORDS

Welfare, FTT, Price Received Index, Price Paid Index.

Agricultural contribution to GDP formation in 2014 was ranked third after manufacturing and trade industries. It suggests that the role of agricultural sector in Indonesian economy is still relatively large. The success of economic transformation process leads to higher growth of many non-agricultural sectors than agricultural ones so that their contribution to GDP formation decreases.

In terms of employment, the agricultural sector takes 34% of the total work force which equals to 38.973.033 people. While the manufacturing and trade industries which have a major contribution in GDP formation only employ 13.31% and 21.66% respectively (BPS, 2014). Agriculture Census (2013) noted that households which rely on agriculture as a source of income are still 26.126.200 households or approximately 42.7% of the household total in Indonesia. This situation shows that the agricultural sector is still very dominant in the number of Indonesian labor employment. Activities of agricultural sector are largely done in rural areas and dominated by farmworkers and sharecroppers who perform farming practices (on farm).

Developing agriculture based on various policies and programs - such as increasing agricultural production, stabilizing prices of supplies and foodstuffs, primarily aims at improving farmers' welfare. The conducted policies in the context of agricultural development are assumed to have succeeded in increasing the agricultural production, improving the rural economy as well as meeting the needs of rural and urban consumers. Besides this success, yet, there is poverty problem which has not been fully resolved, especially rural poverty. Studies conducted by Dillon, et al., 1999 and Simatupang, et al., 2000 stated that an increasing agricultural production through various modified technology and institution has not been able to increase revenues, farmers' welfare, and to reduce poverty in rural areas. Such conditions have not yet changed. Data showed that the overall number of poor people in Indonesia decreased from 29.13 million in 2012 to 28.28 million in 2014, but the proportion of rural poverty was still relatively large. Among poor people in Indonesia, 17.77 million is in rural areas or 63%, and urban areas got 37% or nearly 10.51 million (BPS, 2015).

A study on the impact of agricultural development to farmers' welfare is very relevant to conduct. It is mainly directed to assess policies having whether positive, negative or neutral impacts on farmers' welfare. One of indicators which can be used to assess the level of farmers' welfare is Farmer's Terms of Trade (FTT). FTT is a measure on ability in exchanging agricultural product with goods purchased by farmers. Increasing FTT indicate an improvement of farmers' welfare due to their increasing ability. Higher FTT means a relatively more prosperous living standard of farmers (Silitonga, 1995). Detailed knowledge on FTT behavior including factors which determine FTT will be very useful for planning an agricultural development policy in the future. Therefore, the purpose of this study was to determine the level of farmers' welfare in Jombang Regency by FTT instrument.

MATERIALS AND METHODS OF RESEARCH

Data were taken by a survey method in 21 sub districts of Jombang. Respondents in total were 183 people, including farmers' crops, horticulture, plantation, livestock and fisheries. Thus, FTT uses Modified Laspeyres index as in the following equation:

$$NTP = \frac{IT_n}{IB_n}$$

Notes:

NTP (FTT) = Farmer's Terms of Trade

IT_n = Index received by farmers in n year

IB_n = Index paid by farmers in n year

$$IT_n = \frac{\sum_{i=1}^m \frac{P_{ni}}{P_{(n-1)i}} P_{(n-1)i} * Q_{0i}}{\sum_{i=1}^m P_{0i} * Q_{0i}} \times 100$$

$$IB_n = \frac{\sum_{i=1}^m \frac{P_{ni}}{P_{(n-1)i}} P_{(n-1)i} * Q_{0i}}{\sum_{i=1}^m P_{0i} * Q_{0i}} \times 100$$

where:

IT_n : Index received by farmers in n year

IB_n : Index paid by farmers in n year

P_{ni} : Price of commodity/item- i in n year (Rp/unit)

$P_{(n-1)i}$: Price of commodity/item- i in previous year ($n-1$) (Rp/unit)

Q_{0i} : Quantity of commodity/item- i in base year (unit)

P_{0i} : Price of commodity/item- i in base year (Rp/unit)

RESULTS AND DISCUSSION

Based on components forming FTT, the price index received by farmers is the value they receive from the production of agricultural commodities. The price index received by farmers based on produced commodities can be classified into several groups according to the agriculture sectors, namely food crops, horticulture, plantation, fishery, and livestock. Price indexes received by farmers in Jombang based on agricultural subsectors are thoroughly presented in Table 1.

The average of price index received by farmers in 2015 increased by 13.32%, from 117.78 to 125.49. It occurred due to the rising index of prices received by farmers in all sub-sectors particularly food crops by 13.37%, from 116.14 to 131.67. In addition to food crops, fisheries and livestock experienced a substantial increase respectively 6.40% and 7.24%. In detail, the growth rate of price index received by farmers in Jombang based on the agriculture sector is presented in Table 2.

Prices paid by farmers is a weighted price of cost in food consumption, non-food consumption as well as production and the addition of capital goods from the goods

consumed or purchased by local farmers. The produced commodities are not included in the price calculation paid by farmers. The intended price is the retail price of goods and services in the rural market. The biggest index paid by farmers in 2015 was the expenditure component for food and beverage consumption (133.78); while, the smallest index contained in component production expenses and additional capital goods in 2013 was 102.83. The average index of prices paid by farmers in Jombang is shown in Table 3.

Table 1 – Price Index Received by Farmers According to Agricultural Subsectors in 2013-2015 (2012 = 100)

Subsectors	Years		
	2013	2014	2015
Food Crops	111,83	116,14	131,67
Horticulture	101,91	118,84	122,80
Plantation	104,21	115,06	116,33
Fisheries	112,44	120,74	128,47
Livestock	108,55	114,22	122,50
Average of IT	109,42	117,78	125,49

Source: Primary Data, 2015 (processed).

Table 2 – Growth Rate of Price Index Received Farmers According to Agricultural Subsectors in 2013-2015 (2012 = 100)

Subsectors	Period	
	2013 – 2014 (%)	2014 – 2015 (%)
Food Crops	3,86	13,37
Horticulture	16,62	3,33
Plantation	10,42	1,10
Fisheries	7,38	6,40
Livestock	5,23	7,24

Source: Primary Data, 2015 (processed).

Table 3 – Price Index Paid by Farmers According to Expenditure Components in 2013-2015 (2012 = 100)

Expenditure Components	Years		
	2013	2014	2015
Consumption on Food and Beverages	114,61	125,83	133,78
Consumption on Non-Food and Beverages	106,19	113,45	121,82
Production Costs and Addition of Capital Goods	102,83	106,72	113,44

Source: Primary Data, 2015 (processed).

In 2014-2015 the Production Cost Index and Addition of Capital Goods (BPPBM) was generally increased by 6.3% in average. While in 2013-2014 they increased by 3.78% in average. The cost index of consumption on non-food and beverages also experienced an average rise namely 7.38% in 2014-2015 and 6.84% in 2013-2014. The largest increase had occurred in food and beverage consumption during 2013-2014 (9.79%), and then in 2014-2015 the increase of food and beverage consumption index was 6.32%. In detail, the increase rate in price index paid by farmers in the 2013 -2015 is presented in Table 4.

Table 4 – Growth Rate of Index Price Paid by Farmers According to Expenditure Components in 2013-2015 (2012 = 100)

Expenditure Components	Period	
	2013 – 2014 (%)	2014 – 2015 (%)
Consumption on Food and Beverages	9,79	6,32
Consumption on Non-Food and Beverages	6,84	7,38
Production Costs and Addition of Capital Goods	3,78	6,30

Source: Primary Data, 2015 (processed).

FTT is the ratio between the price index received by farmers (IT) and the price index paid by farmers (IB). It is the indicator of farmers' welfare level. Therefore, in-depth knowledge on the behavior of FTT and the identification on determinant factors of the exchange rate will be very useful for planning development policies and improving development programs in the future. Here are FTT values in year 2013 - 2015 presented in detail in Table 5.

Table 5 – Farmer's Terms of Index in 2013 – 2015 (2012 = 100)

Indices	Years		
	2013	2014	2015
IT	109,42	117,78	125,49
IB	98,03	105,06	112,08
FTT	111,62	112,10	111,97

Source: Primary Data, 2015 (processed).

Based on Table 5, it can be seen that IT and IB values had increased since 2013-2015. IT value in 2013-2014 increased from 109.42 to 117.78 by the rate 7.64%, while in 2014-2015 it increased from 117.78 into 125.49 by the rate 6.55%. Then, IB value in 2013-2014 increased from 98.03 into 105.06 by the rate 7.17%, and in 2014-2015 it increased from 105.06 into 112.08 by the rate 6.68%. In detail, the development of FTT growth rate in Jombang is presented in Table 6.

Table 6 – Growth Rate on Farmer's Terms of Trade in 2013-2015 (2012 = 100)

Indices	Period	
	2013 – 2014	2014 - 2015
IT	7,64	6,55
IB	7,17	6,68
FTT	0,43	(0,12)

Source: Primary Data, 2015 (processed).

IT and IB values continued to increase but in the second period IT's growth rate was smaller when compared with IB's. The increase rate in both indices in 2015 respectively was 6.55% and 6.68%. It meant that the increase of prices received by farmers was absolutely lower than the increase of prices paid by farmers when the increase rate declined. These conditions resulted in lower FTT value of Jombang in 2015 than the previous year, namely 112.1 (2014) and 111.97 or decreased to 0.12% (2015).

Figure 1 – Growth Rate of Price Index Received by Farmers in Jombang According to Agricultural Subsectors in 2013-2015 (2012 = 100)

Further, it seems that the decline in FTT growth rate is closely related to the slowdown in the growth rates of received index and paid index. This is consistent with the theory when the increase rate of received index is higher than the rate of paid index, then FTT value will rise, and vice versa. In 2013-2014, the increase rate of index received by farmers was higher than the increase rate of index paid by farmers, so that in 2014 there was an increase of FTT by the rate 0.43%. However in 2014-2015, the increase rate of index received by farmers was lower than the increase rate of index paid by farmers. Therefore, FTT decreased by 0.12% in 2015.

Figure 2 – Growth Rate of Price Index Paid by Farmers in Jombang According to Expenditure Components in 2013-2015 (2012 = 100)

The rate decline of price index paid by farmers was affected by the rate increase in the growth of farmers' consumption expenditure on non-food and beverages as well as by the increase in growth rate of farmers' expenditure on production costs and the addition of capital goods (BPPBM), as shown in Figure 2. Farmers' expenditure for consumption on non-food and beverages increased in terms of its growth rate from 6.84% to 7.38%. Correspondingly, farmers' expenditure on BPPBM increased in terms of its growth rate from 3.78% to 6.3%.

CONCLUSION AND RECOMMENDED POLICY

Farmer's terms of index in Jombang Regency in 2015 had decreased by 0.117%, from 112.1 to 112.0, since 2014. It is due to the growth rate of price index received by farmers (IT) is lower than the growth rate of price index paid by farmers (IB). IT's growth rate was 6.55% and IB's was 6.68% in that period.

IT's growth rate which was smaller than IB's in 2015 showed that the increase in prices received by farmers from the production was absolutely smaller than the increase in prices for goods paid by farmers. It means that farmers' expenditure is proportionally higher than their income. Therefore, it can be concluded that farmers' welfare level in 2015 was not better than that in the previous year.

Food price contribution in FTT formation is very significant either on the price formation received by farmers or the price formation paid by farmers. The price increase of food crops in farmer level (producers) will provide a direct impact on the price increase of food consumption or indirect impact on the non-food consumption. The price increase at the producer level, especially food crops, will have an impact on household consumption expenditures of farmers. Thus, the original purpose of FTT policies to increase farmers will eventually be followed by the price increase paid by farmers and allow a decrease in FTT. Therefore, improving farmers' income through a policy on the increase of producer price must be balanced with a policy on price control at the consumer level.

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