

Factors That Effect the Exchange Rate of Large Chili Farmers, In the City of Malang, Indonesia



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ABSTRACT: Nowadays, the world economy is experiencing a decline, one of which is affected by the agricultural sector. The welfare of farmers is questioned, especially in Indonesia, where there are already many paddy fields but still farmers who are not prosperous. There are several factors that affect the level of welfare of these farmers. Therefore, this study analyzes the factors that influence the farmer's exchange rate (NTP) for large chilies in Kalipare Village, Malang Regency. This research was conducted directly. This research method uses saturated sampling technique with multiple linear regression analysis tool. The results of this study indicate that the factors that affect Farmer's Exchange Rate (NTP) are planted area, producer, seed price and production.

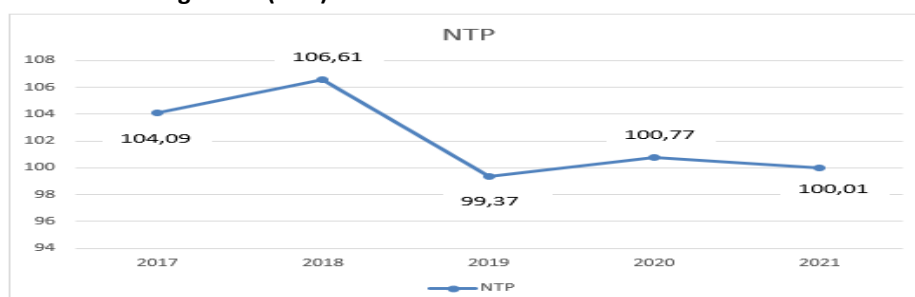
KEYWORDS: farmer's exchange rate (NTP), farmer welfare

I. INTRODUCTION

Indonesia is known as an agricultural country where the agricultural sector has an important role in the national economy. Farmer welfare and poverty alleviation, especially in rural areas, are the focus of agricultural development because the agricultural sector is the basis for rural economic growth. Agricultural development is directed at increasing agricultural production to meet food needs and domestic industrial needs, increasing exports, increasing farmers' income, expanding job opportunities and encouraging equal distribution of business opportunities. So, it is hoped that the agricultural sector can become a driving force for growth that can increase farmers' income and be able to alleviate poverty. Based on data from the Central Statistics Agency (2022), the exchange rate of farmers in East Java during the last 5 years, namely in 2017-2021 tends to decrease. Farmer's Exchange Rate (NTP) is the ratio of the price index received by farmers (It) to the index of price paid by farmers (Ib). NTP is one indicator to see the level of ability/purchasing power of farmers in rural areas. NTP also shows the terms of trade (terms of trade) of agricultural products with goods and services consumed as well as for production costs.

The East Java Farmer's Exchange Rate (NTP) in September 2021 rose 0.52 percent from 100.06 to 100.58. The increase in NTP was due to the price index received by farmers (It) increased by 0.42 percent while the price index paid by farmers (Ib) decreased by 0.10 percent. In September 2021, two agricultural sub-sectors experienced an increase in NTP and three sub-sectors experienced a decline. The sub-sector that experienced the largest increase in NTP occurred in the Food Crops sub-sector by 1.78 percent from 101.06 to 102.86, followed by the Fisheries sub-sector by 1.26 percent from 100.41 to 101.68. The sub-sector that experienced a decrease in NTP was the Horticulture sub-sector by 2.59 percent from 94.58 to 92.14, followed by the People's Plantation Sub-sector by 0.69 percent from 101.24 to 100.54 and the Livestock sub-sector by 0.68 percent from 99.82 to 99.15 (BPS, 2020).

Pict 1. Graph of Farmer's Exchange Rate (NTP) East Java



Source: Central Bureau of Statistics, 2021

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One of the agricultural commodities that is quite important is Big Chili. Big Chili is one of the horticultural plants that is widely used as a food source in Indonesia, East Java Province is no exception. The land area for large chili plants in East Java in 2020 is 12,078 ha with a large chili production of 99,110 tons. In 2019, the land area of large chili plants in East Java was 12,190 ha with large chili production of 104,677 tons, so it can be seen that within 1 year there was a fairly visible decrease for land area, there was a decrease in large chili production of 5,567 tons (BPS East Java , 2021).

The basis for measuring success/development, apart from data on economic growth, data on measuring the level of welfare of the population, especially farmers, is also needed. One of the proxy indicators that can measure the level of farmers' welfare is the Farmer's Exchange Rate (NTP). Farmer's Exchange Rate is a ratio between the price index received by farmers (It) and the price index paid by farmers (Ib) in percentage. It is an indicator of the welfare level of producer farmers in terms of income, while Ib is in terms of farmers' needs for both consumption and production. If It or Ib is greater than 100, it means that It or Ib is higher than It or Ib in the base year. Conceptually, NTP is a measure of the ability to exchange agricultural goods (products) produced by farmers with goods or services needed for household consumption and the need to produce agricultural products.

Pict 2. Development of National Farmer's Exchange Rate (NTP)

NTP Subsektor	Agt'21	Sep'21	Perubahan (%)
Tanaman Pangan (NTPP)	97,65	98,77	↑ 1,14
Hortikultura (NTPH)	100,01	98,65	↓ -1,35
Tanaman Perkebunan Rakyat (NTPR)	122,55	125,15	↓ 2,12
Peternakan (NTPT)	99,66	99,18	↓ -0,49
Perikanan (NTNP)	104,52	104,94	↑ 0,40
Nelayan (NTN)	105,46	105,60	↑ 0,14
Pambudidaya Ikan (NTP)	103,01	103,87	↑ 0,84
NTP	104,68	105,68	↑ 0,96

Source: Central Bureau of Statistics, 2021

Based on BPS data (2021) regarding the development of the farmer's exchange rate (NTP), which increased 0.96%. However, it is different from the NTP in the Horticulture Sub-sector which decreased by -1.35% in September 2021 with a figure of 98.65, which in August the NTP development was at 100.01.

LITERATUR REVIEW

A. NILAI TUKAR PETANI (NTP)

Farmer's Exchange Rate (NTP) is the ratio between the price index received (HT) by farmers and the price index paid (HB) by farmers expressed as a percentage. The price index received by farmers (HT) is a price index that shows the development of producer prices for farmers' products. The price paid index (HB) for farmers is a price index that shows the price development of farmers' household needs, both the need for household consumption and the need for the agricultural production process (BPS, 2012). NTP is a measure of the purchasing power/exchangeability of farmers for goods purchased by farmers. An increase in the farmer's exchange rate indicates an increase in the real ability of farmers and indicates an increase in farmer welfare, or vice versa (BAPPENAS, 2013). Conceptually, NTP is used to measure the exchangeability of agricultural products produced by farmers with goods or services consumed by farmer households and goods or services needed to produce agricultural products. Therefore, the farmer's exchange rate can be used as an indicator of profits in the agricultural sector and the purchasing power of goods and services from farmers' income (Bappeda, 2011).

The categories or meanings of the value of the Farmer's Exchange Rate (NTP) according to BPS (2013), include:

1. NTP > 100%, means that farmers have a surplus. The price of production rose more than the increase in the price of consumption. Farmers' incomes increased more than their expenditures, thus the level of farmer welfare was better than the previous level of farmer welfare.

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2. $NTP = 100\%$, it means that farmers break even. The increase/decrease in the price of production is the same as the percentage increase/decrease in the price of consumption goods. The level of welfare of farmers has not changed.

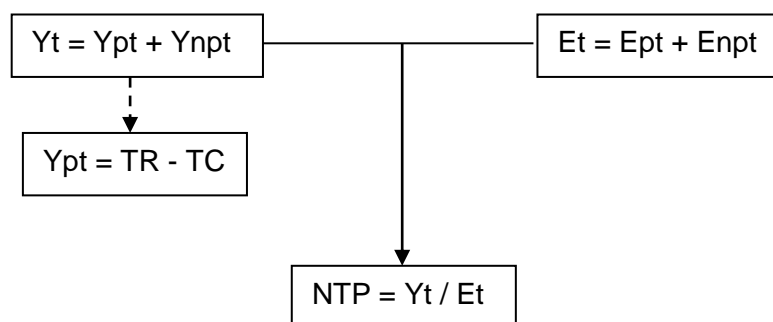
3. $NTP < 100\%$, it means that farmers have a deficit. The increase in the price of manufactured goods was relatively smaller than the increase in the price of consumption goods and production costs. The level of welfare of farmers in a period has decreased compared to the level of welfare of farmers in the period of the base year.

Farmer's exchange rate (NTP) is a measure of the purchasing power/exchangeability of farmers for goods purchased by farmers. An increase in the farmer's exchange rate indicates an increase in the real ability of farmers and indicates an increase in farmer welfare, or vice versa (BAPPENAS, 2013). The concept of calculating NTP is a macro development of the NTS concept where farmers are in a position as producers and consumers. Conceptually, NTP measures the exchange power of agricultural commodities produced by farmers against products purchased by farmers for consumption and production purposes. In achieving the goal of obtaining economic benefits, an important element that is used as an indicator of farmer welfare is the amount of income and its balance with expenditure. In this regard, one of the tools that is often used is the farmer's exchange rate (BAPPENAS, 2013). There are three categories in the NTP to show the level of farmer welfare, namely (a) if $NTP > 100\%$ means that farmers experience a surplus or farmer welfare increases, (b) if $NTP = 100\%$ means that they are in a break-even condition or farmers' welfare level is not experiencing changes. (c) if the $NTP < 100\%$ means that the farmer experiences a deficit or the welfare level of the farmer in a period has decreased compared to the level of the farmer's welfare in the base year period.

RESEARCH METODOLOGY

The type of research used is quantitative research. Quantitative research is a research method based on the philosophy of positivism and is used to examine certain populations or samples, data collection using research instruments and statistical data analysis with the aim of testing the established hypotheses. Determination of the location and object of research is based on consideration of the condition of the horticultural sub-sector farming in East Java Province with large chili commodities that have NTP tend to fluctuate with an increase in large chili production in East Java Province in 2019 by 13.82% (BPS East Java, 2019) namely Pitrang Hamlet, Kalipare Village, Kalipare District, Malang Regency, East Java Province. Data on large chili farmers in Kalipare Village, Pitrang Hamlet, Kalipare District, Malang Regency amounted to 30 people. In calculating NTP, this study uses multiple linear regression analysis with SPSS tools.

Analysis of the calculation of the exchange rate of farmers using the formula in accordance with the calculations of Nirmala et al. (2013) namely:



Information :

Y_t : Total gross household income

Y_{pt} : Farmer's income

Y_{npt} : Gross income from non-agricultural products

TR : Total Revenue (Total revenue)

TC : Total Cost (Total cost)

E_t : Total farmer expenditure

E_{pt} : Expenditure for agriculture

E_{npt} : Expenditure for non-farm

NTP : Farmer's Exchange Rate

Y_t : Total gross household income

E_t : Total farmer expenditure

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To analyze the factors that affect NTP by using multiple linear regression equations with the SPSS 24 application. Systematically, the multiple linear regression equations in Sugiyono (2017) are:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon$$

Information :

Y = farmer's exchange rate

α = intercept

β = regression coefficient

X1 = land area (ha)

X2 = fertilizer (Rp)

X3 = producer price (Rp/kg)

X4 = price of seeds (Rp)

X5 = pesticide price (Rp)

X6 = production (kg)

X7 = labor (ha/org)

ε = error

RESULT AND DISCUSSION

Based on the multiple linear regression analysis that has been carried out, it shows that together the factors that affect the exchange rate of big chili farmers in Pitrang Hamlet, Kalipare District, the factors X1 to X7 are closely related to the factors that affect the Farmer's Exchange Rate (NTP).

Table 1 Results of SPSS Coefficient Effect of NTP

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	3,279	97,524		,034	,009
X1	,959	,000	,000	605.5	,000
X2	,002	,000	,000	-1,143	,264
X3	,054	,010	,052	5,146	,000
X4	,002	,000	,002	3,413	,002
X5	,855	,000	,000	606,5	,000
X6	,947	,010	,945	93,479	,000
X7	-,002	,000	-,008	-13,190	,000

Source: SPSS 21, 2022 . Data Processing

From the results of the SPSS calculation above, the results in table 1 are obtained, so that you can arrange the regression model equation by looking at the value in the Unstandardized Coefficient B column, the following equation can be obtained:

$$Y = 3279 + 959 X_1 + 002 X_2 + 054 X_3 + 002 X_4 + 855 X_5 + 947 X_6 - 002 X_7$$

From the results of these equations, it can be explained as follows:

1. The Effect of Planted Area on Farmers' Exchange Rate

Based on the results of research conducted and empirical evidence in the form of previous studies, it is proven that the planted area has an effect on income. This is due to the optimal use of land by farmers. Farmer's planted area has a significant

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effect on Farmer's Exchange Rate. This study shows that the higher the planting area used for planting, the more prosperous it will be or the exchange rate will be high. In addition, theoretically it is also proven that the planted area which is influenced by the amount of land affects agricultural production. If the land area is small, the amount of production produced is small because the land to be planted will be small. And vice versa if the land area is large, the amount of production produced is also large. The size of the amount of production will affect the income of farmers. If the amount of production is large, the income generated is large. And vice versa if the production is small then the amount of income is also relatively small. Other researchers also found the influence of agricultural land area on Farmer's Exchange Rate (NTP). Mailangkay et al., (2021) say that the narrower the land owned by farmers, the lower the percentage of farmers' exchange rates.

2. Effect of Fertilizer Cost on farmer's Exchange Rate

The significance value of the fertilizer cost variable (X2) on the farmer's exchange rate variable (Y) is $0.264 < 0.05$ and the t value is $-1.143 < 0.6858$ so it can be concluded that H_a is rejected and H_0 is accepted. This means that there is no partial effect of the effect of fertilizer costs on farmers' exchange rates. Fertilizer costs have no significant effect on Farmers' Exchange Rates. This is also supported by research conducted by Rizov et al. (2013) the low allocation and absorption of fertilizers indicates excessive use of fertilizers. This in the long run can reduce productivity due to the declining level of soil fertility (Ministry of Agriculture, 2014). In fact, in the long term fertilizer subsidies can have a negative effect on productivity so that it will eventually affect the exchange rate of farmers. Increasingly expensive fertilizer costs will increase farmers' household expenditures and reduce farmers' exchange rates so that farmers' welfare will also decrease (Fajri et al., 2016). Fertilizer is organic material added to the soil, both natural and artificial fertilizers so that soil fertility can increase (Damanik et al., 2010). Sulaksana (2020) said that this additional material in the form of fertilizer was found to have a negative effect on the exchange rate of fruit farmers in Majalengka Regency. Other researchers also found the same results, Burhansyah (2011) explained that the added fertilizer in the form of sp36 fertilizer had a negative effect which could cause a decrease in the farmer's exchange rate if the costs paid for sp36 fertilizer were in the high or expensive category. It was also found that the effect of urea fertilizer on the farmer's exchange rate was considered the largest compared to other fertilizers (sp36 and KCl). This indicates that the effect on the farmer's exchange rate is more due to the volume of its use because urea is a fertilizer used by farmers in large quantities per hectare. In addition, the cost of fertilizer issued by farmers is also influenced by the price of subsidies set by the government..

3. The Effect Of Producer Prices on Farmers' Exchange Rates

The significance value of the producer price variable (X3) on the farmer's exchange rate variable (Y) is $0.005 < 0.05$ and the t-count value is $5.146 > 0.6858$ so it can be concluded that H_a is accepted and H_0 is rejected. This means that there is a partial effect on the producer price variable on the farmer's exchange rate. Thus, the higher the producer price, the higher the NTP value. Effect of producer prices have a significant effect on the exchange rate of farmers. This study shows that the higher the producer price, the higher the NTP value will be. The producer price is the price of production from farmers before entering the price of packaging and transportation into the selling price (BPS East Java, 2020). This is supported by research conducted by (Rahmawati, 2012) which says that an increase in price and the right product quality will increase sales volume, so that the survival of farmers will be guaranteed. Another study conducted by Burhansyah (2011) also explained that there was a significant positive effect. The real positive effect was carried out in the 2008 dry season (MT II) in West Kalimantan Province, where the price of corn could affect the Farmer's Exchange Rate (NTP). The same thing was also found in the research of Oktaviani et al., (2021) which found that the producer prices of shallots and chilies had a significant relationship with the Farmer's Exchange Rate (NTP) of the horticulture subsector in Indonesia from 2014 to 2018.

4. Effect of Price of Seeds on Farmers' Exchange Rate

The significance value of the variable price of seeds/seedlings (X4) on the farmer's exchange rate variable (Y) is $0.002 < 0.05$ and the t value is $3.413 > 0.6858$ so it can be concluded that H_a is accepted and H_0 is rejected. This means that there is a partial effect on the variable price of seeds/seeds on the exchange rate of farmers. So that the better the price of the seed with the quality, the better the production results it produces. The influence of the price of seeds/seedlings has a significant effect on the exchange rate of farmers, which means that every increase in the price of seeds will increase farmers' production so that farmers' income will also increase and will have an impact on increasing the Farmer's Exchange Rate (NTP). In addition, if the price of seeds is cheap but the production is bad, it will affect the selling price, but on the other hand if the price is high but the production is good it will also affect the selling price. Therefore, knowledge and methods are needed to overcome how to get cheap prices but get good seeds so that the selling value is high because of good production. This result is supported by research conducted by Riyadh (2015) that farmers expect price stability where at harvest time the price does not decrease. Therefore, the higher the price of seeds followed by an increase in productivity can improve the welfare of farmers. Fajri et al., (2016) also explained that there was an influence found on the price of seeds on the exchange rate of rice farmers in Sragen Regency which was positive but not significant. Which means that whatever the price of rice seeds purchased by farmers in Sragen Regency

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does not have a significant individual effect on the exchange rate of farmers and the price of seeds purchased by farmers in Sragen Regency does not necessarily lead to high yields either..

5. Effect of Pesticide Prices on Farmers' Exchange Rates

The significance value of the pesticide price variable (X5) on the farmer's exchange rate variable (Y) is $0.000 < 0.05$ and the t-count value is $606.5 > 0.6858$ so it can be concluded that H_a is accepted and H_0 is rejected. This means that there is a partial effect on the pesticide price variable on the farmer's exchange rate. The effect of pesticide prices has a significant effect on farmers' exchange rates. Which means that the increase in the cost of pesticides will increase the amount of production because it is far from being disturbed by pests and diseases. This will increase farmers' income so that the Farmer's Exchange Rate (NTP) will also increase. This is supported by research conducted by (Riyadh, 2015) that with the increase in fertilizer prices, the government is expected to provide fertilizer price subsidies to farmers so that they can increase their food crop production which in turn improves the welfare of farmers.

6. Effect of Production on Farmers' Exchange Rate

The significance value of the production variable (X6) to the farmer's exchange rate variable (Y) is $0.945 > 0.05$ and the t arithmetic value is $94.479 > 0.6858$ so it can be concluded that H_a is accepted and H_0 is rejected. This means that there is a partial effect of the production variable on the farmer's exchange rate. So that the greater the product produced, the better the farmer's exchange rate will be. The effect of production on the exchange rate of farmers has a significant effect on the exchange rate of farmers. This study shows that the higher or greater the production, the better the value of NTP received by farmers.

Production is the quantity or number of farming results in various sub-sectors, one of which is the horticultural crop sub-sector, data from production results are included in the component to measure the price index received by farmers (Lt) (BPS, 2020). This study is in line with research conducted by Riyadh (2015) that the t-test test shows that productivity has a significant effect on farmers' exchange rates at the 95 percent confidence level, this is evidenced by the P-value < 0.05 . This shows that increasing productivity can improve the welfare of farmers.

7. The Influence of Labor on Farmers' Exchange Rates

The significance value of the labor variable (X7) on the farmer's exchange rate variable (Y) is $-0.008 < 0.05$ and the t-count value is $-13,190 < 0.6858$, so it can be concluded that H_a is rejected, H_0 is accepted. This means that there is no partial effect of the labor variable on the farmer's exchange rate. So that more and more workers do not mean it can affect production results and even the exchange rate of farmers. The effect of labor has no real effect on the exchange rate of farmers. This study shows that the number of existing workers does not really affect the results of production and the results of the exchange rate of farmers or does not give a real effect on farming production, this study is not in line with research conducted by , He said that the number of workers will affect the size of agricultural yields. Usually small farmers will need less labor and on the other hand large farmers will need large workers and have certain skills. But it is different from what is said by (Riyadh, 2015) that more and more workers are employed can also cause production to fall and there is a price paid so that farmers' incomes decrease, so the exchange rate of farmers will decrease.

CONCLUSION

The results showed that the factors that affect the exchange rate of farmers are planting area, producer, price of seeds/seedlings, pesticide prices, and production. The variable costs of fertilizer and labor have no effect on the farmer's exchange rate because the above will make farmers spend more than their income.

SUGGESTION

More care is needed in choosing the type and model of the selected seed because the high price can affect the final yield on the exchange rate. Assistance is also needed by external parties, both extension workers and colleagues in other farmer groups and to overcome the high price of fertilizer, the government is expected to continue to provide assistance or subsidies to farmers.

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