# Original Research Article
# Elasticity Of Supply And Demand For Tilapia (*Oreochromis niloticus*) in Cianjur District

**ABSTRACT**

This study aims to analyze the elasticity of supply and demand and analyze the factors that influence the elasticity of supply and demand for tilapia (*Oreochromis niloticus*) in Cianjur Regency. This research was conducted from July 2020 to January 2022. The method used is descriptive quantitative method using primary data and secondary data. The sampling technique used in this research is accidental sampling. The results showed that the elasticity of supply and demand for tilapia (*Oreochromis niloticus*) in Cianjur Regency was elastic, meaning that if there was a change in price it would increase the change in supply/demand exceeding the percentage increase in price and indicate that the factors that affect the elasticity of supply for tilapia (*Oreochromis niloticus*) are the number of consumers and the factors that affect the elasticity of demand for tilapia (Oreochromis niloticus) are the price of tilapia and per capita income.

Keywords: elasticity, Supply, Demand, and Tilapia



## 1. INTRODUCTION

West Java is one of the provinces in Indonesia as a high producer of aquaculture. In 2020, West Java Province has a total fishery production of 1,177,057.36 tons, this cannot be separated from the contribution of Cianjur Regency which produces aquaculture with a percentage of 11.84% or 139,651 .06 tons (Department of Fisheries and Marine Affairs of West Java Province 2020).

Cianjur Regency is one of the areas that has a wide potential of land for fisheries. The potential land owned in the form of freshwater fisheries is 14187.98 hectares, including aquaculture in calm water ponds (KAT) 10.12% or about 1436 hectares, swift water ponds (KAD) 0.07 hectares, mina padi 88.01 % or 12,487 Ha, and floating net cages (KJA) 0.59% or 193.91 Ha. The potential of aquaculture also includes aquaculture with an area of 71 ha or 0.50% of the total potential fishery area in Cianjur Regency (Cianjur Regency Marine, Fisheries and Livestock Service 2020).

Fishery production in Cianjur Regency from year to year continues to increase, especially freshwater fishery production in Cianjur Regency from 2016-2020. In 2016 it reached 113,921.68 tons per year and experienced a successive increase in 2017 reaching 119,450.55 tons per year, in 2018 it reached 131,908.31 tons per year and in 2019 it reached 138,199.2 and in 2020 it reached 139,651 .06 tons per year with a growth rate of 20% per year (Department of Marine, Fisheries and Livestock, Cianjur Regency 2021).

The market is a place or process of interaction between demand (buyers) and supply (sellers) of a particular good/service, so that finally it can determine the equilibrium price (market price) and the amount traded according to (Hendri Ma'ruf 2005). Cianjur Regency has 23 markets, there are 15 markets that have freshwater fish stalls. Out of these 15 markets, there are 22 freshwater fish sales

stalls (Cianjur Regency Office of Cooperatives, Small and Medium Enterprises, Trade and Industry 2018). Tilapia (Oreochromis niloticus) is a freshwater fish that is in demand by many people. Tilapia has an affordable economic value for the community with a price range of Rp. 30,000 – Rp. 35,000 (Department of Marine, Fisheries and Livestock, Cianjur Regency 2021). In addition, tilapia production in Cianjur Regency continues to increase, the average tilapia production from 2016-2020 reaches 50.19% or 63705 tons per year (Department of Marine, Fisheries and Livestock, Cianjur Regency 2021).

Basically, the demand for an item follows the law of demand which states that if the price of an item increases, the quantity demanded will decrease, while if the price of an item falls, the demand will increase provided that other things remain the same. This means that the price level affects the quantity demanded. But in reality the demand for an item is not only influenced by the price of the item itself, but can also be influenced by the price of other goods that are usually substitutes or complementary to the item which is influenced by the quality of the goods, the average income of the community, the population, and tastes. (consumer preference).

The elasticity of demand is influenced not only by the price of tilapia itself but also by other factors such as the price of other fish and people's income (Burhan 2006). It is suspected that changes in the price of tilapia in Cianjur Regency will cause changes to the production and demand for tilapia.

So far, research on the elasticity of supply and demand for tilapia in Cianjur district has never been done. Therefore, it is necessary to examine the elasticity of demand for tilapia in Cianjur Regency.

## 2. METHODOLOGY

The method used in this research is the survey method. According to (Nazir 2014), stating that the survey method is an investigation conducted to obtain facts from existing symptoms and seek factual information, both about social, economic, or political institutions of a group or an area. A methodological approach is also carried out in this research by using case studies using data taken by survey techniques.

Survey research is part of descriptive research, namely research by providing an overview of current problems. Data and information in the survey were collected from respondents through the distribution of questionnaires. Questionnaires are a number of written questions that are used to obtain information from respondents (Arikunto 1999). Questionnaire is an instrument to collect data or information that is operated in the form of questions, or in another sense a list of questions that must be filled out by the respondent. The preparation of the questionnaire was carried out in the hope of knowing the required variables. The purpose of preparing the questionnaire is to improve the parts that are considered less appropriate to be applied in collecting data on respondents.

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### 2.1 Time and Place

**Comment [ML1]:** reference?

**Comment [ML2]:** It would be advisable to include some more specific aspects of what was asked in the questionnaires

This research was carried out from February to March 2021 at the Cianjur Regency Market. The location selection was carried out purposively in terms of the potential and productivity of fishery activities.

Comment [ML3]: i consider tha this part need to be expanded

## 2.2 Elasticity of Supply and Demand Method

To determine the elasticity of supply and demand According to Mubyarto (1989) the coefficient of elasticity of supply is a number that shows the comparison between changes in the quantity of goods offered and changes in price. The coefficient of elasticity of supply can be calculated by the following formula:

$$E_S/E_d = \frac{\%\Delta Q}{\%\Delta P} \rightarrow E_S/E_d = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Description :

Q :Change the quantity of bids
P :Changes in price level
Q :The number of items offered initially
P :Initial price level
Es :Elasticity of supply
Ed :Elasticity of demand

## 2.3 Multiple Linear Regression Model

To find out the factors that influence the demand for tilapia in the Cianjur Main Market, it can be done with multiple linear regression analysis using Microsoft Excel. Analysis that has more than one independent variable is called multiple linear regression analysis. Multiple linear regression technique was used to determine whether there was a significant effect of two or more independent variables (X1, X2, X3,…) on the dependent variable (Y). Because in this study there is more than one independent variable that will be tested to determine its effect on the dependent variable, the regression analysis process is carried out using multiple regression analysis. According to Sugiyono (2016) defines that:

The multiple regression equations for the two defined predictors are as follows:

$$\gamma = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + e$$

Description:

$\gamma$ = Demand for tilapia
$\alpha$ = coefficient constant
$\beta$ = Regression coefficient
$x_1$ = price of tilapia
$x_2$ = Price of carp
$x_3$ = Price of catfish
$x_4$ = Income per capital
$e$ = Rate of error (error)/Influence of other factors

## 3. RESULT AND DISCUSSION

### 3.1 Overview of rResearch sSites

This research was conducted in the Cianjur Regency Market, West Java. Cianjur Market is a market in Cianjur Regency. Cianjur Regency has 23 markets, there are 15 markets that have freshwater fish stalls. Out of these 15 markets, there are 22 freshwater fish sales stalls (Cianjur Regency Office of Cooperatives, Small and Medium Enterprises, Trade and Industry 2018).

**Comment [ML4]:** fits better in "time and place" section because the decription of the study site is part of the methodology

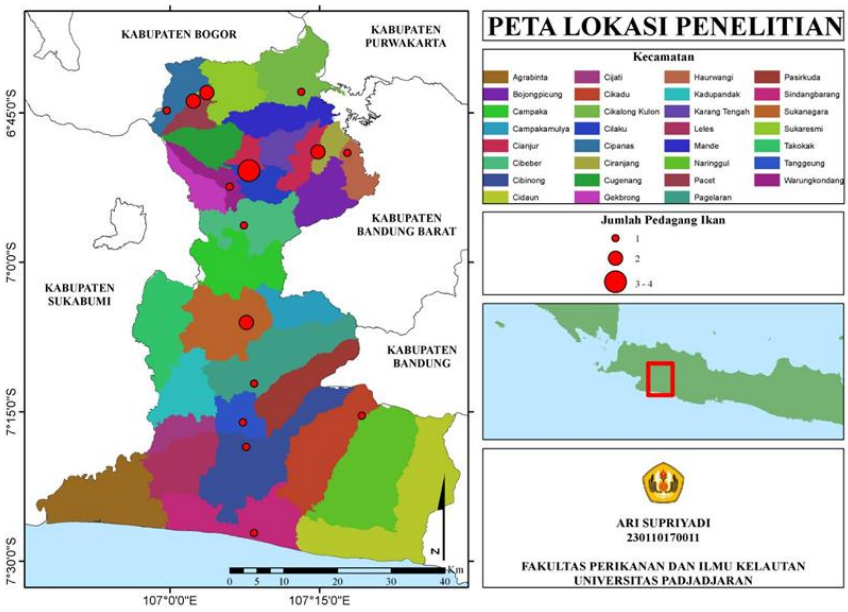


**Figure 1.** Research Location Map
(Source: Indonesian Earth Map)

The Cianjur Regency Market has operating hours from 05.00 WIB to 19.00 WIB. For operating hours starting at 05.00 WIB - 17.00 WIB, the Cianjur Regency Market is a market that sells various kinds of basic necessities and vegetables. In addition, the Cianjur Regency Market sells tilapia, carp and catfish (Cianjur Regency Office of Cooperatives, Small and Medium Enterprises, Trade and Industry 2018).

### 3.2 Characteristics of cConsumers in Cianjur Regency

Based on the research that has been carried out, the number of consumers frequency is 50 people with the assumption used that on average each consumer based on filling out the questionnaire for 1 month can buy fish at the Cianjur Regency Market 1-2 kilograms per purchase. Meanwhile, the average number of visitors within 1 month is above 1000 visitors with the assumption that the data for 1000 visitors is calculated with the assumption that the number of visitors from weekdays when accumulated for 5 days (Monday to Friday) ranges from 750-1000 people within a period of time. 1 month. As for the results of research from respondents' answers regarding the frequency of purchasing tilapia within 1 month at the Cianjur Regency Market, approximately 2-5

times a month. This shows that visitors are quite satisfied with more than 90% of buyers saying that the fish purchased at the Cianjur Regency Market has a good level of freshness. Consumers can decide to visit a place to eat to meet their needs. Consumers who are satisfied with an item and service, then their behavior is that he will not hesitate to buy and consume these goods and services in the future (Rangkuti 2008).

**a. Consumer cCharacteristics by gGender**

The characteristics of respondents based on gender who buy tilapia at the Cianjur Regency Market can be seen in Table 1 below.

**Table 1. Buyer cCharacteristics by gGender**

| Gender | Frequensy | Present% |
|---|---|---|
| Male | 24 | 48 |
| Female | 26 | 52 |
| **Total** | **50** | **100** |

From Table 1, it is known that of the 50 respondents who are buyers at the Cianjur Regency Market, 26 people (52%) of them are female and 24 people (48%) are male. Women are potential consumers for producers to offer their products (Sumawarman et al., 2011).

**b. Consumer cCharacteristics bBy aAge**

The age characteristics of the respondents consisted of 4 age groups. Characteristics of respondents by age can be seen in 2 Tables.

**Table 2. Buyer cCharacteristics by aAge**

| Age | Frequensy | Percent% |
|---|---|---|
| 23-30 | 18 | 36 |
| 31-38 | 10 | 20 |
| 39-46 | 15 | 30 |
| 47-54 | 7 | 14 |
| **Total** | **50** | **100** |

Based on Table 2, consumers who buy tilapia at the Cianjur Regency Market are mostly in the 23-30 age group as many as 18 people (36%). The age group at the age of 39-46 as many as 15 people (30%). The age group at the age of 31-38 as many as 10 people (20%). The lowest age group was at the age of 47-53 as many as 15 people (14%). The age grouping made according to BPS from the age of 15-60 is the productive age. The age of 23-30 years is entering the stage of the stability phase, namely a person with a steady belief finds his place in society and tries his best (Levinson 1987). It can be assumed that respondents at the age of 23-30 years already have stability in terms of income and also responsibility for the family, so that many buyers at the Cianjur Regency Market are in the 23-30 year age range.

**c. consumer characteristics based on education level**

Characteristics of respondents based on education level consisted of elementary, junior high, high school and university. The characteristics of consumers based on the last education level can be seen in Table 3.

**Table 3. Buyer cCharacteristics based on last education**

| Last Education | Frequency | Percent% |
|---|---|---|
| Perguruan Tinggi | 5 | 10 |
| SMA | 10 | 20 |
| SMP | 12 | 24 |
| SD | 23 | 46 |
| **Total** | **50** | **100** |

Based on the data in Table 3, consumers who buy tilapia at the Cianjur Regency Market are dominated by the elementary school education level of 23 people (46%). respondents at the level of junior high school education as many as 12 respondents (24%). High school education level is 10 respondents (20%). Higher education level is 5 respondents (10%). It can be assumed that the background of the buyer will affect the type of work which will ultimately affect the thought patterns in the demand for tilapia at the Cianjur Regency Market. It can be assumed that the educational background of consumers affects their intellectual attitudes, the higher a person's education level, the better his intellectual level. This is in accordance with the opinion (Sumarwan 2004), that highly educated consumers will be happier to find a lot of information about the product before he decides to buy the product.

**d. consumer characteristics by profession**

Characteristics of consumers by occupation consists of 4 groups. The characteristics of consumers by occupation can be seen in Table 4.

**Table 4. Characteristics of Buyers by occupation**

| profession | Frequency | Percent% |
|---|---|---|
| Factory workers | 9 | 18 |
| Teacher | 2 | 4 |
| Farmer | 11 | 22 |
| entrepreneur | 28 | 56 |
| **Total** | **50** | **100** |

Based on the data in Table 4, it is known that consumers who buy tilapia at the Cianjur Regency Market are dominated by entrepreneurs with a total of 28 respondents (59%). This is done to determine the extent to which respondents have jobs that can determine their monthly income. A person's perspective on consuming goods and services can be influenced by the type of work that person has (Irawan 2003). It can be assumed that respondents with established jobs and have a lot of free time will buy more often to the market according to their needs. Entrepreneurs have good economic conditions, have consumption patterns with high purchasing power and free time of activity like the majority of other occupations.

**e. consumer characteristics by Income**

The characteristics of respondents based on income who buy tilapia at the Cianjur Regency Market can be seen in Table 5 below.

**Table 5. Buyer Characteristics by Income**

| Pendapatan | Frequency | Percent% |
|---|---|---|
| 1 juta s.d. 1,9 juta | 28 | 56 |
| 2 juta s.d. 2,9 juta | 9 | 18 |
| > 3 juta | 13 | 26 |
| **Total** | **50** | **100,0** |

Based on Table 5, consumers who buy tilapia at the Cianjur Regency Market are dominated by income of Rp. 1.000.000 - Rp. 1,900,000 as many as 28 people (56%). The high income of consumers is based on the type of work that affects the mindset of the demand for tilapia. The amount of income will describe the purchasing power of a consumer (Sumarwan 2003).

**f. consumer characteristics based on location and freshness of fish**

The consumer preferences based on market conditions and fish conditions in the Cianjur Regency Market can be seen in Table 6 below.

**Table 6. Buyer cCharacteristics by Income**

| location and freshness of fish | Frequency | Percent% |
|---|---|---|
| Affordable Price | 11 | 22 |
| Good product quality | 20 | 40 |
| Location and state of the market | 19 | 38 |
| **Total** | **50** | **100,0** |

There are several elements of chemical composition in fish including 18-30% protein, 0.1-2.2% fat and 60-84% water while the rest contains vitamins and minerals (Afrianto and Liviawaty 1989). Therefore, the level of freshness of fish greatly influences buyers to buy fish because fish has more than half of its body percentage consisting of water and protein so that fish products will easily rot or be less fresh.

### 3.3 Data analysis

The results of data analysis using SPSS 24 Software. In order to obtain the best regression results, it must meet the following statistical criteria:

**A. Classical Assumption Test**

Classical assumption test is conducted to test the assumptions in multiple linear regression modeling so that the data can be analyzed further without producing biased data. According to Ghozali (2016).

**a. Normality test**

Normality test aims to test whether the continuous data is normally distributed or not. So if the continuous data has been normally distributed, it can be continued to the next stage, namely the t-test, correlation and regression can be carried out. To test whether the data is normal or not, the researcher uses the Kolmogrov-Smirnov analysis as follows:

**Table 7. Normality test**

| One-Sample Kolmogorov-Smirnov Test | | |
|---|---|---|
| | | Unstandardized Residual |
| N | | 50 |
| Normal Parameters[a,b] | Mean | ,0000000 |
| | Std. Deviation | ,15053739 |
| Most Extreme Differences | Absolute | ,096 |
| | Positive | ,092 |
| | Negative | -,096 |
| Test Statistic | | ,096 |
| Asymp. Sig. (2-tailed) | | ,200[c] |

From table 6, the One Sample Kolmogrof-Smirnov Test obtained the probability number or asymp. Sig. (2-tailed). This value is compared with 0.05 (in this case using a significance level of 5% or = 5%). So from this research it is known that all p-values for the data are greater than = 5% (p>0.05), so it can be stated that the overall data obtained has a normal distribution. If the significance value is above 0.05 then the data is normally distributed. Meanwhile, if the significance value is below 0.05 then the data is not normally distributed (Ghozali 2011).

**b. Multicollinearity Test**

The multicollinearity test aims to test whether there is a correlation between the independent variables in the regression model. A good regression model should not have a correlation between the independent variables. Detection of multicollinearity can be done by analyzing the correlation

matrix between the independent variables and by looking at the tolerance value and its opposite VIF. The results of the multicollinearity test using the correlation matrix are as follows:

**Table 8. Multicollinearity Test**

| Model | Collinearity Statistics | | Keterangan |
|---|---|---|---|
| | Tolerance | VIF | |
| (Constant) | | | |
| Price of Tilapia | 0,215 | 4,649 | Free of multicollinearity |
| Consumer Income | 0,151 | 6,603 | Free of multicollinearity |
| Price of Goldfish | 0,811 | 1,233 | Free of multicollinearity |
| Price of Catfish | 0,972 | 1,029 | Free of multicollinearity |
| Rice Price | 0,196 | 5,157 | Free of multicollinearity |

The results of the calculation of the multicollinearity test can be seen in 2 ways, namely by looking at the tolerance value and the Variance Inflation Factor (VIF). The cutoff value commonly used to indicate the presence of multicollinearity is the Tolerance value 0.10 or the same as the VIF value 10. Based on the coefficients in the picture above, the conclusion is that the independent variable is free from the classical assumption of multicollinearity (Ghozali 2011).

**c. Heteroscedasticity test**

Heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residue of one observation to another observation. If the significant probability is above the 0.05 confidence level, it can be concluded that the regression model does not contain any heteroscedasticity. A summary of the complete data calculation results is presented in the table below.

**Table 9. Heteroscedasticity test results**

| Model | Sig. | P* | Keterangan |
|---|---|---|---|
| Demnd of Tilapia | 0,064 | >0,05 | Heteroscedasticity Free |
| Price of Tilapia | 0,485 | >0,05 | Heteroscedasticity Free |
| Consumer Income | 0,590 | >0,05 | Heteroscedasticity Free |
| Price of Goldfish | 0,241 | >0,05 | Heteroscedasticity Free |
| Price of Catfish | 0,662 | >0,05 | Heteroscedasticity Free |
| Rice Price | 0,525 | >0,05 | Heteroscedasticity Free |

In Table 8, the results of the heteroscedasticity test calculation show that there is no heteroscedasticity disorder, because the p value> 0.05 or not significant at = 5%. Thus overall it can be concluded that there is no heteroscedasticity problem (Ghozali 2013).

**d. Heteroscedasticity test**

Autocorrelation is a correlation that occurs between members of a series of observations located in a row in series in the form of time (if the data is a time series) or correlation between adjacent places (if the data is cross sectional) (Ghozali, 2011). Tests for the presence or absence of autocorrelation were carried out using the Durbin-Watson method. The method of detecting autocorrelation in the regression analysis model using Durbin-Watson can be explained as follows:

**Table 10. Autocorrelation Test Results**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | ,992[a] | ,984 | ,982 | ,15886 | 2,115 |

With the table value at a significance level of 5%, the number of samples 50 (n) and the number of independent variables 5 (k=5), the Durbin Watson value (DW Statistics) from the results of the regression analysis of 2,115 can be seen in table 10 above. Thus the Durbin Watson value of 2.115 is greater than the upper limit of du(dU) 1.7708 and less than (4-dU) 4-1.7780. So as the basis for decision making in the Durbin Watson test above, it can be concluded that there are no problems or symptoms of autocorrelation. Thus, multiple linear regression analysis for hypothesis testing of the research above can be continued.

### 3.4 Elasticity of sSupply and dDemand for Tilapia in Cianjur Regency

The elasticity of demand measures how far or how sensitive the quantity of goods purchased is to changes in the price of a demand curve. While the measurement of the difference in elasticity is called the coefficient of elasticity.

#### A. Elasticity of sSupply for Tilapia in Cianjur Regency

The degree of sensitivity of the supply function to price changes can be known by looking at each of the independent variables. The results of the analysis of the elasticity of demand for tilapia in the Cianjur Regency market are as follows.

**Table 11. Value of Tilapia's sSupply eElasticity**

| Product | Value Elasticity of Supply |
|---|---|
| Price of Tilapia | 11,7 |

Based on the results of the analysis, it is known that the elasticity is 11.7. The positive value of elasticity indicates that the price of tilapia has a direct relationship with the supply of tilapia. This means that if the price of tilapia increases by 1%, the supply of tilapia will decrease by 11.7%, and vice versa if the price of tilapia decreases by 1%, the supply of tilapia will increase by 11.7%. The positive sign only explains the directly proportional relationship between the price of goods and the quantity demanded (Sadano 2014). The price elasticity value indicates that the supply of tilapia is elastic, which means that the percentage change in the quantity supplied is greater than the price change.

#### B. Elasticity of Demand for Tilapia in Cianjur Regency

The degree of sensitivity of the demand function to price changes can be known by looking at each of the independent variables. The results of the analysis of the elasticity of demand for tilapia in the Cianjur Regency market are in the following table:

**Table 12. Value of Tilapia's Demand Elasticity**

| Produk<br>Variabel | Price Elastisity<br>Value | Cross Elastisty<br>Value | Income Elastisity<br>Value |
|---|---|---|---|
| Price of Tilapia | 10,79 | | |
| Consumer Income | | 0,13 | |
| Price of Goldfish | | -(0,26) | |
| Price of Catfish | | 2,41 | |
| Rice Price | | | -(0,08) |

Primary Data Analysis Results

**a. Price Elasticity**

Based on the results of the analysis, it is known that the elasticity is 10.79. The positive value of elasticity indicates that the price of tilapia has a direct relationship with the demand for tilapia. This means that if the price of tilapia increases by 1%, the demand for tilapia will decrease by 10.79%, and vice versa if the price of tilapia decreases by 1%, the demand for tilapia will increase by 8.5%. The positive sign only explains the directly proportional relationship between the price of goods and the quantity demanded (Sadano 2014). The price elasticity value indicates that the demand for tilapia is elastic, which means that the percentage change in the quantity demanded is greater than the price change.

**b. Cross Elasticity**

The cross elasticity value of the goldfish price is 0.13. This means that if the price of goldfish increases by 1%, the demand for tilapia will increase by 0.13%, and vice versa. A positive sign on the elasticity value indicates that carp is a substitute for tilapia. This is because goldfish are classified as freshwater fish that are in great demand.

The coefficient of cross elasticity of tilapia to catfish is 0.26. That is, if catfish price increases by 1%, the demand for tilapia will increase by 0.26%, and vice versa. The negative sign on the elasticity value indicates that the relationship between the variables is inversely proportional (if the price goes up, the demand goes down, if the price goes down, the demand goes up). In addition, the negative sign on the elasticity coefficient value also shows that catfish is a complementary item, not a substitute item.

While the results of the cross elasticity analysis of the price of rice is 2.41. This means that if the price of rice increases by 1%, the demand for tilapia will decrease by 2.41%, and vice versa. The positive sign on the elasticity value indicates that the price of rice is a substitute for tilapia. This is because the price of rice is classified as a substitute product which is in great demand.

**c. Income Elasticity**

Based on the results of the analysis, it is known that the income elasticity is 0.08. which means that if there is an increase in income of 1% it will result in an increase in the number of tilapia

demand by 0.01%, and vice versa. The income elasticity number with a negative sign indicates that tilapia is a complementary product, not a substitute item.

### 3.5 Factors Affecting the Elasticity of Supply and Demand for Tilapia in Cianjur Regency

The factors that affect the elasticity of supply and demand are to find out how much influence the independent variable has on the dependent variable.

#### A. Factors Affecting the Elasticity of Supply for Tilapia in Cianjur Regency

The t-test is a test conducted to determine the effect of the independent variables studied individually on the supply of tilapia in the Cianjur Regency Market. The results of the t-test analysis are in Table 13 below:

**Table 13. The results of the t-test analysis of each independent variable supply**

| Model | Koefisien Regresi | t | Sig. |
|---|---|---|---|
| Price of Tilapia | ,967 | 1,014 | ,324 |
| Income | -,007 | ,964 | ,348 |
| Number of Consumers | ,033 | 6,223 | ,000 |

Based on Table 13, it can be seen that the variable number of consumers has a significant effect on the supply of tilapia in the Cianjur Regency Market to the 95% confidence level. This is indicated by the significance value of the number of consumers variable which is smaller than the value of = 0.05, when using the t-table the value is 2.10092, the t-count of the number of consumers has a value greater than 2.00488 so that the variable number of consumers has a significant effect. The variable price of tilapia and income on the supply of tilapia in the Cianjur Regency Market has no significant effect. This is indicated by the significance value of the three variables which is greater than the value of = 0.05. t-calculated tilapia price and income have a value less than 2.00488 so that the variable number of consumers has no significant effect.

#### B. Factors Affecting the Elasticity of Demand for Tilapia in Cianjur Regency

The t-test is a test conducted to determine the effect of the independent variables studied individually on the demand for tilapia in the Cianjur Regency Market. The results of the t-test analysis are in Table 14 below:

**Table 14. Results of t-test analysis of each independent variable demand**

| Model | Regression Coefficient | t | Sig. |
|---|---|---|---|
| Harga Ikan Nila | ,967 | 23,714 | ,000 |
| Pendapatn Konsumen | -,007 | -,152 | ,000 |
| Harga Ikan Mas | ,016 | ,765 | ,880 |
| Harga Ikan Lele | -,031 | -1,639 | ,449 |
| Harga Beras | ,033 | ,778 | ,108 |

Description:

* : significance up to 95% confidence level

Based on Table 14, it can be seen that the variable price of tilapia, and income have a significant effect on the demand for tilapia in the Cianjur Regency Market up to the 95% confidence level. This is indicated by the significance value of the variable price of tilapia and consumer income which is smaller than the value of = 0.05, when using the t-table the value is 2.00488, the t-count of the price of tilapia has a value greater than 2.00488 so that the variable the price of tilapia has a significant effect. Variable prices of carp, catfish prices, and rice prices on the demand for tilapia in the Cianjur Regency Market have no significant effect. This is indicated by the significance value of the three variables which is greater than the value of = 0.05.

## 4. CONCLUSIONS

Based on the results of research that has been carried out, the following values are obtained:

1. The elasticity of supply for tilapia is 11.7, which means that the supply price is elastic. And the elasticity of demand for tilapia is 10.79, which means the price is elastic. Meanwhile, in cross elasticity, the variables used are the price of carp with an elasticity value of 0.13, the price of catfish with an elasticity value of 0.26, both goods are inelastic, and the price of rice with an elasticity value of 2.41, which means it is elastic. The three variables are substitutes for tilapia. The income elasticity value is 0.08 which is inelastic.

2. The factors that influence the supply of tilapia in the Cianjur district market are the number of consumers. And the factors that affect the demand for tilapia in the Cianjur district market are the price of tilapia and income.

**CONSENT**

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s)

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