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Price Fluctuations Analysis of Sea Fish Consumption in North Sulawesi

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Abstract

This study is devoted to know the price fluctuations of skipjack to the consumption of marine fish by people in North Sulawesi. While other variables such as the price of Mas and Mujair fish, the price of chicken eggs, chicken meat prices and rainfall as a comparison. This study used a survey method. Data were analyzed using analysis of partial regression using SPSS software, to determine the relationship of variable fluctuations in the price of skipjack on the consumption of marine fish communities of North Sulawesi, the relationship variable fluctuations in the price of Mas and Mujair fish to the consumption of marine fish communities of North Sulawesi, the relationship variable fluctuations in the price of mujair fish on consumption marine fish communities of North Sulawesi, the relationship variables chicken egg price fluctuations on consumption of marine fish communities of North Sulawesi, relationships chicken meat price fluctuations against the consumption of marine fish communities of North Sulawesi and relation of fluctuations in rainfall against the consumption of marine fish communities of North Sulawesi. Based on results of this research, the price of skipjack provide a positive and significant influence on α = 0.05 on marine fish consumption by people of North Sulawesi. Price goldfish have a positive influence on the consumption of marine fish by the people of North Sulawesi, this indicates that the Mas and Mujair are substitutes against marine fish for the people of North Sulawesi. The price of Mujair fish, marinated fish, eggs, chicken and precipitation did not have a significant influence on the consumption of marine fish by people of North Sulawesi. That is, with the change in the price of Mujair fish, marinated fish, eggs, chicken and rainfall, the people of North Sulawesi still consume sea fish.

Keywords: Price Fluctuations; Fish; Consumption; North Sulawesi.

INTRODUCTION

Indonesia is a country that has a vast sea area when compared to the mainland, meaning that two-thirds of Indonesia is an area of water, while a third is an area of land. This shows that Indonesia is rich in natural resources that exist in area waters. With the potential of marine resources in Indonesia that provide opportunities in the development of water resource management. The potential of aquatic resources owned by the nation of Indonesia is expected to be managed efficiently and effectively so as to contribute to the people of Indonesia. As we know that most people in Indonesia, especially in North Sulawesi consuming fresh seafood. Therefore, the production of fresh sea fish should be able to meet the public demand in North Sulawesi. There are several factors that affect the price fluctuations fresh fish in North Sulawesi, *first*, the availability of fresh marine fish production in North Sulawesi. The fall in the production of marine fish in North Sulawesi resulted in a surge in the price of fresh fish in North Sulawesi. For that, it needs a supply of fresh fish from the area - the area outside of North Sulawesi. *Second*, the extreme weather inhibits the production of fresh fish in the North Sulawesi. According to shove (2015), the decline of production of fresh sea fish in the period 2013 - 2014. This is due to the extreme weather with the extreme weather, the fishermen about fishing. Based on data from the Department of Marine and Fisheries in North Sulawesi that for the year 2013 the fresh sea fish production reached 349.321 ton whereas in 2014 fell to 46,000 tons. Last year production is 303.026 tons of fresh fish. The highest

production of fresh sea fish in Bitung reached 134 247 tons in 2013. Production of fresh fish in Bitung City can be quite good, with an increase of 154 895 ton for the year 2014. *Third*,the increase in fuel prices. This will result in a reduction for the fishermen to go to sea, so that the amount of fresh marine fish production is reduced, thus occurred the increase in the price of fresh sea fish in North Sulawesi. In this paper, the authors wanted to do research on the price fluctuations of fresh fish to the level of consumption in North Sulawesi.

LITERATURE REVIEW

Consumer Price Curve

The individual consumer demand curve for a good can be determined from this consumption price curve, just as the Engel curve can be determined from the consumption income curve.

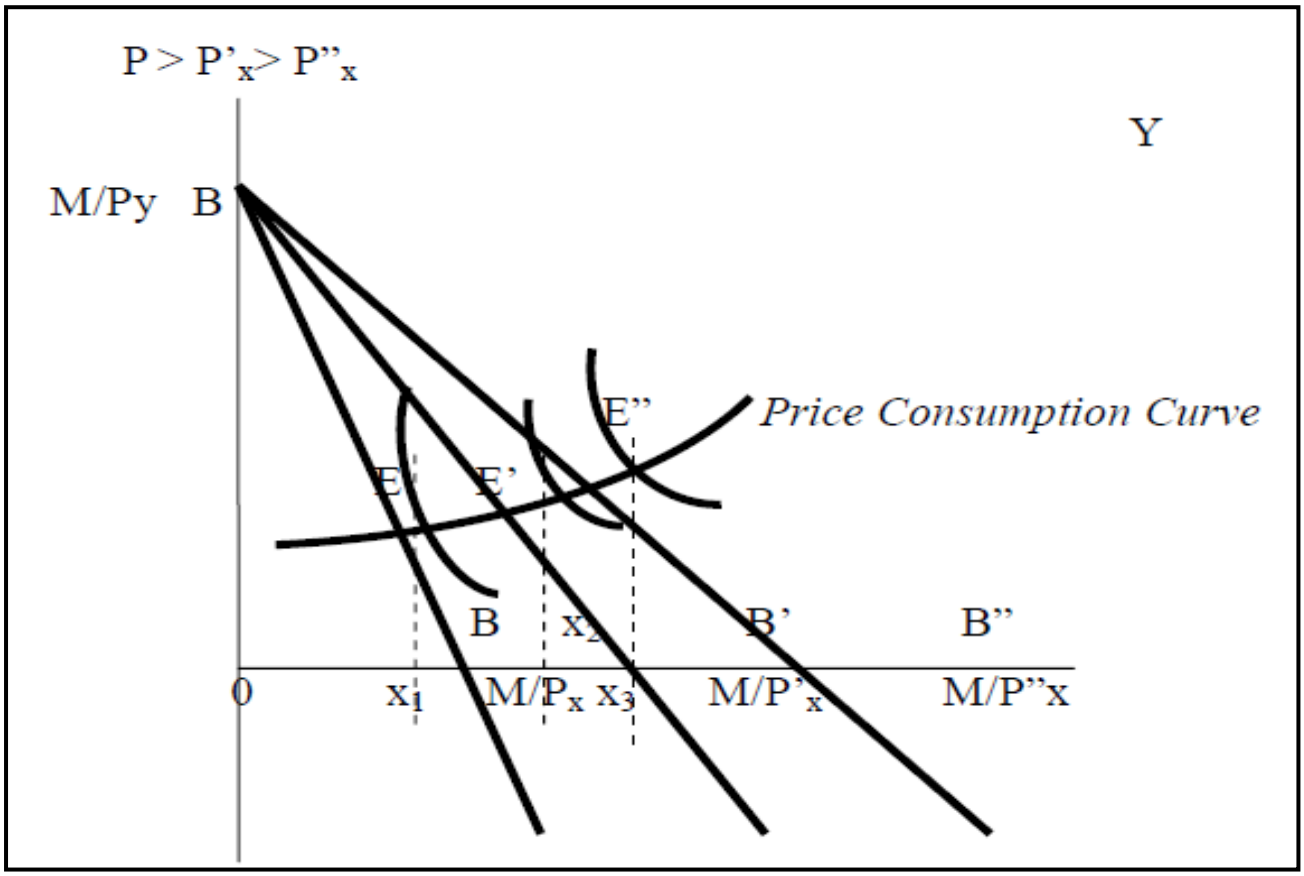

Figure 1 : Price Consumption Curve

The definition of the consumption price curve is the demand curve of a good that links the balance of the quantity of consumer purchased goods and the market price level, in which the consumer's income and the nominal price of other goods are considered unchanged. In general, if the price declines, consumers will increase the amount of goods demanded and vice versa if there is an increase in consumer prices will reduce the amount of goods requested, ceteris paribus. It can be analyzed using a preference curve analysis. For example it is assumed that the income (M) and the price of Y (Py) goods remain, while the price of goods X (Px).

The decline in the price of goods X (Px) will cause the budget curve to shift to the right with the axis on the fixed Y axis, ie M / Py-MPx; M / Py-M / P "x. And of course the balance of consumers is changing as reflected in the change of E-E'-E ". If we look at each of the equilibrium points, and for the price of X only, it will appear that the price drop X1 (PX-PX'-PX ") will be followed by the increase in the quantity of the requested X item (X1-X2-X3). If the equilibrium point (E-E'-E ") is connected the price consumption curve will be obtained. From the consumption price curve can be derived the demand curve.

Income-consumption curves can be used to construct the Engel curve that relates the amount of an item consumed with income. Figure 2. Shows how the curves are arranged for two different kinds of goods. Figure 2.(a) shows the rising Engel curve, directly seen in Figure.2 (a). In the figure, when income increases from $ 10 to $ 20 to $ 30, food consumption rises from 4 to 10 to 16 units. The rising Engel's curve-as well as the income-consumption curve that rises in Figure 2. (a) applies to all normal goods. Note the Engel curve for clothing has a similar shape (clothing consumption

increases from 3 to 5 to 6 units when income increases). Figure 2.(b) shows the Engel curve for the hamburger, taken from FIG .II.2. We see that hamburger consumption increases from 5 to 10 when income rises from $ 10 to $ 0. As earnings increase further, from $ 20 to $ 30, consumption decreases to 8 units. The decreasing part of the Engel curve is an inferior good.

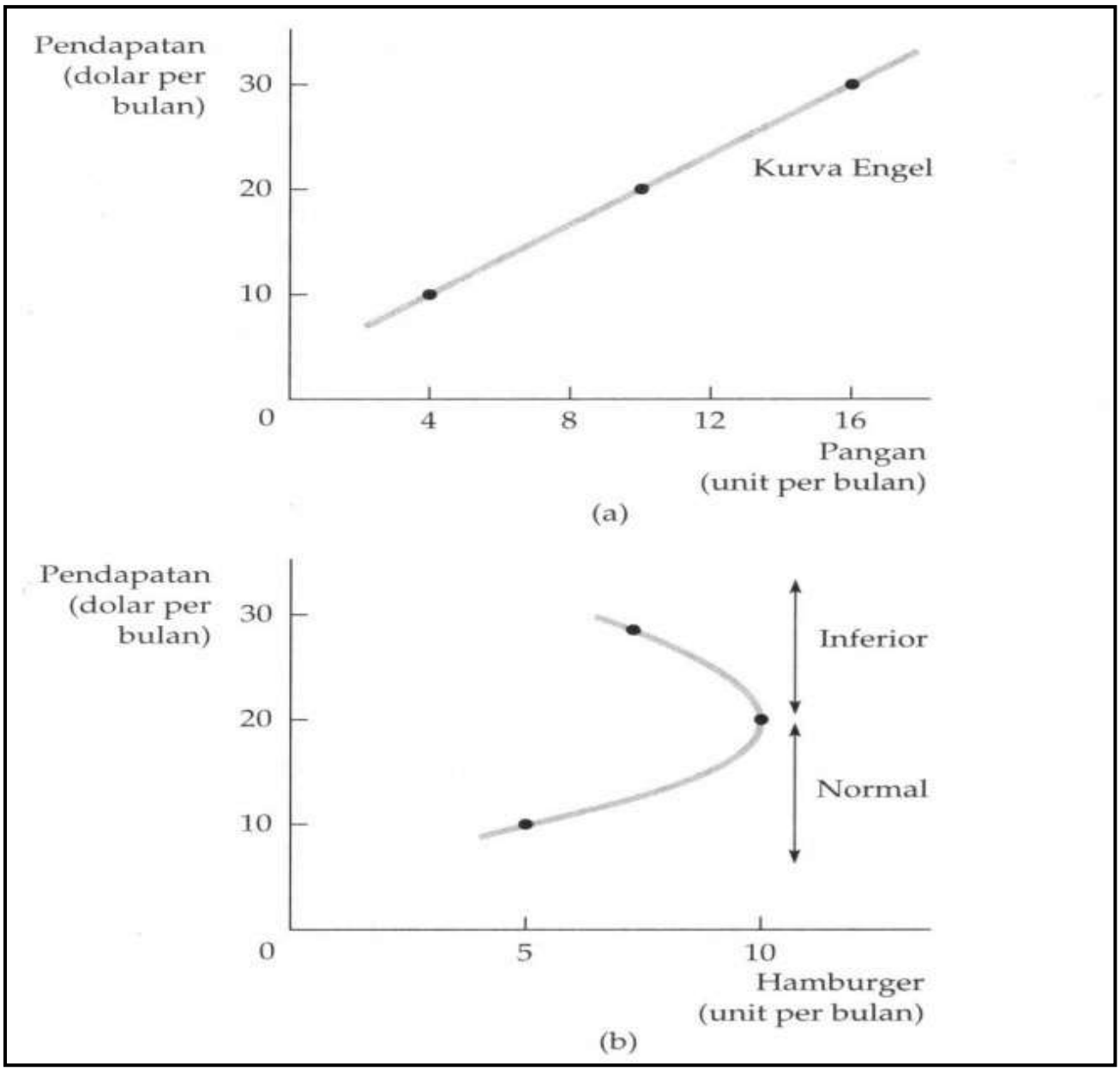

Figure 2: Engel's Curves

Price Elasticity

Price elasticity of demand is defined as the degree of sensitivity of changes in the quantity of goods demanded as a result of price changes. Elasticity (price elasticity, cross, and income) can be explained in table.1. The price elasticity of Ep> 1 is referred to as the elasticity commodity because the rising commodity prices will result in decreased commodity demand while the decrease in commodity prices will lead to increased demand; The value of Ep <1 is referred to as an inelastic commodity as rising commodity prices will lead to increased demand for goods, while a fall in commodity prices will lead to declining commodity demand; And the value of Ep = 1 is called a unitary commodity because an increase or decrease in commodity prices will lead to commodity demand.

Table.1: Overview of the Relationship of Price Elasticity, Cross Elasticity and Income Elasticity			
Value of price elasticity	**Commodities terminology**	**Increases in commodity prices will lead to ...**	**Decrease to commodity prices will lead to.....**
Ep > 1 Ep > 1 Ep = 1	Elastic Inelastic Unitary	Demand rises Decreased demand Fixed demand	Demand rises Decreased demand Fixed demand
The Value of cross elasticity	The relation of commodity A lead to....	An increase in commodity A lead to.....	Decreases in commodity prices A lead to.....
Ec > 0 or > 1 Ec < 0 or -1 Ec = 0	Substitution complementary Natural	Demand Inrease in commodity B. Demand decrease in commodity B. Demand of commodity B is fixed.	Demand decrease in commodity B Demand increase in commodity B Demand of commodity B is fixed
The value of cross elasticity.	Commodity terminology	An increase of income lead to...	A decrease of income lead to.....
E1 < 1 0 < Ec <1 1 < E1	Inferior Basic needs luxury	Decrease on demandof commodity Increase on demand commodity to ride with (%) lower Increase of demand commodity to ride with (%) higher	Increasin on the number of demand commodity Decreasing on demand commodity to ride with (%) ower. Decreasing on demand of commodity to ride with (%) higher

Source: Suparmoko (1999:21) and Sukirno (2004:109).

Cross elasticity EC > 0 or > 1 is referred to as a substitution commodity relationship because the increase in commodity relationship A causes the requested commodity B to rise while a decrease in commodity A leads to decreased commodity B. The value of EC <0 or -1 is referred to as the complementary commodity relationship because the price of commodity A causes the requested commodity B to fall while the decline in the price of commodity A causes the commodity B demanded to rise; The value of EC = 0 is called a neutral relationship because an increase or decrease in the price of commodity A results in the required commodity B being fixed.

The income elasticity of E1 <1 is referred to as inferior commodity because the increase of income causes the quantity of demanded commodity to decrease, while the decrease of income causes the amount of commodity demanded to rise; The value of 0 <E1 <1 is referred to as a commodity of necessity because the increase in income causes the quantity of commodities demanded to rise by a lower percentage, while the decrease in income causes the quantity of demanded commodities to fall by a lower percentage, E1> 1 is called a luxury commodity due to the increase in income Causing the number of commodities demanded to rise by a higher percentage, while the decrease in revenues resulted in the amount of commodities demanded to fall by a higher percentage.

RESEARCH METHODS

Location and Time Research

The location determined by purposive sampling based on the consideration of these areas as production centers skipjack as a supplier in North Sulawesi province, namely: Bitung and North Minahasa Regency.

In a study of fluctuations in the price of fresh tuna to the level of consumption in North Sulawesi, biopsy samples carried out in areas that have the highest amount of consumption of fresh tuna, which is the city of Manado. The study was conducted in April 2016 to October 2016.

Method of Collecting Data

This study uses secondary data (time series). Secondary data were obtained from agencies and institutions such as the Central Statistics Agency (BPS) of North Sulawesi, the Provincial Agriculture Office of North Sulawesi, Central Statistics Agency Manado City, the Department of Agribusiness Manado City, the Central Bureau of Statistics of North Minahasa Regency, Central Bureau of Statistics Bitung, Department Industry and Trade of the city of Manado and sources of other supporting data.

Data Analysis

In this study the analysis method used is the method of partial regression analysis.

$Yt = \beta0 + \beta1X1\ \beta2X2 + + + \beta5X5\ \beta4X4\ \beta3X3 + + + \beta6X6\ \beta7X7 + \mu$

Information:

Yt = Consumption of marine fish communities of North Sulawesi (Per-Capita)

β0 = intercept or constant;

β1 = coefficient to the variable parameter-i (i = 1 s / d 6)

X1 = price of skipjack (USD / kg)

X2 = the price of carp (USD / kg)

X3 = the price of Mujair fish (USD / kg)

X4 = the price of anchovies (USD / kg)

X5 = price of chicken eggs (USD / kg)

X6 = rainfall (mm)

X7 = chicken meat prices (USD / kg)

μ = error term.

RESULTS AND DISCUSSION

Based on the results showed that the price of skipjack in North Sulawesi fluctuation, in 2008, the lowest price in December and the highest in July to October. In 2009, the lowest price of skipjack occur in January until August and the highest occurred in October and December. In 2010, the lowest rates occurred in January and the highest in November and December. In 2011, the price of skipjack lows seen in May and the highest occurred in July. In 2012, the lowest price of skipjack occur in January and the highest occurred in October and November. By 2013, the price of skipjack lowest in March and highest price in December. In 2014, the lowest price of skipjack occurred in April and the highest was in November. Based on these data we can conclude that the price centipede generally occurs from October to December. While the lowest occurred in January to August.

Table.2. Price Commodities and Fish Consumption in North Sulawesi 2008 - 2015

Year	Consumption	Mas fish	Mujair fish	Marinated fish	Chiken egg	Rainfall	Chikhen meat	Skipjack
2008	24.008	21.500	20.000	15.000	12.000	303	20.000	12.722
2009	30.069	22.500	20.500	15.500	15.000	240,5	25.000	13.583
2010	34.234	23.873	20.469	1 6.625	18.577	330,5	36.171	1 4.738
2011	41.718	25.583	26.603	20.807	18.813	277,9	37.733	16.146
2012	43.946	28.000	36.326	35.000	22.183	262	14.176	24.304
2013	52.289	35.250	25.159	31.825	14.828	310	34.107	30.538
2014	54.505	36.349	28.043	49.909	16.346	279,6	32.761	28.135
2015	42.650	37.314	30.488	49. 952	17.068	300	34.353	29.970

Source : Data processed, 2016

The data analysis shows that the price of fresh tuna a positive influence on consumption of marine fish in North Sulawesi. Any increase in the price of fresh tuna by 1% will increase the consumption of marine fish in North Sulawesi of 1.170%. This indicates that people in North Sulawesi there is a tendency to consume fresh tuna. Prices of fresh tuna significant at α = 5%. Price Mas fish have a positive influence on the consumption of marine fish by people of North Sulawesi. That is, any increase in the price of carp by 1% will increase the consumption of marine fish of 1.371%. This shows that with the increase in the price of North Sulawesi carp keep eating fresh seafood. The price of mujair fish has a value of 0.130. This means that every 1% increase in the price of mujair fish it will increase the consumption of marine fish by people of North Sulawesi at 0.130. However, do not give a significant influence on the consumption of marine fish by people of North Sulawesi at α = 5%. The data shows that the price of anchovies has a value of 0.034. This means that any increase in the price of anchovies by 1% will increase the consumption of marine fish of 0.034%. Marinated fish prices have a significant impact on α = 5%. This shows that despite the rise in price of anchovies, the people of North Sulawesi still consume sea fish. The price of chicken eggs has a value of 1.183 means that every 1% increase in the price of eggs will increase the consumption of fresh fish amounted to 1,183%. At α = 5%, the price of eggs is not a significant effect on marine fish consumption by the community of North Sulawesi. That is, as the price of chicken eggs does not give effect to the consumption of marine fish by people of North Sulawesi. Rainfall in North Sulawesi has a value of 8.218. This means that any increase in precipitation by 1% will increase the consumption of marine fish of 8.218%. However the increase in precipitation has no significant impact on the consumption of marine fish. The price of chicken has a value of 0,447. That is, each 1% increase in chicken meat prices will increase consumption of marine fish by people of North Sulawesi at 0,447%. However, the price of chicken meat was not a significant effect on marine fish consumption by people of North Sulawesi at α = 5%. That is, the rising prices of chicken meat North Sulawesi still consume sea fish.

CONCLUSIONS AND IMPLICATIONS

Conclusion

1. Price fluctuations of tuna fish in North Sulawesi keep eating fresh seafood. It showed that tuna can be said to be excellent for the people of North Sulawesi.
2. Mas fish and Marinated fish is a food that is as a substitute. While Mujair fish, chicken eggs, chicken meat rainfall has no effect on the consumption of fresh fish by the people of North Sulawesi. That is, the price changes in Mujair fish, chicken eggs, chicken meat, rainfall and the people of North Sulawesi keep eating fresh seafood.

Policy Implications

1. In consume food dishes, the people of North Sulawesi need for diversification of food dishes. It is based in North Sulawesi that there is a rich diversity of local wisdom that is needed to be developed so that the availability of animal protein for the people of North Sulawesi can be met.
2. To meet the needs of the animal protein that could be available at any time at a price that is affordable for the people of North Sulawesi will require a comprehensive development of the management of marine aquaculture, land and livestock.

Glossary:

Mas and Mujair fish : A kinds of freshwater fish consumed daily by the local community

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