BEEF DEMAND RESPONSE IN PANDEGLANG REGENCY

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ABSTRACT

Beef price is one of the factors that influence the demand for beef in Karangtanjung District, Pandeglang Regency. The tradition of consuming beef on religious holidays causes demand in the market to increase. The occurrence of this price fluctuation phenomenon is influenced by the imbalance between the level of local beef production and consumer demand for beef. By knowing the factors that influence the demand for beef such as price, price of substitute goods, consumer income and consumer tastes, it is expected to help producers and traders in planning more efficient production and distribution. The type of research used in this study is a descriptive method with a quantitative approach. Primary data and secondary data are the types of information collected for this study. The results of the simultaneous test show that the independent variables have a significant effect on the demand for beef in Karangtanjung Regency. Based on the results of the partial test, it can be concluded that individually the variables of beef price, chicken price, fish price, consumer income, and taste dummy have a significant effect on the demand for beef in Karangtanjung Regency. The results of the elasticity calculation show that the demand for beef is elastic to price and the results of the cross elasticity show that chicken has a fairly strong substitution relationship with beef. Based on the research results, it is recommended that beef traders collaborate with local farmers around Karangtanjung Regency to ensure the availability of a stable and quality beef supply.

Keyword: beef price, demand, elasticity of demand.

1. INTRODUCTION

Indonesia's agricultural sector contributes significantly to GDP (Gross Domestic Product). One of the agricultural subsectors contributing to GDP is the livestock subsector. With 0.34% year-over-year growth and a GDP contribution of 1.58%, the livestock subsector contributed positively to the national economy in 2021 (Central Bureau of Statistics Indonesia). Livestock products serve as an important source of animal protein for human consumption. Therefore, the livestock subsector plays a crucial role in supplying Indonesia's food needs. Saragih (2023) states that each individual's daily consumption amount and reference intake requirements vary. For example, each individual may have different protein needs. To meet their protein needs, Indonesians consistently consume a variety of animal proteins, including fish, chicken, beef, and eggs.

From 2018 to 2019, per capita beef consumption in Indonesia increased from 0.464 (kg/capita/year) to 0.485 (kg/capita/year), but declined again in 2020 to 2021, reaching 0.478 (kg/capita/year) and 0.466 (kg/capita/year). In 2022, it experienced a significant increase to 0.547 (kg/capita/year).

From 2018 to 2022, beef production centers in Indonesia were spread across various provinces, with a total contribution of 75.7%. Beef production centers were concentrated in three provinces on the island of Java. East Java was the province with the highest contribution, with 20.6%. Over the past five years, average beef production in East Java Province reached 101.1 thousand tons. West Java Province, the main beef production center, contributes 15.8%, with an average of 77.5 thousand tons per year. Central Java Province, the leading beef production center, contributes 13.3%, or an average of 65.2 thousand tons per year. The high level of beef production is influenced by the region's large population. Meanwhile, average per capita beef consumption is relatively similar to other regions, at around 2.4 kg per capita per year.

Pandeglang Regency is the region with the lowest beef production in Banten Province, with a production of 364,777 kg in 2023. Scarcity due to low production puts downward pressure on prices. Low production is caused by a

lack of goods available in the market, leading to intense competition among buyers, driving up prices. Mankiw (2021) states that in a microeconomic model, a decrease in the production level of a good will cause its price to rise if demand remains constant or even increases. Furthermore, people's purchasing power also influences demand.

The average price of beef in Banten Province from January to December 2024 ranged from IDR 130,000 to IDR 140,000/kg. Setiawan (2014) stated that market demand for beef is determined by the number of animals available at slaughterhouses (RPH), and that events or celebrations during religious holidays cause price fluctuations.

Beef prices are a significant factor influencing beef demand in Karangtanjung District, Pandeglang Regency. Observations of a beef seller at a traditional market in Karangtanjung District revealed that the price of beef in December 2024 was Rp. 140,000/kg. This price can increase during certain events, such as Eid al-Adha or Eid al-Fitr, reaching Rp. 30,000/kg. The tradition of consuming beef during

religious holidays drives demand to surge in the market. This price fluctuation is influenced by the imbalance between local beef production and consumer demand in Karangtanjung District, Pandeglang Regency.

Understanding the factors influencing beef demand, such as price, substitute prices, consumer income, and consumer preferences, is expected to help producers and traders plan more efficient production and distribution. This can reduce the imbalance between supply and demand. Based on the background above, the problems in this study can be identified as follows:

1. Do the prices of beef, chicken, eggs, fish, consumer income, and consumer tastes simultaneously influence the demand for beef in Karangtanjung District, Pandeglang Regency?

2. Do the prices of beef, chicken, eggs, fish, consumer income, and consumer tastes partially influence the demand for beef in Karangtanjung District, Pandeglang Regency?

3. How do changes in the price of goods, consumer income, and the prices of substitute goods affect the elasticity of demand for beef in Karangtanjung District, Pandeglang Regency?

2. METODE

This study employed a descriptive method with a quantitative approach. Sukmawati (2023) stated that the collection and analysis of numerical data is the primary focus of quantitative research. This study was conducted to examine the factors influencing beef demand in Karangtanjung District, Pandeglang Regency. The research location was selected purposively. The research period was from October 2024 to April 2025.

Data And Research Instruments

The research instrument used in this study was a questionnaire, designed to identify and analyze factors influencing beef demand in Karangtanjung District, Pandeglang Regency. The questionnaire included a series of questions related to respondent characteristics, such as age, income, and consumption patterns, as well as other external variables such as beef price, consumption habits, and social and cultural factors influencing consumer choices. The data collected through this questionnaire is expected to provide a comprehensive picture of the factors influencing beef demand in the area.

Method Of Collecting Data

The data collection methods used in this study were as follows:

1. Questionnaires: This data collection technique involved asking respondents about factors influencing beef demand.

2. Observations: This method involved directly observing the target population.

3. Interviews: This data collection technique involved verbal question-and-answer sessions with respondents.

Population and Sample

In this study, the researchers categorized the sample based on consumers who had two years of meat purchasing experience, were over 20 years old, or married, and had an income in the Karangtanjung District, Pandeglang Regency. Sugiyono (2013) suggests that a sample size of 30 to 500 is appropriate for sampling.

The basis for determining the sample size is based on the number of independent and dependent variables, calculated using the Roscoe formula as follows:

=10 x (Independent Variable + Dependent Variable)

= 10 x 7

= 70 Samples

Data Processing Techniques

The obtained data were tabulated and then analyzed. The analytical methods used in this study were descriptive analysis, multiple linear regression analysis, and demand elasticity analysis. The statistical data processing applications used were SPSS Version 28 and Microsoft Office Excel 2013. For the initial data input for the multiple linear regression test, the researchers used Microsoft Office Excel 2013, which was then processed using SPSS Version 28 to conduct the regression analysis.

Analysis Method

Multiple linear regression analysis was used to determine the relationship between variable factors and beef demand in Karangtanjung District, Pandeglang Regency. In this study, the variables considered to specify beef demand in Karangtanjung District were beef price, chicken price, chicken egg price, fish price, consumer income, and a dummy variable, namely consumer taste.

Therefore, the demand function formula is obtained as follows:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6D_1 + e$$

Description:

Y = Beef demand (kg/year)

b_0 = Constant

$b_1 - b_6$ = Regression coefficient of the independent variable

X_1 = Beef Price (Rp/kg)

X_2 = Chicken Price (Rp/kg)

X_3 = Chicken Egg Price (Rp/kg)

X_4 = Fish Price (Rp/kg)

X_5 = Consumer Income (Rp/month)

D_1 = Taste (0 = dislike, 1 = like)

e = Random Effect

3. RESULT

Regression Estimation Equation

Based on the results of the regression analysis using SPSS, the following demand equation model was obtained:

$$LnY = -1.200 - 0,850 LnX_1 + 0,760 LnX_2 + 0,030 LnX_3 + 0,042 LnX_4 + 0,800 LnX_5 + 0,200 LnD_1 + e$$

Statistical Tests

Coefficient of Determination (R^2) Test

It is known that the R value of 0.642 indicates a fairly strong positive correlation between the independent variables and the dependent variable in this study. The R Square value of 0.788 indicates that approximately 78% of the variation in beef demand can be explained by the factors included in the regression model. Meanwhile, the Adjusted R Square value of 0.750 indicates an adjustment of the R Square value by taking into account the number of independent variables and sample size, which provides a more realistic picture of the model's ability to explain data variability.

F Test (Simultaneous)

It can be seen that the F-count value is 7.361 and the F-table is 2.246. It can be concluded that the factors that influence the demand for beef consisting of the price of beef, the price of chicken meat, the price of chicken eggs, the price of fish, community income and the dummy variable of taste simultaneously have a significant effect on the demand for beef.

T-Test (Partial)

No.	Variabel *Independen*	t-hitung	t-tabel	P-*value*
1.	Harga Daging Sapi	2,752	1,669	0.008
2.	Harga Daging Ayam	6,204	1,669	0,000
3.	Harga Telur Ayam	0,993	1,669	0,324
4.	Harga Ikan	4,671	1,669	0,000
5.	Pendapatan Konsumen	3,752	1,669	0,000
6.	Dummy Selera	3,750	1,669	0,000

1). The independent variable is beef price (X1)

Beef price has a partial significant effect on beef demand (Y), as it has a calculated t-value of 2.752, which is greater than the t-table value of 1.669, or a P-value of 0.008, which is less than α = 0.05. This test result aligns with research by Siti Nurrohimin (2018), which states that online beef prices significantly influence beef demand.

2). The independent variable is chicken price (X2).

Beef price has a partial significant effect on beef demand (Y), as it has a calculated t-value of 6.204, which is greater than the t-table value of 1.669, or a P-value of 0.000, which is less than α = 0.05. This test result aligns with research by Hadiyanto (2015), which states that chicken prices have a positive and significant effect on beef prices.

3). Independent variable: chicken egg price (X3)

The price of chicken eggs partially has no significant effect on the demand for beef (Y) because it has a calculated t-value of 0.993, which is less than the t-table value of 1.669, or a P-value of 0.324, which is greater than α = 0.05. This test result aligns with Chalidin's (2020) research, which states that chicken eggs have no significant effect on the demand for beef.

4. Independent variable: fish price (X4)

The price of fish partially has a significant effect on the demand for beef (Y) because it has a calculated t-value of 4.671, which is greater than the t-table value of 1.669, or a P-value of 0.000, which is less than α = 0.05. This test result aligns with Wahyuni's (2016) research, which states that fish prices influence the demand for beef.

5. Independent variable: consumer income (X5)

Consumer income partially significantly influences beef demand (Y) with a calculated t-value of 3.752, which is greater than the t-table value of 1.669, or a P-value of 0.000, less than α = 0.05. This test result aligns with Saragih's (2023) research, which states that consumer income influences beef demand.

6). Independent variable: consumer taste (D1)

Consumer taste partially significantly influences beef demand (Y) with a calculated t-value of 3.750, which is greater than the t-table value of 1.669, or a P-value of 0.000, less than α = 0.05. This test result aligns with Maulidah's (2021) research, which states that consumer taste significantly influences beef demand.

Elasticity of Beef Demand

Jenis Elastisitas	Variabel	Nilai
Elastisitas Harga	Harga Daging Sapi (X_1)	-| 1,004 |
Elastisitas Silang	Harga Daging Ayam (X_2)	| 0,818 |
	Harga Telur Ayam (X_3)	| 0,032 |
	Harga Ikan (X_4)	| 0,045 |
Elastisitas Pendapatan	PendapatanKonsumen (X_5)	| 1,134 |

Beef Price Elasticity (Ep)

Beef price elasticity is the percentage change in beef demand caused by changes in beef prices. Table 4.8 shows that the beef price elasticity value in Karangtanjung District is -1.004, indicating that demand for beef in Karangtanjung District is elastic to price changes because Ep > 1. If the price of beef in Karangtanjung District increases by 1%, demand for beef will decrease by approximately 1.004%. This indicates that consumers in Karangtanjung District are sensitive to price changes and there is a

tendency for people to quickly replace beef consumption with other substitutes when price fluctuations occur. The results of this elasticity test are consistent with research by Nendissa et al. (2021), which states that beef prices are elastic to demand.

Income Elasticity (Ei)

Income elasticity is the percentage change in demand for beef resulting from a percentage change in consumers' real income. The consumer income elasticity value in Karangtanjung District is 1.134 (0 > Ei > 1). This means that every 1% increase in income increases the demand for beef by 1.134%. This indicates that beef is a normal good in Karangtanjung District. When household income increases, beef consumption also increases, as consumers feel more able to afford high-quality protein sources like beef. The results of this elasticity test are consistent with research by Saragih et al. (2023), which states that beef is a normal good.

Cross-price Elasticity of Beef (Ec)

Cross-price elasticity is the percentage change in the quantity demanded of beef caused by a percentage change in the price of a substitute good.

The cross-price elasticity of demand for chicken is 0.818, indicating that it is a strong substitute. A 1% increase in the price of chicken leads to a 0.818 increase in demand for beef. The price elasticity of demand for chicken eggs is 0.032, indicating that chicken eggs are a weak substitute. A 1% increase in the price of chicken eggs leads to a 0.032 increase in demand for beef. The price elasticity of demand for fish is 0.045, indicating that it is a weak substitute. A 1% increase in the price of fish leads to a 0.045 increase in demand for beef. A positive cross-price elasticity coefficient greater than zero (Ec > 0) indicates that chicken, eggs, and fish are substitutes for beef.

4. CONCLUTION

Based on the research results, the following conclusions can be drawn:

1. Simultaneously, the variables beef price, chicken price, egg price, fish price, consumer income, and a taste dummy significantly influence beef demand in Karangtanjung District.

2. Partially, the variables beef price, chicken price, fish price, consumer income, and a taste dummy significantly influence beef demand, while the price of chicken eggs has no significant effect on beef demand in Karangtanjung District.

3. Beef demand is price elastic. Chicken has a fairly strong substitution relationship with beef, and income elasticity indicates that beef is a normal good whose demand increases with income.

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