Factors Affecting the Amount of Demand for Cayenne Pepper by Consumers in the Pare Wholesale Market, Kediri District

Teguh Soedarto, Dona Wahyuning Laily(✉), and Ida Syamsu Roidah

Department of Agribusiness, Faculty of Agriculture, University of Pembangunan Nasional Veteran Jawa Timur, Jl Raya Rungkut Madya, Surabaya 60294, East Java, Indonesia
dona.wahyuning.agribisnis@upnjatim.ac.id

Abstract. The research conducted to identify the *Factors Affecting Consumer Demand for Cayenne Pepper at Pare Market, Kediri Regency*. This research is a type of descriptive research that analyzes the effect of one variable on another and conducts hypothesis testing. The type of data used in this study is quantitative data, the data sources used are primary data and secondary data, then multiple data. The regression method produces the results obtained showing that income has a significant effect on the demand for cayenne pepper, while the number of families and the price of cayenne pepper have a significant effect on the demand for cayenne pepper, although partially but together, indicating that it will not be given. Income and family size have a significant effect on the amount of demand for cayenne pepper by consumers in Kediri District, which is the main market for cayenne pepper.

Keywords: Demand · Cayenne Pepper · Pare Main Market · Kediri District

1 Introduction

The agricultural sector in general has made great strides. This is evidenced by the existence of agricultural development that shares responsibility between the govern ment, the community and the private sector. The government organizes the regulation, guidance, management and monitoring of the availability of agricultural products that are adequate, safe, nutritious, diverse and equitable, both in quantity and quality. The private sector and the community have the opportunity to play the largest role in achieving agricultural sufficiency, which can be done in the form of agricultural production, trade and distribution [1].

Horticulture is one of the branches of food crop agriculture related to yard crops, usually fruits, vegetables and ornamental plants, and is one of the food crops that is very important for the needs of the community and is expected to meet the needs of the community, and needs to increase its production to meet national food needs. Today, consumption of horticultural products continues to increase in line with population growth, increased income and public awareness of nutrition and health. Therefore, the

R. F. Setiawan et al. (Eds.): ICA 2022, ABSR 33, pp. 162–173, 2023.
https://doi.org/10.2991/978-94-6463-168-5_18

horticultural industry needs to receive serious attention, especially in the aspects of production and development of marketing systems [2].

Cayenne pepper (*Capsicum frutescens L.*) is a cultivated plant used as a vegetable crop, which is also classified as a seasonal or short-lived crop [3]. Cayenne pepper is also one of the horticultural crops that has a major impact on the dynamics of the national economy. This raw material has a high economic value, is needed as a seasoning additive, and is a source of Vitamin C. The demand for red chili continues to increase along with the increasing population and the development of the food industry that requires raw chili raw materials [4].

Pasar Induk Pare is one of the central business areas in Kediri Regency and has a very high level of commodity sales. One of the most needed and best-selling staples is the commodity cayenne pepper. The production of cayenne pepper in the Kediri area both city and district varies from year to year, both the harvest area and the production of chili itself.

The cayenne pepper consumption data for the last 5 years in Kediri District can be seen in Table 1.

Based on Table 1, it is obtained that cayenne pepper consumption based on 2017 to 2021 tends to fluctuate using consumption with the lowest level occurring in 2017, namely 3.70 kg/Capita/Year & the highest occurring in 2021, namely 6.62 kg/Capita/Year. This is synchronized with the demand for cayenne pepper that is needed so that it increases from year to year. Demand for a good is influenced by factors such as the price of the good itself, the population & income of the household [5].

Price is part of a unit of currency that is another indicator that can be exchanged to obtain property rights [6]. Price is one of the weaknesses of the demand for cayenne pepper itself and can affect the erratic demand for chili in the market [7]. The following is the average price of cayenne pepper/100 kg per year.

Table 2, it is explained that sales for the price of cayenne pepper itself have increased every year which is profitable for the farmers themselves, but when you consider the price of cayenne pepper, it is included in a product that has a high price for consumers who want to consume cayenne pepper at a relatively large cost [8].

The demand for cayenne pepper is influenced by the price of these goods [9]. It is known that the demand for raw materials is influenced by the price of the desired

Table 1. The cayenne pepper consumption in 2017–2021

Year	Consumption of Cayenne Pepper (Kg/Capita/Year)
2017	3,70
2018	5,54
2019	5,86
2020	5,4
2021	6,62

Source: Kediri District Agriculture Office, 2022

Table 2. Average of Cayenne Pepper (IDR/100 kg)

Year	Price (ICR/100 kg)
2017	2.698.505
2018	2.720.342
2019	2.872.304
2020	2.730.900
2021	4.250.340
Average	3.054.478

Source: Kediri District Agriculture Office, 2022

goods, income level, population, tastes, future profits and the price of substitute goods. According to the law of demand, when the price of a good is high, few people are willing and able to buy it, so the amount of goods purchased remains small.

Based on the background that has been described, the problem of cayenne pepper consumers does not escape the problem of prices that continue to fluctuate or do not tend to be stable, this is due to the activity side of cayenne pepper consumers where the volume of demand increases but the amount of cayenne pepper supply in the market remains. The purpose of this study is to determine the extent to which the factors of price, income, and number of family members have a real effect on the demand for cayenne pepper by consumers in the Pare Main Market, Kediri Regency. Based on this, the authors are interested in conducting a study entitled "Factors Affecting the Demand for Cayenne Pepper by Consumers at the Pare Wholesale Market, Kediri Distric".

2 Research Methods

This research was conducted at Pasar Induk Pare, Kediri Regency, which is located at Jalan Cokroaminoto no. 72 A, Mulyoasri Tulungrejo, Pare District, Kediri Regency. The research location was chosen *purposively*, with the consideration that the market is the largest and newly established modern market that provides cayenne pepper in Kediri Regency.

Identification of respondents in this study by random sampling. The number of samples used in this study was 50 respondents. This research is focused on one retailer in Pasar Induk Pare because the respondent can provide information about cayenne pepper in Pasar Induk Pare, so it is expected that the results are quite accurate in this study.

This type of research is an explanatory type of research, which is a type of research that analyzes the effect of a variable on other variables and conducts hypothesis testing. The variables used in this study consist of dependent variables, namely demand, and independent variables, namely the price of cayenne pepper, income and number of family members.

2.1 Data Analysis

The data analysis used in this study is an Induction statistical analysis, namely Multiple Linear Regression [10] by using the SPSS version 21.0 *for windows* program.

Multiple Linear Regression. Tests that measure the effect between variables involve more than one independent variable in influencing the dependent variable with multiple linear regression analysis [11]. The data needed is the price of cayenne pepper, consumer income, as well as the Cobb Douglass function, which is a function or equation involving two or more variables, one variable is called the dependent variable (Y) and the other is called the independent variable (X) [12]. Mathematically, the *Cobb douglas* function can be written as follows:

$$Y = bo + b_1X_1 + b_2X_2 + b_3X_3 + E$$

where:

Y = Total Demand for cayenne pepper (Kg/month)
b0 = Constant
X_1 = Cayenne pepper price (Rp/Kg)
X_2 = Income (Rp/month)
X_3 = Number of family members (Person)
b1, b2, b3 = Partial regression soefficient X, X, X_{123}
E = Standar errors

To determine the magnitude of the influence between price, income, and number of family members with the amount of demand, the correlation coefficient formula is used using the SPSS 21.0 *for windows* program. The equation is as follows**:**

$$R = \frac{b_1 \sum X_1 Y + b_2 \sum X_2 Y + b_3 \sum X_3 Y}{Y}$$

where:

R = Correlation coefficient
b1, b2, b3 = Partial regression coefficient X_1, X_2, X_3
X_1, X_2, X_3 = Price, income, and number of family members
Y = Demand for cayenne pepper

To determine the percentage contribution of the influence of price, income, and number of family members simultaneously on the variable demand using Determination Analysis (R_2) using the SPSS 21.0 *for windows* program. The equation is as follows**:**

$$R^2 = \left[\frac{b_1 \sum X_1 + b_2 \sum X_2 Y + b_3 \sum X_3 Y}{\sum Y^2} \right]$$

where:

R2 = Analysis of determination
b1, b2, b3 = Partial regression coefficient of X_1, X_2, X_3
X_1, X_2, X_3 = Price, Incone and number of family members

Y = Demand for cayenne pepper

To determine the effect of price, income, and the number of family members on the amount of demand partially, the partial coefficient significance test (t test) was conducted [13].

$$hitung = \frac{r\sqrt{n-3}}{\sqrt{1-r^2}}$$

Description:

r = Simple correlation coefficient
n = Number of data

Where:

- If t count is greater (>) than t table at a significant 5%, it means that the independent variable (Xi), namely price, income, and number of family members, has a real effect on the dependent variable, namely demand (Y).
- If t count is smaller (<) than t table at a significant 5%, it means that the independent variable (Xi), namely price, income, and number of family members, has no real effect on the dependent variable, namely demand (Y). Relationship with Hypothesis as follows:
- Ho is accepted if the calculated t value is smaller (≤) than the t table value.
- Ha is accepted if the calculated t value is greater (≥) than the t table value.

To find out whether the variables of price, income, and number of family members together have a significant effect on the variable amount of demand using the F Test (Regression Coefficient Test together).

$$F\ hitung = \frac{R^2/k}{(1-R^2)/(n-k-1)}$$

Description:

R_2 = Coefficient of determination
N = Number of data

Where:

- If F count is greater (>) than F table at a significant level of 5%, it means that the independent variable (Xi), namely price, income, and number of family members, has a real effect on the dependent variable, namely demand (Y).
- If the F count is smaller (<) than the F table at a significant level of 5%, it means that the independent variable (Xi), namely price, income, and number of family members, does not significantly affect the dependent variable, namely demand (Y). Relationship with Hypothesis as follows:
- Ho is accepted if the calculated F value is smaller (≤) than the F table value.
- Ha is accepted if the calculated F value is greater (≥) than the F table value.

Operational Concept

- Total Demand for cayenne pepper is the amount or amount of cayenne pepper purchased by consumers during the month (Kg / month).

– The price of cayenne pepper is the value of money paid by consumers/respondents at the time of the study (Rp/Kg).
– Household income is the income earned by the family (IDR/month).
– Number of family members is the number of family members owned by the respondent (Person)

3 Results and Discussion

3.1 Description of Research Variables

Demand for Cayenne Pepper. Demand shows the increasing amount of cayenne pepper that consumers have purchased at a certain time, such as buying cayenne pepper within a month. Cayenne pepper contains more calories than red chili, about 104 kcal, and contains about 4.7 g of protein and about 2.4 g of fat, so it can meet human nutritional needs. This is in line with the opinion that cayenne pepper has a fairly high nutritional content, including protein which is good for child growth and **body** health [14]. The total demand for cayenne pepper at the Pare Main Market, Kediri Regency can be seen in Table 3.

Based on Table 2, it can be seen that the maximum demand for cayenne pepper from 40 people is (43.95%) to 3.1–4.0 kg per month, and the minimum demand for cayenne pepper is 6.1–7.0 kg (2.19) per month for two people. Demand for cayenne pepper generally arises because people want to meet their nutritional needs. Therefore, cayenne pepper is one of the products that meet these needs. This is in line with the opinion that chili is a spicy, easily digestible and nutritious food source. In addition, cayenne pepper is easy for everyone to eat and can be used as an industrial ingredient in seasonings, sauces, sauces, vitamin sources and more.

Price. The price indicates the value of cayenne pepper purchased by respondents for each kilogram of cayenne pepper. Cayenne pepper is usually purchased in seeds, which the researcher converted to kilograms for consistent measurement. According to [3] which states that price is an estimate of the value that will correspond to the value of the goods accompanied by the buyer's ability to buy.

The price of cayenne pepper at the Pare Main Market, Kediri Regency. Can be seen in Table 4. Table 4 shows that the highest price of cayenne pepper was purchased by 37

Table 3. Average Demand for Cayenne Pepper in Pare Main Market, Kediri Regency

No.	Demand (Kg/Month)	Number (Person)	Percentage (%)
1.	2,1 – 3,0	5	5,49
2.	3,1‘ - 4,0	40	43,95
3.	4,1 – 5,0	20	21,97
4.	5,1 – 6,0	24	26,37
5.	6,1 – 7,0	2	2,19
Total		91	100,00

Source: Processed primary data, 2021

people (41.50%) and the lowest price was purchased by 20 people (22.80%). Prices are strongly influenced by the place of purchase and negotiations between consumers and cayenne pepper retailers. This is in line with the opinion that with rising prices, buyers will look for other products that can be used as substitutes for goods at higher prices [15]. Conversely, lower prices by reducing purchases of other products of the same type and increasing purchases of lower-priced products so that there will be a decrease in prices.

Revenue. Income shows the amount of income earned by households in a month, both from the head of the household and from other household members who work and earn income. The income of respondents in Pasar Induk Pare, Kediri Regency. Can be seen in Table 5.

In Table 5. It can be seen that the most income of respondents is the welfare I category with an income of Rp. 500,000 to Rp. 1,500,000 as many as 27 people (29.67%) and the least income is the welfare III plus category with an income of more than Rp. 4,000,000 as many as 19 people (20.87%). This is in accordance with information from (Central Bureau of Statistics of Kediri District, 2020) that families in Indonesia that are recorded every year are classified according to the Pre-prosperous group with a family income of less than Rp. 500,000, - per month, prosperous one with a family income of Rp. 500,000, - to Rp. 1,500,000, - per month. Prosperous two with family income between Rp. 1,500,001,- to Rp. 2,500,000,- per month. Welfare three with a family income of Rp. 2,500,001,- to Rp. 4,000,000,- per month and welfare three plus with a family income of more than Rp. 4,000,000,- per month.

Table 4. Price of cayenne pepper in Pare Main Market, Kediri Distric

No.	Price (Rp/Kg)	Number (Person)	Persentage (%)
1.	<16.000	34	36,26
2.	16.001 – 20.000	37	40,50
3.	>21.000	20	22,80
Total		91	100,00

Source: Processed primary data, 2022

Table 5. Income of Respondents in Induk Pare, Kediri District

No.	Category	Revenue	Number (Person)	Percentage (%)
1.	Prosperous I	500.000 – 1.500.000	27	29,67
2.	Prosperous II	1.500.001 – 2.500.000	22	24,17
3.	Prosperous III	2.500.001 – 4.000.000	23	25,27
4.	Prosperous III Plus	> 4.000.000	19	20,87
Total			91	100,00

Source: Processed primary data, 2021

Table 6. Number of respondent's Families in Pare Main Market, Kediri District

No.	Number of Families (People)	Number (Person)	Percentage (%)
1.	2	14	16,48
2.	3	30	34,06
3.	4	21	24,17
4.	5	20	20,87
5.	6	4	4,39
Total		91	100,00

Source: Processed primary data, 2022

Income is one of the resources that can be used to meet life needs, such as the need for cayenne pepper. This is in line with the view that most of the income is spent [16]. Used to buy food and clothing.

Number of Family Members. Family size is the number of family members. The family is the environment where most live and interact with other family members. The number of respondents' families in the Pare Main Market, Kediri Regency. Can be seen in Table 6.

In Table 6. It can be seen that the largest number of respondents' families is 3 family members as many as 31 people (34.06%) and the smallest number of respondents' families is 6 family members as many as 4 people (4.39%). The results of the analysis state that family members have a considerable influence on the consumption patterns of agricultural products, especially cayenne pepper, if the number of family members increases, the demand for cayenne pepper will also increase. This is in accordance with the opinion of [15] which states that many people who receive income will increase purchasing power in society. This increase in purchasing power will increase demand.

3.2 Analysis of Some Factors Affecting the Purchase of Cayenne Pepper

The results of the calculation of multiple linear regression analysis which states that several factors affect the demand for cayenne pepper by consumers in the Pare Main Market, Kediri Regency, can be seen in Table 7.

Based on the data in Table 7, the multiple linear regression equation can be seen as follows:

$$Y = 3,409 - 3,63x10^{-6}X1 + 1,892x10^{-7}X2 + 6,325x10^{-2}X3$$

The above equation explains that: the constant value of 3.409 shows that if the price of cayenne pepper, income, family size is constant, the amount of demand for cayenne pepper by consumers in the Pare Main Market, Kediri Regency, is 3.409 kg/month. The analysis shows that there are still several other factors that influence the amount

Table 7. Data Recapitulation of Multiple Linear Regression Results

Research Variables	Regression Coefficient	t count	R	R2
Price of Cayenne Pepper (X_1)	−3,74E-06	−0,060	0,185	0,034
Income (X_2)	1,892E-07	3,409	0,320	0,109
Family Size (X_3)	6,325E-02	0,744	0,153	0,024
F count = 4,518 Adjust R Square = 0,105 Multiple R = 0,817 Standar error = 1,011 R^2 Square = 0,668 Constanta = 3,564				

Source: Primary Data Processed, 2022

of demand for cayenne pepper apart from the factors used in the equation or model. Furthermore, to determine the effect of each variable partially is as follows:

Effect of Price (X1) on Total Demand for Cayenne Pepper (Y). The regression coefficient value of the price variable (X1) of -3.63×10^{-6} means that if the price of cayenne pepper increases by Rp. 1,000/Kg, it will cause a decrease in the amount of demand by 0.00363 kg/month.

The correlation coefficient value r is 0.185, this explains that there is a relationship between the price variable and the amount of demand for cayenne pepper is quite weak and positive and the coefficient of determination (R2) is 0.034 which means that the effect of the price variable (X1) on the variation in the ups and downs of the amount of demand for cayenne pepper (Y) is 3.4% and the remaining 96.6% is influenced by other variables.

Based on the results of the t test, the calculated t value (-0.059) is smaller than the t table (2.617), this indicates that the cayenne pepper price variable (X1) has no significant effect on the amount of demand for cayenne pepper (Y) in the Pare Main Market, Kediri Regency.

Effect of Income (X2) on Total Demand for Cayenne Pepper (Y). The regression coefficient value of the income variable (X_2) of 1.912 × 10–7 means that if income increases by Rp 100,000/month it will cause an increase in the amount of demand by 0.0192 kg/month.

The correlation coefficient value r is 0.360, this shows that the relationship between the income variable and the amount of demand for cayenne pepper is quite weak/low and positive and the coefficient of determination (r2) of 0.129 which means that the effect of the income variable (X_2) on the variation in the ups and downs of the amount of demand for cayenne pepper (Y) is 12.9% and the remaining 87.1% is influenced by other variables.

Based on the results of the t test, the t value (3.309) is greater than the t table (2.617), this shows that the income variable (X_2) has a significant effect on the amount of demand for cayenne pepper (Y) in the Pare Main market, Kediri Regency. This is in accordance

with the opinion of [17] which states that income has a real/significant effect on the demand for cayenne pepper.

Effect of Family Size (X3) on the Demand for Cayenne Pepper (Y). The regression coefficient value of the variable number of families (X_3) is 6.295×10^{-2} meaning that if the number of families increases by 1 person, it will cause an increase in the amount of demand by 0.06295 kg/month.

The correlation coefficient value r is 0.153, this shows that the relationship between the variable number of families and the amount of demand for cayenne pepper is quite weak and positive and the coefficient of determination (r2) is 0.024 which means that the influence of the variable number of families (X3) on the variation in the ups and downs of the amount of demand for cayenne pepper (Y) is 2.4% and the remaining 97.6% is influenced by other variables.

Based on the results of the t test, the t value (0.723) is smaller than the t table (2.617), this shows that the variable number of families (X3) has no significant effect on the amount of demand for cayenne pepper (Y) in the Pare Main Market, Kediri Regency.

After conducting various analyses of several factors that affect the amount of demand for cayenne pepper in Pasar Induk Pare, Kediri Regency partially, then further testing is carried out jointly. The results are as follows: Furthermore, to determine the strength of the relationship between the variable price (X_1), income (X_2) and family size (X3) together on the variable demand for cayenne pepper in Pasar Induk Pare, Kediri Regency, it can be seen from the value of the multiple correlation coefficient (R), where the multiple correlation coefficient value obtained from the calculation results is 0.817, which means that all these variables together have a strong and positive relationship to the amount of demand for cayenne pepper (Y). Meanwhile, when viewed from the value of the coefficient of determination (R_2), it is 0.668, which means that the magnitude of the effect of price, income and family size on the variation in the rise and fall of the demand for cayenne pepper is 66.8%, while the remaining 33.2% is influenced by other variables outside the model used. From the calculation results, the obtained value of F count = 4.518 is greater than the F table value = 2.74, thus the independent variables of price, income, and family size together have a significant effect on the amount of demand for cayenne pepper in Pasar Induk Pare, Kediri Regency.

4 Conclusions

The conclusions of this study are:

1. The level of demand for red chili in the Pare Main Market, Kediri Regency, is categorized as low, at 66%.
2. The factors that influence the demand for red chili peppers in Pasar Induk Pare Kediri Regency are jointly influenced by the price of these goods, income, number of family members and taste. While partially the factors that influence the level of demand for red chili in the Pare Main Market, Kediri Regency are the Price Itself, income and Number of Family Members. The results of the Double Determination Coefficient test (R2) show the proportion of influence that can be explained by the variable price of other goods, the price itself, income, number of family members, tastes together

on the magnitude of the variation (up and down) of the dependent variable of 66.8%, while the remaining 33.2% is influenced by other dimensions outside of research.

References

1. Badan Pusat Statistika Kabupaten Kediri: Kabupaten Kediri dalam Angka. Kabupaten Kediri: Badan Pusat Statistik, (2020)
2. Saragih, B.: Paradigma Baru Pembangunan Ekonomi Berbasis Pertanian. Bogor: IPB Press, (2010).
3. Ratag, Y., Paulus, A. P. and Sofia, N. A.: Faktor-faktor yang Mempengaruhi Konsumen Terhadap Konsumsi Cabai Rawit di Kota Tomohon. Manado: Jurnal Agri-Sosio Ekonomi Unsrat. Vol. 14, pp. 309–318. (2018)
4. Sanjaya, A., Dewi, H. and Sofia, N. A.: Faktor-faktor yang Mempengaruhi Konsumen Terhadap Konsumsi Cabai Rawit di Kabupaten Semarang. Jurnal Mediago. Vol. 13, pp. 11-12. (2016).
5. Yanti, Ni. M.S., Ketut, B. and Ida, A. L.: Faktor-faktor yang Mempengaruhi Permintaan Konsumen terhadap Cabai Rawit di Kota Denpasar Provinsi Bali. E-Jurnal Agribisnis dan Agrowisata. Vol. 8, pp. 165–174. (2019)
6. Sudarman , A. Teori Ekonomi Mikro: Buku 1. Yogyakarta . BPFE, (2000)
7. Naura, A. and Fitri, D..: Dampak Perubahan Iklim Produksi dan Pendapatan Usahatani Cabai Merah (Kasus di Dusun Sumberbendo, Desa Kucur, Kabupaten Malang). Jurnal Ekonomi Pertanian dan Agribisnis. Vol. 2, pp. 147-158. (2018).
8. Karim , I and Handayani, H. S. : Empowerment of Farmer Group In Improving Chili Farming Income in Kerinci District, Indonesia. Journal Wacana. Vol. 15. (2015)
9. Sudiardhita, I. K.: Sumber Daya Manusia Pertanian dalam Membangun Sektor Pertanian Mandiri. Jurnal Ecosains. Vol. 7. (2009)
10. Arikunto.: Prosedur Penelitian Suatu Pendekatan Praktek. Jakarta: Rineka Cipta. (2008).
11. Gujarati, D.: Ekonometrika Dasar. Terjemahan: Sumarno Zain. jakarta: Erlangga. (2003)
12. Hadari, N.: Metode Penelitian Bidang Sosial . Yogyakarta : Gadjah Mada University Press, (2005).
13. Cahmayati, D.: Efektifitas Metode Regresi Robust Penduga Welsch dalam Mengatasi Pencilan pada Permodelan Regresi Linier Berganda. Palembang: Universitas Sriwijaya Press. (2009).
14. Kementerian Pertanian.: Rencana Strategis Kementerian Pertanian Tahun 2015–2019. Jakarta : Kementerian Pertanian, Biro Perencanaan, Sekretariat Jenderal. (2015)
15. Sukirno, S. Makro Ekonomi.: Teori Pengantar. Jakarta : PT. Raja Grafindo Perkasa. (2008).
16. Sudiardhita, I. K.: Sumber Daya Manusia Pertanian dalam Membangun sektor Pertanian Mandiri. Jurnal Acosains. Vol. 7. (2009)
17. Astami, M. T.: Analisis Faktor-faktor yang Mempengaruhi Permintaan Cabai Rawit Merah oleh Konsumen Rumah Tangga di Kota Surabaya. Jurnal Agrista. Vol. 6, pp. 51-61. (2018).