Analysis Of Factors Affecting Demand Red Chili Pepper (Capsicum Annum L) In Solok And Effort Fulfillment

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Abstract: Research on the analysis of the factors that influence the demand for red chilli (*Capsicum annuum* L) in Solok and compliance efforts implemented in March s.d April 2016. The purpose of this study consisted of; 1) analyze the factors affecting the demand for red chili in Solok 2) analyze the elasticity of demand for red chili in Solok 3) know the effort that can be done to meet the demand of red chilli in Solok. To achieve the objectives of the first and second use secondary data for 15 (fifteen) years and to achieve the objectives, the third used primary data. The method used is descriptive analytical method, a method that is used to describe phenomena that exist, which takes place in the present or past. The variables were observed in this study is the X1 (price of red chilli), X2 (the price of green chili), X3 (onion prices), X4 (population), X5 (income) and Y (the number of requests red chili) which is then analyzed by multiple linear regression, elasticity of demand and SWOT. The results of that research addressing the factors that influence the demand for red chili in Solok is the price of red chilli itself, the price of green chili as a substitute goods, the number of population and income, while onion prices affect the amount of red chili demand in Solok. But simultaneously variable X1 (red chili prices), X2 (the price of green chili), X3 (onion prices), X4 (population) and X5 (income) strongly influence demand red chili in Solok, where the F test results show that F count> F table (212.262> 3,600) with a significance level (0.000 <0.010) and the most influential variable is the variable X4 (population) with the greatest value of beta Coefficients is 1,100. Based on analysis of the elasticity of demand is known that red chili pepper is a normal good is inelastic to price elasticity coefficient value (εp) of -0.120. Green chili is substituting goods and shallots are complements of red chili with cross elasticity coefficient εpx1 and εpx2 respectively by 0,293 and -0.635. While the income elasticity coefficient (εI) produced 0,001 shows that red chili are normal goods are inelastic. In the SWOT analysis performed strategic analysis of the factors that affect the internal and external demand amount of red pepper in Solok. SWOT analysis shows that the most strategic efforts that can be done to meet the demand of red pepper in Solok can be seen from SO strategy (Strengths and opportunies) created. Moving on from the factors that most influence the demand for red chili in Solok is a number of people, the suggestions can be submitted by the authors is to improve program implementation berencana.Penelitian family on analysis of the factors that influence the demand for red chilli (Capsicum annuum L) in Solok and compliance efforts implemented in March to April 2016. the purpose of this study consisted of; 1) analyze the factors affecting the demand for red chili in Solok 2) analyze the elasticity of demand for red chili in Solok 3) know the effort that can be done to meet the demand of red chilli in Solok. To achieve the objectives of the first and second use secondary data for 15 (fifteen) years and to achieve the objectives, the third used primary data. The method used is descriptive analytical method, a method that is used to describe phenomena that exist, which takes place in the present or past. 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Keywords: Demand, Demand Elasticity, SWOT Analysis, Multiple Regression

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I.   Introduction

Indonesia is an archipelago stretching from Sabang to Merauke. This condition causes the topography and climate are different on each island. Topographical and natural conditions is potentially fertile for the cultivation of a wide range of agricultural commodities, therefore Indonesia is known as an agricultural country.

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The condition is not wasted by population, it is reflected from the Indonesian population largely rely on agriculture as a livelihood, either in the sub sectors of food crops, horticulture, fisheries, livestock and forestry sub-sector (1). One of horticultural crops is a red chili. Red chili peppers (*Capsicum annum* L) is one type of fruit vegetables which had long cultivated, because this commodity has a high economic value. In addition to meeting the needs of everyday household, peppers are also used as raw material for the food and pharmaceutical industries (2). Although the red chili is not a food for the people of Indonesia, but this commodity can not be abandoned. This is because the tongue of Indonesian people who are familiar with the distinctive spicy flavor caused by the pepper, especially people of West Sumatra that has long been famous for spicy food habits. Solok is a small town located in the province of West Sumatra, with an area of 0.14% of the area of West Sumatra Province. Based on BPS data Solok In 2015, the population of Solok in 2014 as many as 64.819 inhabitants and an area of 5,764 Ha.

Since 2005, the Regional Government of Solok recommends the development direction of development addressed to the trade and services sector, given the small area and estimates the conversion of agricultural land each year that can not be detained. The agricultural sector aimed at intensification while extending no longer recommended for the purpose of maintaining natural ecosystems. This can be seen from the area of agricultural land for their plantations are relatively few people, respectively amounting to 1229.13 Ha and 140.44 Ha (3). Location of Solok is located at the crossroads between cities across Sumatra, the strategic location makes this small town evolved as a trade center, not least agricultural products. Economic centers are in the Pasar Raya Solok which is the only market in the city of Solok. Based on BPS data Solok In 2014, the GDP of Solok in 2009 to 2013 resulting from the business field of trade, hotels and restaurants annually contributed most to the GDP of City of Solok, amounting Rp 103.006.230.000,00 Rp 117.971.260.000,00 Rp 130.152.180.000,00 Rp 146.201.340.000,00 and Rp171.533.280.000,00 (GDP Solok based on current prices by activities). Solok is not a center of commodity production of horticulture especially for commodity red chili, based on BPS data of West Sumatra Province By 2014 it is known that the production of red chilli from 2009 to 2012 has decreased with the data of each 256 tons, 212 tons, 144 tons, 130 ton, even in 2013 did not produce a commodity Solok red chili. This is due to the commodity-producing areas of horticulture, especially red chili in Solok precisely in the hills "Payo" Salt Land Village serve as centers of Sweet Corn plants financed by the Bank Nasional Indonesia (BNI) is a program called "Kampoeng BNI". Supply of red chilli to meet community needs Solok imported from various neighboring regions including Solok district, Kab. Tanah Datar, Padang Panjang and Agam. Additionally, the increased number of red chilli's commodity demand due to increased number of people each year. Based on BPS data of West Sumatra province Year 2014, found that the average consumption per capita week for commodity red chilli West Sumatra population amounted to 1,262 ounces. From these data it can be seen that the amount of consumption of red chilli in Solok in 2010 to 2014 respectively was 391.32 tons, 399.68 tons, 408.17 tons, 416.98 tons and 425.37 tonnes by the number population each year is 59.631 inhabitants, 60.904 inhabitants, 62.198 people, 63.541 inhabitants and 64.819 inhabitants. Red chili is horticulture very populist, not surprising that the volume of the circulation of red chilli in the market higher the amount, ranging from traditional markets, supermarkets, roadside stalls, small restaurants, the catering business, restaurant and hotel day-to-day needs of chili in number not less. Request an agricultural commodity is the number of agricultural commodities needed and purchased by consumers. The size of agricultural commodities are generally influenced by the price of the goods themselves, prices of substitute or complementary goods, tastes and desires, the number of consumers concerned. Because of the population and the distribution of income affect the demand for goods in the market, then the function of the demand for goods is also affected by this variable (Soekartawi, 1993 in Rosana Dewi, 2009). Consumer demand for red chili influenced by

many things, including the price of red chili itself, the price of other goods that can be used as a substitute or complementary goods, population and consumer income. If these things can be known, it can be measures in an effort to better meet the needs and demands of society against red chili (1). Based on the above, it is necessary to do research on "Analysis of Factors Affecting Demand Hot Pepper (*Capsicum annuum* L) in Solok and effort Fulfillment".

II. RESEARCH METHODOLOGY

The research location is taken purposively sampling technique with a certain considerations. (4). The research location chosen is Solok, this was due to public demand will Solok red chili commodities tend to rise each year, while the production of red chilli diminishing. This research was conducted in March s.d April 2016. The method used in this research is descriptive analytical method. Descriptive method is a method of research that is intended to describe the phenomena that exist, which takes place in the present or the past. This research does not hold the manipulation or alteration of independent variables, but describes a condition is. The depiction of the condition can be individual or group by using numbers to describe a situation or stage of development of a state (4). The purpose of this study is desktriptif create a description, picture or painting in a systematic, factual and accurate information on the facts, nature and the relationship between the phenomenon investigated. Analytical data collected means initially prepared, described and then analyzed (1) In addition, this study also uses SWOT analysis method. This analysis method aims to determine strategic efforts that can be done to meet the demand for the commodity red chili in Solok. SWOT stands for Strengths (Strengths) and weakness (Weakness) as well as the company's internal Chance (oppotunities) and Threats (Treats) in the environment facing the company. SWOT analysis is a systematic way to identify these factors and strategies that best illustrates the compatibility between them. This analysis is based on the assumption that an effective strategy that will maximize strengths and opportunities, and minimize the weaknesses and threats. When applied accurately, this simple assumption has an enormous impact on the design of a successful strategy (5). The data used in this research is secondary data and primary data. Secondary data is data that has been processed in advance by the authorities. This data was obtained from the publications related institutions or agencies associated with the research. The secondary data used is the annual time series includes data query red chili, development data red chili prices, the data price development of green chili, the development of onion prices, the data population, the data per capita income of the population as well as supporting data more starting in 2000 - 2015. Primary data is data obtained directly from respondents. This data can be obtained by direct interviews, questionnaires and questionnaires to the respondents which contains several questions in relation to the efforts of what can be done in order to meet the demand of red pepper in Solok, both from the producers (farmers), traders and from the consumer side which was then analyzed using SWOT analysis method, in order to obtain a strategic plan to meet the demand of red chilli in

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Solok. The population used in this study were farmers chili, chili retail traders in the markets and in shops, consumers chili consisted of housewives, hotels and restaurants and the Local Government of Solok in charge of Agriculture. Samples taken from the population of farmers, traders and consumers respectively are as many as 39 people from three people per village of 13 villages in Kota Solok, whereas samples taken from a population of local government of Solok is the agency in charge of agriculture, namely the Department Agriculture Solok, Solok City for Agriculture and Food Security Office of Solok with a total sample of 39 people. Secondary data sources in this study was obtained from the Central Statistics Agency Solok, Department of Agriculture, Fisheries and Forestry Solok, Food Security Office of Solok, Department of Industry and Trade of Solok, Food Security Agency of West Sumatra province, the Department of Agriculture and Foodstuffs Sumatra west and other related institutions are required. The data required to study about what factors are affecting demand for red chili in Solok and determine the level of demand elasticity of red chilli in Solok required secondary data, in which the observed variables are:

1. Red chili in question is the kind of curly red chili fresh and consumed by local people.
2. The green chili in question is a type of chili is still young (immature) and green with conditions that are still fresh and consumed by local people.
3. Demand is the amount of red chili red chili consumed by consumers (households and indsutri) in Solok expressed in kg / year.
4. The price is the real price of red chilli red chili on annually in force in Solok, expressed in units of rupiah / kg.
5. The price of green chili is the real price of green chili on annually in force in Solok, expressed in units of rupiah / kg.
6. The price of onion is the real price of onion annually prevailing in Solok, expressed in units of rupiah / kg.
7. The population is all the people living in the city solok for one year at a certain period and is expressed in units of the soul.
8. The per capita income in question is real income per capita expressed in rupiah. Per capita real income obtained from secondary data obtained through the Central Bureau Statitik Solok.

III. Data analysis

1. Factors Affecting Demand Hot Pepper in Solok
The concept of demand is used to measure the buyer in a market. Demand is the quantity demanded at various price levels, periods and specific market. The size of the demand for goods is generally influenced by the price of the goods themselves, prices of substitute or complementary goods prices, income and the number of population (6).

a. Red chili price itself
The price of goods is itself a major factor affecting a request. So the price of red chili included as a factor affecting demand for red chili. In accordance with the law of demand is the quantity demanded will change as opposed to price changes (6).

b. Green pepper prices as substitute goods
Substituting goods are goods that have benefits and uses almost the same as the main items. The more substitute an item, the more likely a buyer to move from primary goods if there is an increase or lowering prices (6). Green chili is considered as substitutes / substitution of commodity red chili, because basically this commodity has its benefits and uses almost the same with the red chili is as herbs. The second kind of chili is a commodity which can equally give a spicy flavor, because both contain capsaicin, but what distinguishes the two is the color of chili, green chili chili experienced harvested before ripening process. This is done by the farmers, because in addition to the market demand as well because most farmers chili urged by economic necessity that forces farmers have to harvest ripe cabainya before. Green chili also provides its own taste in cooking, if the red chili price increase then most mothers of households switch to green chili as substitutes with a more affordable price.

c. Onion prices as complementary goods
Relations between goods that are complementary to occur between the two types of goods that serve complementary. For complementary goods applies that if the price of a good rises, the demand for these goods will go down. This will affect the amount of demand for complementary goods will also be reduced (6). Shallots are regarded as complementary goods / complementary of red chili peppers, because these commodities are often used simultaneously as a cooking spice and has the function of complement each other.

d. Total population
The population will always grow with the increasing number of means of satisfying needs. This illustrates that with the increase of population, the number of items needed as a means of satisfying these needs will also increase (7). The population is also one of the factors that generally affect demand. The population illustrates the potential number of consumers who will buy an item. So there is a tendency of the greater number of residents in an area, the greater the consumption of red chilli in the area.

e. Income
Income is one of the economic factors that influence the demand for an item. The size of the revenue can describe consumers' purchasing power. So the greater the income, the purchasing power of goods will also increase. The relationship between the demand for red chili with factors thought to influence it (red chili prices, the price of green peppers, onion prices, population and per capita income) can be analyzed using the demand model statistics in the form of multiple linear regression one of which is by using SPSS version 23. A linear regression model has major assumptions regarding the linear relationship between a dependent variable with at least one independent variable. If only one independent variable is called linear regression (simple linear regression), whereas if there is a minimum of two independent variables is called multiple linear regression (multiple linear regression) (8). There are several steps that must be taken in multiple linear regression analysis, namely; (4)

1. Test assumptions multicolinearity

Multicolinearity test aims to test whether the regression model found a correlation between the independent variable, if there is a high correlation between the independent variables, the relationship between the independent variables and the dependent variable to be disrupted. A good regression model should not happen multicolinearity. Multicolinearity can be seen from the value of tolerance and VIF (Variance Inflation Factor). To be free from trouble multicolinearity, the value of tolerance must be <0.1 and VIF> 10.

2. Test the assumption of autocorrelation

Autocorrelation test is intended to determine whether there is a correlation between residual (members) on a series of specific observations within a specified period. In the multiple linear regression model should also be free of autocorrelation. There are various methods used to test whether there is autocorrelation, one using Durbin Watson test method. According to Durbin Watson, Durbin Watson coefficient is 0 - 4. If the Durbin Watson coefficient of around 2, it can be said there is no correlation, if close to 0, then there is a positive autocorrelation and if the amount was closer to 4, then there is negative autocorrelation.

3. Test assumptions heterokedastisitas

Heterokedastisitas is inequality variable variation on all the observations and errors that occur in demonstrating the systematic relationship in accordance with the magnitude of one / more independent variables so that these errors are not random. The criteria used to declare whether there heterokedastisitas or can not be explained by using the coefficient significance. The coefficient of significance should be compared with the level of significance was set previously (α = 1%). If the coefficient of significance (probability value) is greater than the level siginifikansi defined, it can be concluded not happen heterokedastisitas.

4. Test the normality assumption.

Normality test aims to demonstrate that the data used in normal distribution. The results of the analysis are then compared to the critical value. Decision-making is based on the probability value, namely:
a. If Probabilitasi> 0.01, the population distribution is normal
b. If Probabilitasi <0.01, the population distribution is not normal

Equation: Y = βo + $\beta 1X1$ + $\beta 2X2$ +$\beta 3X3$ + $\beta 4X4$ + $\beta 5X5$+ e

Information :
Y   = Demand red chili (Kg / Year)
βo = Constant
$\beta 1, \beta 2, ... \beta 5$ = regression coefficient
X1   = red chili price (Rp/ kg)
X2   = green chili price (Rp / kg)
X3   = red onion price (Rp / kg)
X4   = Number of population (inhabitants)
X5   = Per capita income (Rp / year)
e   = error

A good regression results will be obtained if it meets the statistical criteria as follows: (1)

a.   Test the adjusted$\overline{R}^2$ (R²)
This test was conducted to determine the effect of variable-variable proportion free to request red chili in Solok.

$\overline{R}^2$ can be searched by the following formula:

$$\overline{R}^2 = 1 - (1 - R^2) \frac{N - 1}{N - k}$$

Where :
$\overline{R}^2$: coefficient of determination that has been adjusted
R²: oefficient of determination
N: Number of data
K: The number of independent variables
Rated $\overline{R}^2$ has a range between 0 and 1 ($0 < R^2 \leq 1$), the greater the R² (approaching 1), the better the results of the regression (the greater the influence of independent variables on the dependent variable) and is getting close to 0, then the independent variable overall increasingly less able to explain the dependent variable.

b. test F
F test conducted to examine all independent variables studied jointly affect the dependent variable.
The formula can be used are:

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

Where :
R²: coefficient of determination
N: Number of samples
K: The number of estimated coefficients
Hypothesis is:
Ho : b1 = b2 = b3 = b4 = b5 = 0
H1 : b1 ≠ b2 ≠ b3 ≠ b4 ≠ b5 ≠ 0 (at least one that ≠ 0)
Decision-making criteria:
1. If the probability is> α, then Ho is rejected and H1 accepted. This means that all the factors or independent variables were allegedly together did not significantly affect the dependent variable.
2. If probability ≤ α, then Ho is rejected and H1 accepted. This means that all the factors or variables that allegedly jointly significant effect on the dependent variable.

c. Test – t
he t-test was conducted to test whether the independent variables were used partially significant effect on the dependent variable.

$$t = \frac{bi}{Se (bi)}$$

Where :
bi   : The regression coefficient to i
Se (bi): Standard error of regression coefficient to i

With the testing criteria as follows:
Ho   : bi = 0

H1   : bi ≠ 0
K   : The number of estimated coefficients

Decision-making criteria:
1. If the probability is> α, then Ho is rejected and H1 accepted. This means that each -masing factors or variables that allegedly did not significantly affect the dependent variable.
2. If probability ≤ α, then Ho is rejected and H1 accepted. This means that each factors or independent variables suspected significant effect on the dependent variable.

d. The most influential variable
In determining the variables that most affect the demand for red chili, can be used standard partial regression coefficient, which can be obtained by the formula:

$$\beta i = \quad \beta \times \quad \frac{\delta y}{\delta i}$$

Values of the largest partial regression coefficient is the most influential variable on demand.
Where :
βi : regression coefficient standard independent variables to i
β : regression coefficient independent variable to i
δy : The standard deviation of the dependent variable (Y)
δi : Standard deviation variables to i
Values of the largest partial regression coefficient is the most influential variable on demand.

2. Elasticity of Demand
Elasticity of demand is used to determine the size of demand response as a result of changes in the factors that influence it. the concept of elasticity used include price elasticity, income elasticity and cross elasticity.

a.   The price elasticity

Price Elasticity formula:

$$\varepsilon p \quad = \quad \beta i \quad \frac{\% \text{ Change Total Request Chilli Red}}{\% \text{ Change Price Hot Pepper}}$$

Information:
εp = elasticity Price
βi = Standard regression coefficient independent variable to i

On the elasticity of demand to price, the variables that cause changes in the amount of goods (red chili) requested is the price of red chilli itself.

b.   The income elasticity
Income Elasticity formula:

$$\varepsilon l \quad = \quad \beta i \quad \frac{\% \text{ Change Total Request Chilli Red}}{\% \text{ Change in Revenue}}$$

Information :
εl = elasticity Revenue
βi = Standard regression coefficient independent variable to i

On demand elasticities to income, the variables that cause changes in the amount of goods (red chili) requested is income.

c.   cross elasticities

Cross Elasticity formula

$$\varepsilon p x 1 \quad = \quad \beta i \quad \frac{\% \text{ Change Total Request Chilli Red}}{\% \text{ Change Price Chili Greens}}$$

$$\varepsilon p x 2 \quad = \quad \beta i \quad \frac{\% \text{ Change Total Request Chilli Red}}{\% \text{ Change Price Shallots}}$$

Information :
$\varepsilon p x 1$ = cross elasticity to price green chili
$\varepsilon p x 2$ = elasticity Silang against onion prices
βi = Standard regression coefficient independent variable to i

In the cross-price elasticity of demand, the variables that cause changes in the amount of goods (red chili) requested is the price of green chilli and onion prices.

3. Efforts to do to meet the demand of red chilli in Solok.
Efforts to do in order to meet the demand of red pepper in Solok analyzed using SWOT matrix. In the SWOT matrix analysis will be done internal factors such as the strengths and weaknesses in order to face the external factors are the threats and opportunities in the future. Internal factors and external factors then analyzed using Matrix Strategy Internal Factor (IFAS) and Matrix Strategy External factors (EFAS) (9).

IFAS and EFAS analysis can be done in the following way:
1. Determine the factors into strengths and weaknesses of the company's analysis of IFAs and factors into the opportunities and threats for analysis EFAS.
2. Give the weight of each factor ranging from the scale of the most important up to insignificant (worth 0,0). Giving weight is based on the company's strategic conditions, the amount of the total weight given may not exceed a total score of 100.00.
3. Calculate the twigs to each factor to give a scale of 4 to 1, giving twigs to the indicator values of strength and opportunities are positive (strength and greater opportunities will be given twigs +4 while the strengths and opportunities that will be small twigs +1). While the value of twigs for indicators of weakness and the threat of negative (weaknesses and threats that the greater will be the twig +1 while weaknesses and threats that small twigs will be +4).
4. Multiply the weight value with the value of twigs, the result will be a score weighting to determine the strategy to be taken in the SWOT matrix. In the variable strength and opportunities are positive, meaning that the highest score is the priority scale. While in the variable variable weakness weaknesses and threats are negative, meaning the lowest score is the priority scale.

Tools used to construct factors are the company's strategic SWOT matrix. The matrices can clearly describe how external opportunities and threats facing the company can be customized with strengths and weaknesses. The matrices can produce four sets of the possibility of strategic alternatives (9).

IFAS EFAS	STRENGTHS (S) Specify 5-10 factors internal weaknesses	WEAKNESSES (W) Specify 5-10 factors internal strength
OPPORTUNIES (O) Specify 5-10 factors external opportunities	STRATEGI SO Create a strategy that uses the power to take advantage of opportunities	STRATEGI WO Create strategies that minimize your weaknesses to take advantage of opportunities
TREATHS (T) Specify 5-10 factors external threats	STRATEGI ST Create a strategy that uses the power to address the threat	STARTEGI WT Create strategies that minimize weaknesses and avoid threat

Figure 1. SWOT Matrix

a. SO strategy
This strategy is based on the company's way of thinking, is to utilize all the power to seize and exploit opportunities as much as possible.

b.ST strategy
It is a strategy in using the power of the company to overcome the threat.

c. WO strategy
This strategy is based on the utilization of existing opportunities in ways that minimize weaknesses.

d. WT strategy
This strategy is based on activities that are defensive and seeks to minimize weaknesses and avoid threats

IV. RESULTS AND DISCUSSION

1. Factors Affecting Demand Hot Pepper in Solok
There are 5 variables used in this study, namely red chili prices, the price of green peppers, onion prices, population and income per capita. These variables suspected as a factor affecting demand for red chili in Solok.

a. Demand Hot Pepper in Solok
Demand red chili red chili is a popular demand in Solok aggregate. In this study red chili demand data was calculated by summing the entire demand of red chili consumed by consumers in Solok City for one year. Consumers are drawn consisting of household, dining / restaurant and hotel. The following data on the development of demand for red chili in Solok during the years 2000-2014.

Table 1. Development of Red Chili Demand in Solok, 2000-2014

No	Years	Demand Hot Pepper (Kg)	Developments (%)
1	2000	315.783	-
2	2001	326.814	3,49
3	2002	328.146	0,41
4	2003	353.464	7,72
5	2004	356.850	0,96
6	2005	357.828	0,27
7	2006	358.727	0,25
8	2007	374.844	4,49
9	2008	388.245	3,58
10	2009	397.222	2,31
11	2010	399.847	0,66
12	2011	408.398	2,14
13	2012	416.981	2,10
14	2013	391.270	-6,17
15	2014	425.860	8,84
Average		373.351,93	2,22

Source: *Food Security Office of Solok, from Various Years*

Graph of the development of demand for red chili in Solok can be seen in Figure 2.
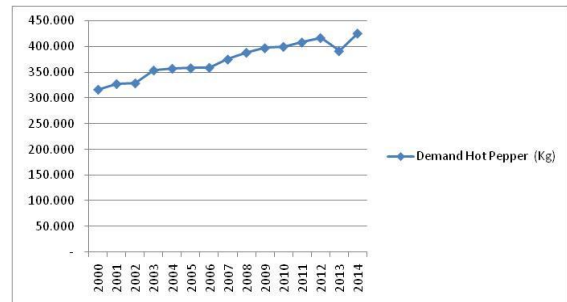
Figure 2. *Graph Query Red Chili in Solok, 2000-2014.*

Figure 2 above shows that the average number of requests in Solok red chili for 15 years (2000-2014) amounted to 373,351.93 kg / year with an average growth of 2.22%. Demand red chili in Solok from year to year tend to increase except in 2013 has decreased, it is because in 2013 there was no production of red chilli in Solok, causing the prices keep going up. With the high price of red chilli red chili peppers cause the number of requests in Solok reduced, and this is because consumers reduce the consumption of red peppers and other commodities tend to choose as a replacement for red chili with a cheaper price. Analysis of demand theory focuses the relationship between demand and price changes, while other factors held constant (ceteris paribus). Based on this theory set a rule that applies theoretically the law of demand. In essence, the law of demand states that when the price of a product increases, will cause the number of products demanded decreased and vice versa, if the price of the product has decreased from the original price of the quantity of products requested increase. In other words, demand is inversely related to the price, this is true in a state of ceteris paribus (6).

b. Price Hot Pepper
Red chili prices in this research is the amount of money paid by the consumer to obtain one kilogram of red pepper.

Data developments red chili prices in Solok of the years 2000 - 2014 can be seen in Table 2.

Table 2. Hot Pepper Price Development in Solok Year 2000-2014

No	Years	Average price Red chili pepper (Rp/Kg)	Developments (%)
1	2000	11.755	-
2	2001	11.977	1,89
3	2002	9.236	- 22,88
4	2003	10.565	14,38
5	2004	14.208	34,48
6	2005	18.208	28,15
7	2006	16.918	- 7,09
8	2007	19.772	16,87
9	2008	22.697	14,79
10	2009	24.133	6,33
11	2010	41.792	73,17
12	2011	87.395	109,12
13	2012	89.826	2,78
14	2013	97.750	8,82
15	2014	36.813	- 62,34
Average		34.203	15,61

Source : Department of Agriculture of West Sumatra Province , Food Security Agency of West Sumatra Province and The Central Bureau of Statistics Solok, from Various Years.

Table 2 above shows that the development of the average price of red pepper in Solok annually fluctuates widely. Red chili prices average at Solok for 15 years (2000-2014) amounted Rp.34.203 / kg with the development of an average of 15.61% per year, meaning that the average increase in the price of red pepper in Solok annually amounting to 15.61%. Graph of the development of the price of red pepper in Solok years 2000 - 2014 can be seen in Figure 3.
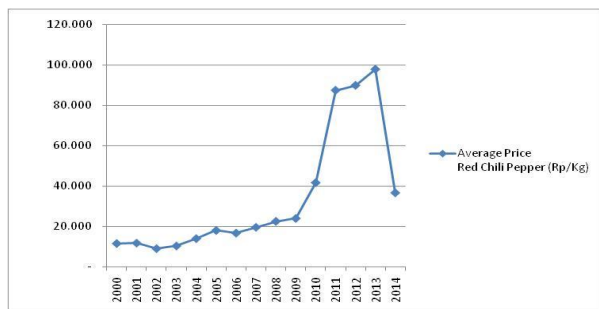
Figure 3. Graph Hot Pepper prices in Solok Year 2000-2014

These price fluctuations can be caused by many things, one of which is the reduction in the production of red chilli in Solok and should be imported from other regions. This causes red chili prices can soar. When prices soared red chili, red chili supply will come from outside the province of West Sumatra, such as; Medan, Java and Bengkulu, known as "Lado Kotak" at a cheaper price. With the commodity competitors, the price of red chilli in Solok will decline. Price is one major factor that is considered by consumers in making purchasing decisions of an item. Therefore, if within a market are the same type of goods with a slightly different quality / almost the same and are

sold at a cheaper price, then consumers will tend to buy cheaper goods such (6). Agricultural commodity prices tend to fluctuate mainly red chilli. At the current high price of red chilli, then the quantity demanded will fall. This is in accordance with the law of demand. At the current high price of red chilli consumers will reduce consumption of red chilli and choose a less expensive substitute goods to the functions and mamfaat almost the same.

c. Green chili prices
Green pepper prices in this research is the amount of money paid by the consumer to obtain one kilogram of green chili. Green chili price development data in Solok of the year 2000-2014 is shown in Table 3.

Table 3. Green chili price in Solok Year 2000-2014

No	Years	Average price Green chilli(Rp/Kg)	Developments (%)
1	2000	6.178	-
2	2001	6.220	0,68
3	2002	5.745	- 7,64
4	2003	6.055	5,40
5	2004	6.732	11,18
6	2005	7.965	18,32
7	2006	7.432	- 6,69
8	2007	8.755	17,80
9	2008	15.619	78,40
10	2009	15.443	- 1,13
11	2010	30.151	95,24
12	2011	45.433	50,68
13	2012	49.043	7,95
14	2013	43.688	- 10,92
15	2014	17.633	- 59,64
Average		18.139	14,26

Source : The Central Bureau of Statistics Solok

Table 3 above shows that the average price development of green chili in Solok annually fluctuates widely. Green chili price average in Solok for 15 years (2000-2014) amounted Rp.18.139 / kg with the development of an average of 14.26% per year, meaning that the average increase in the price of green chili Solok City at 14 , 26% per year. Graph of the development of green pepper prices in Solok years 2000 - 2014 can be seen in Figure 4.
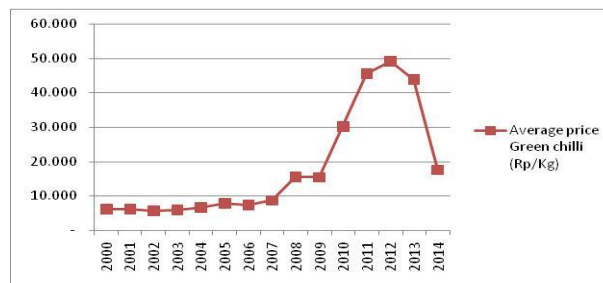

Figure 4. Graph Green chili price in Solok Year 2000-2014

Fluctuations in the price of green chillies due to the influence of red chili fluctuations that occurred in the city of Solok. At the current high price of red chilli, consumers tend to look for substitute goods as a substitute for red chilli, these conditions will affect the amount of red pepper on the market demand. Substituting goods are goods that can replace the functionality and usability of other goods. In this study, green chili assumed as goods substitution of red

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chili. Green chili basically have the benefits and uses almost the same with red chili that is used as a spice in the kitchen or cooking. Both chili has a capsaicin compound that gives chili spicy element and is often used by people Solok when the high price of red chilli. Changes in the prices of goods that are interrelated also affect the demand for primary goods. A thing can be said as a substitute goods, if the price of primary goods up it will trigger a rise in the number of requests other goods that serve as a replacement of the main items (6).

d. Onion prices

Onion prices in this research is the amount of money paid by the consumer to obtain one kilogram of onion. Data growth onion prices in Solok of the year 2000 - 2014 is shown in Table 4.

Table 4. *Price Development Shallots in Solok Year 2000-2014*

No	Years	Average price onion (Rp/Kg)	Developments (%)
1	2000	5.324	-
2	2001	5.673	6,56
3	2002	7.050	24,27
4	2003	6.978	- 1,02
5	2004	6.542	- 6,25
6	2005	8.188	25,16
7	2006	8.823	7,76
8	2007	9.471	7,34
9	2008	11.533	21,77
10	2009	10.986	- 4,74
11	2010	13.950	26,98
12	2011	15.476	10,87
13	2012	13.719	- 11,30
14	2013	20.604	50,19
15	2014	17.604	- 14,56
Average		**10.794**	**10,22**

Source : *Department of Agriculture of West Sumatra Province , Food Security Agency of West Sumatra Province and The Central Bureau of Statistics Solok, from Various Years .*

Based on Table 4, it can be seen that the development of average prices - average onion in Solok each year fluctuates. This is due to the influence of fluctuations in commodity prices that occurred in the red chili. At the time, the high price of red chilli onion prices will also increase, the increase in onion prices will cause the number of requests onion declined. Onion prices average at Solok for 15 years (2000-2014) amounted Rp.10.794 / kg with the development of an average of 10.22% per year, meaning that the average increase in prices of onion in Solok per year amounting to 10.22%. Graph of the development of onion prices in Solok years 2000 - 2014 can be seen in Figure 5.
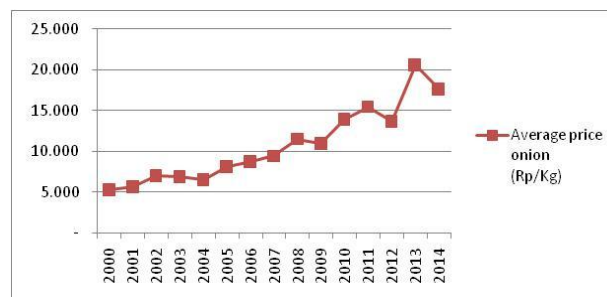
Figure 5. *Graph Prices of onion in Solok Year 2000-2014*

An item can be regarded as complementary goods, when prices one item triggers a decrease in the number of requests other items (6). An item be regarded as complementary goods if the goods are used together as a complement to other goods, so that when the price of one of these goods rise, it will affect the amount of consumption of complementary goods (1) In this study, the onion is assumed as a complement of red chili. Shallots are often used together with red chili as herbs, so that these commodities are complementary.

e. Total population

The number of people referred to in this study is the number of people who settled in the city of Solok is estimated to consume red chili (above the age of 4 years). Data Solok population growth over the age of 4 years from 2000 to 2014 can be seen in Table 5.

Table 5. *Development of Population in the city of Solok Aged over 4 years (2000-2014)*

No	Years	Population (People)	Growth (%)
1	2000	42.476	-
2	2001	43.154	1,60
3	2002	43.923	1,78
4	2003	47.539	8,23
5	2004	47.997	0,96
6	2005	48.128	0,27
7	2006	48.251	0,26
8	2007	50.419	4,49
9	2008	52.221	3,57
10	2009	53.429	2,31
11	2010	53.083	-0,65
12	2011	54.343	2,37
13	2012	54.855	0,94
14	2013	56.521	3,04
15	2014	57.718	2,12
Average		**50.270**	**2,24**

Source : *The Central Bureau of Statistics Solok*

Table 5 shows that the number of residents in the city of Solok aged over 4 years has increased each year, with an average growth of 2.24% and an average population of 50.270 inhabitants per year, meaning that the population increase on average Solok per annum of 2.24%. Graph of population growth in the city of Solok aged over 4 years (2000-2014) can be seen in Figure 6.
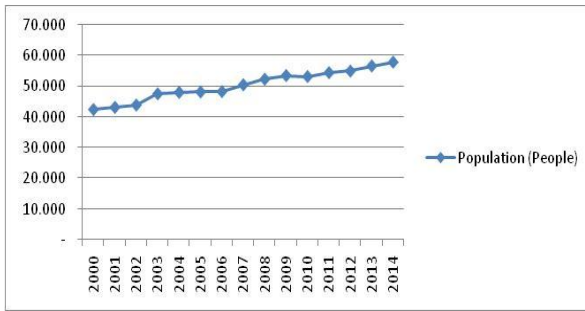
Figure 6. *Graph Population in Solok Year 2000-2014*

In 2010 the population of Solok decreased, due to an error in recording in the registration, many residents are not recorded or reported the demographic events that happened, such as; death, birth and population movements (Out Migrants). The population illustrates the potential number of consumers who will buy an item, so there is a tendency when the population of the more the need for food will increase. In the Malthusian theory which stated that "The population will always grow with increasingnumber of means of satisfying the needs and population are also limited by the availability of the means of satisfying the needs" (7). Red chili is a means of satisfying the needs of the form of food that is often used by people as a spice in cooking. Almost every day the red chili consumed by the public, so it is probable that the greater number of the population, the number of requests to the red chili will increase.

f.   Income per capita
The percapita income in Solok during the years 2000-2014 are presented in Table 6.

Table 6. *Development of income percapita in Solok based Current Prices by Expenditure Year 2000-2014*

No	Years	Income (Rp.)	Developments (%)
1	2000	311.275.350.000	-
2	2001	383.810.670.000	23,30
3	2002	426.034.210.000	11,00
4	2003	474.316.430.000	11,33
5	2004	550.864.450.000	16,14
6	2005	574.524.410.000	4,30
7	2006	675.828.390.000	17,63
8	2007	756.806.430.000	11,98
9	2008	888.081.510.000	17,35
10	2009	977.922.780.000	10,12
11	2010	1.095.719.550.000	12,05
12	2011	1.226.847.370.000	11,97
13	2012	1.367.858.120.000	11,49
14	2013	1.572.573.230.000	14,97
15	2014	2.725.334.670.000	73,30
Average		**933.853.171.333,33**	**17,64**

Source: *City of Solok in Figures from Various Years*

Table 6 shows that the population in Solok during the years 2000 to 2014 had a per capita income growth is increasing every year with an average increase of 17.64% or Rp. 933,853,171,333.33 per year. The increase in percapita income can be caused during the 2000 to 2014 economic activity in the city of Solok increased. It can be seen from the increasing number and types of facilities and infrastructure facilities constructed by local governments,

such as: housing, roads, transport and communications and other public facilities and infrastructure. The existence of various facilities and improve the smoothness of the facility and the growth of economic activities, encourage people to open businesses and entrepreneurs that already exist will expand and improve its business, so it will increase employment. If employment is increasing, it can reduce unemployment and ultimately will increase the field's per capita income residents in the city of Solok. The development of per capita income can be seen in Figure 7.
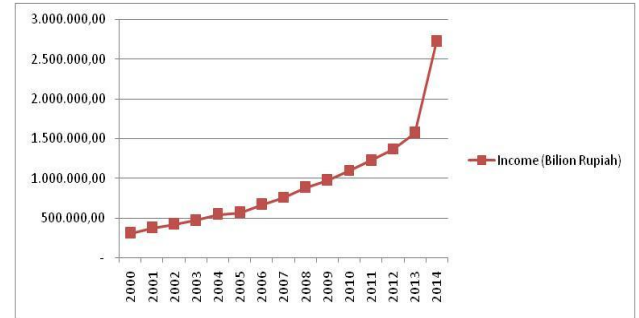
Figure 7. *Graph Income per Capita in Solok Year 2000-2014*

Income is the most important factor in determining the amount of demand for a product, because incomes will describe a consumer's purchasing power. If there is a change in the revenue it will cause a change in consuming different kinds of goods, especially foodstuffs. In foodstuffs, if income increases, people will increase their consumption to food, especially non-staple foodstuffs such as vegetables including red chili. On condition number of limited income, largely on the amount of revenue will be used to meet the basic needs first in this case is the rice, so that if the percapita income of a person increases and their basic needs are met, the consumption of other foodstuffs will grow peppers red. Income and consumption have a relationship that is positive, meaning that if income increases, consumption will increase and vice versa if revenue declines meal consumption is too degenerate Similarly, the close relationship between income and consumption is named propensity to consume (the desire to consume) (7).

2. Testing Model Classical Assumptions
As noted in the study that the method to determine the factors that influence the demand for red chili will be used multiple linear regression method with SPSS version 23. Analysis of the best regression equation must meet the criteria of the classical assumption test with the results of the analysis can be seen as follows:

A. Test assumptions Multicollinearity
Multicolinearity test aims to test whether the regression model found a correlation between the independent variable, if there is a high correlation between the independent variables, the relationship between the independent variables and the dependent variable to be disrupted. Agood regression model should not happenmulticolinearity. Multicolinearity can be seen from the value of tolerance and VIF (Variance Inflation Factor).

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To be free from trouble multicolinearity, the value of tolerance must be <0.1 and VIF> 10. The results of data processing using SPSS 23.0 for Windows Evaluation Version 2016 in this study, the value of tolerance for all variables <0.1 and VIF> 10. This shows that the regression model used in this study are free of problems multikolinearitas. For more details can be seen in Table 7.

Table 7. *Test Results Assumptions Multicollinearity*

Coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Price Hot Pepper	.033	29.900
	Green chili prices	.037	27.057
	Onion prices	.068	14.749
	Total population	.095	10.705
	Income per capita	.017	15.725

a. Dependent Variable: Number of Demand

Source: *Results of Treatment SPSS 23.0 For Windows Evaluation Version, 2016*

B.   Test assumptions autocorrelation
Autocorrelation test is intended to determine whether there is a correlation between residual (members) on a series of specific observations within a specified period. In the multiple linear regression model should also be free of autocorrelation. There are various methods used to test whether there is autocorrelation, one using Durbin Watson test method. According to Durbin Watson, Durbin Watson coefficient is 0 - 4. If the Durbin Watson coefficient of around 2, it can be said there is no correlation, if close to 0, then there is a positive autocorrelation and if the amount was closer to 4, then there is negative autocorrelation. The results of data processing using SPSS 23.0 for Windows Evaluation Version 2016 showed that the regression model used is free of their autocorrelation, where the value of the coefficient Durbin Watson produced amounted to 2,795 (be between 0-4) For more details can be seen from Table 8.

Tabel 8. *HasilUjiAsumsiAutokorelasi*

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.996^a	.992	.987	3908.679	2.795

a. Predictors: (Constant), Per Capita Income, Green Chili Prices, Population, Onion prices, Price Hot Pepper

b. Dependent Variable: Number of Demand

Source: *Results of Treatment SPSS 23.0 For Windows Evaluation Version, 2016*

C.   Test assumptions Heteroskedasitas
The study, using regression analysis, expecting observations homofkedastisitas which means the occurrence of nuisance factors are within normal limits. Deviations from this assumption is the heterokedastisitas. Therefore, in a regression analysis tests must be conducted to determine the presence or absence of

symptoms heterokedastisitas. One method that can be used is a scatterplot method.

Figure 8. *Scatterplot Dependent Variable Number of Demand*
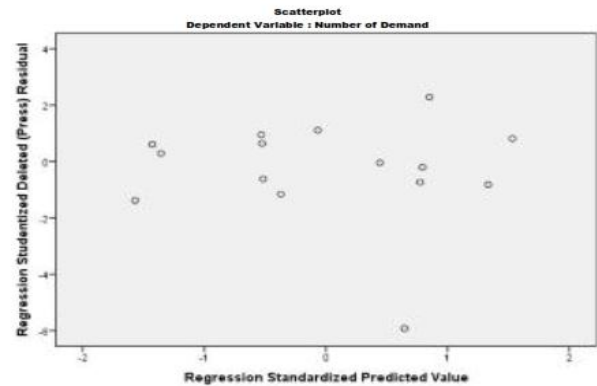
Source: *Results of Treatment SPSS 23.0 For Windows Evaluation Version, 2016*

Scatterplot image is generated by using SPSS 23.0 For Windows Evaluation Version, 2016 shows that there is no clear pattern as well as the points spread above and below zero, it can be stated that the regression model used free of distractions heterokedastisitas.

D.   Assumptions Normality Test
Normality test aims to demonstrate that the data used in normal distribution. Normality test can be done using a normal p-p plot and histogram. Normality test results obtained by using SPSS 23.0 For Windows Evaluation Version 2016, it appears that the points lie between the diagonal line and based on the histogram shows that the histogram follows the graph of normalcy, so it can be inferred that the regression model used in normal distribution. For more details can be seen in Figure 9.

Figure 9. *Normal P-P Plot Dependent Variable Number of Demand*
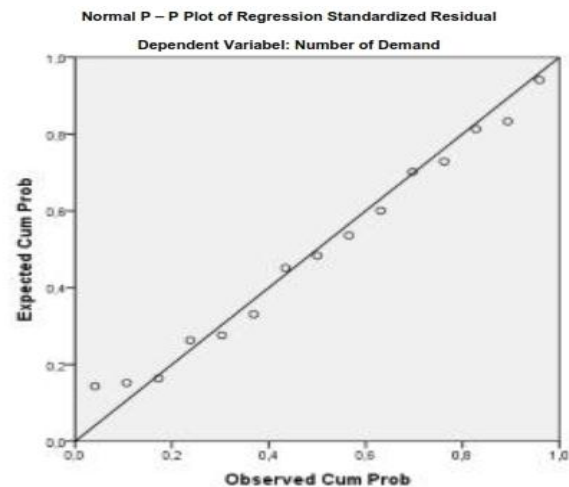
Source: *Results of Treatment SPSS 23.0 For Windows Evaluation Version, 2016*

Figure.10. *Histogram Dependent Variabel Number of Demand*
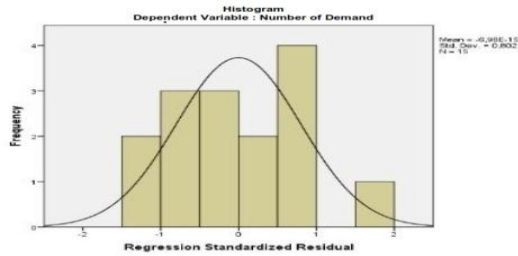
Source: *Results of Treatment SPSS 23.0 For Windows Evaluation Version, 2016*

3.   Hypothesis Testing

A. Multiple Linear Regression Analysis

The hypothesis in this study stated that the demand for red chili in Solok influenced by the price of red chili itself, the price of green chili as goods substitution / replacement, onion prices as complementary goods / complementary, population and per capita income. Results of testing the hypothesis was conducted to obtain a regression equation as follows:

$$Y = 2{,}693 - 0{,}628 X_1 + 1{,}620 X_2 - 3{,}658 X_3 + 7{,}777 X_4 + 0{,}012 X_5$$

β_o = 2.693 means that the demand will increase by 2,693 if the variable price of red chilli (X_1), Price Chilli Green (X_2), Price Onion (X_3), Population (X_4) and Revenue Per Capita (X_5) = 0 (no change). β_1 = - 0.628 pales independent variables X_2, X_3, X_4 and X_5 unchanged (0) and X_1, an increase of one (1) unit, the number of requests red chili (Y) will be reduced by 0.628. β_2 = 1.620 means that if the independent variables X_1, X_3, X_4 and X_5 unchanged (0) and X_2 increased by one (1) unit, the number of requests red chili (Y) will be increased by 1,620. β_3 = - 3.658 pales independent variables X_1, X_2, X_4 and X_5 unchanged (0) and X_3 increased by one (1) unit, the number of requests red chili (Y) will be reduced by 3.658. β_4 = 7,777 means that if the independent variables X_1, X_2, X_3 and X_5 unchanged (0) and variable X_4 increased by one (1) unit, the number of requests red chili (Y) will be increased by 7,777. β_5 = 0.012 means that if the independent variables X_1, X_2, X_3 and X_4 unchanged (0) and variable X_5 increased by one (1) unit, the number of requests red chili (Y) will be increased by 0,012.

B. R² Test

Multiple correlation coefficients obtained for 0.996 shows the positive relationship is very strong between the independent variables X_1 (red chili prices), X_2 (the price of green chili), X_3 (onion prices), X_4 (population) and X_5 (income per capita) on the dependent variable Y (the number of red chili request). While the value of the coefficient of determination (R^2) obtained amounted to 0.992, or by 99.2%. This illustrates that the donations given by the variable red chili prices, the price of green peppers, onion prices, population and income per capita to total demand of red chilli in Solok of 99.2% and the remaining 0.8% is influenced by other variables which are not measured. This illustrates that the independent variables

that allegedly provided a very strong influence on the number of red chili demand in Solok. When compared with the results of research RosanaDewi (2009) Red Chili Demand Analysis in Surakarta. The results showed that the independent variables red chili prices, the price of pepper curls, onion prices, population and income per capita income contributed to a number of requests of red chilli in Surakarta of 79.6%, this shows that the independent variables that have identified in this study provide a strong influence on the amount of demand for the red chili. The results of the analysis of the coefficient of determination (R^2) of commodities red chili in Solok showed greater value from the analysis of determination (R^2) were done by RosanaDewi (2009) in Surakarta, this is because the consumption patterns of Solok in general are the indigenous people of West Sumatra (Minang Tribe) like the food spicy flavor. There are several factors that affect the demand for a product, include; the price of the goods themselves, other items that are closely related to the goods (subsitution / complementary), household income/ average income communities, patterns of income distribution in society, the taste of the people, population, predictions about the conditions in the future (10).

C. F Test

F test used to determine whether the allegedly independent variables (red chili prices, the price of green peppers, onion prices, population and income per capita) together influence variation in the number of red chili demand Solok.

Table 9. *Anova Test Results*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	162144437437.044	5	32428887487.409	212.262	.000ᵇ
	Residual	137499935.889	9	15277770.654		
	Total	16351937372.933	14			

Source: *Results of Treatment SPSS 23.0 For Windows Evaluation Version, 2016*

Table 9 shows that the calculated F value of 212.262 and probabilitasi of 0.000 calculated on the real level of 1%. This shows that the value of F count> F table (212.262> 3,600) with a significance level (0.000 <0.01). Thus H1 Ho accepted and rejected, which means that independent variable allegedly jointly significant effect on the amount of red chili demand in Solok.

D.   T- Test

T - test is a test that is performed to determine whether the allegedly independent variables individually affect the dependent variable. Hypothesis alleged in this study is whether the independent variable X_1 (red chili prices), X_2 (the price of green chili), X_3 (onion prices), X_4 (population) and X_5 (per capita income) effect on an individual basis to dependent variable Y (the number of red chili request).

Table 10. t-Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	99,0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.693	25986.091		.104	.920	-81757.335	87143.706
	Price Hot Pepper	-.628	.183	-.572	3.425	.008	-1.223	-.032
	Green chili prices	1.620	.342	.753	4.735	.001	.508	2.732
	Onion prices	-3.658	.868	-.494	-4.212	.023	-6.480	-.836
	Total population	7.777	.638	1.100	12.192	.000	5.704	9.850
	Income per capita	.012	.004	.220	3.021	.007	-.001	.025

Source: Results of Treatment SPSS 23.0 For Windows Evaluation Version, 2016

Table 10 shows that the independent variable price of red chilli (X1) influential people on the dependent variable number of red chili demand (Y) with grades probabilitasi smaller than the significance level (0.008 <0.01) or t> t table (3.425> 3.012) so that the H1 can be accepted and Ho rejected. The law of demand states that "the lower the price of an item, the more demand for goods", and otherwise "the higher the price of an item the less demand for goods" (10). Based on the results of the analysis are generated and when linked to the law of demand, then there is a match between the effect of the price of red chilli red chili demand in Solok with applicable legal request. Green chili price variable (X2) also showed a probability value smaller than the significance level (0.001 <0.01) or t> t table (4.735> 3.012). This also shows that prices affect the demand for green chili red chili, thus partially acceptable H1 Ho accepted and rejected. Partial results of the analysis showed that onion price variable (X3) are not significant with the value t <t table (- 4.212 <3.012) and probabilitasi value is greater than the significance level (0.023> 0.01). This means that individually variable onions (X3) did not affect the amount of red chili demand in Solok, but with significant value that is not too flashy. It concluded that Ho refused and H1 accepted. From the analysis of the test - t above, illustrates that the community of Solok in consuming red chili is not affected by the cost or the high price of complementary products (onion), it is due to cultural factors Minang people who like spicy dishes with flavors. Variable total population (X4) partially showed significant value with a probability value smaller than the significance level used is equal to 0.000 <0.01 and t value greater than t table (12,192> 3.012), so it can be concluded that the number of people affect the amount of red chili demand in Solok, the H1 can be accepted and Ho rejected. This is consistent with economic theory and population expressed Maltus stating that the number of items needed as a means of satisfying the needs will be growing along with increasing the number of residents (7). While variable number of total revenues (X5) partially also shows significant value with a probability value smaller than the significance level used is 0.007 <0.01 and t value greater than t table (3.021> 3.012), so it can be concluded that the amount of income affect the amount of red chili demand in Solok, the H1 can be accepted and Ho rejected. There are many things that cause changes in demand, one of which is the change in per capita real income of the community.

The greater a person's income, the greater will be the demand of a good person (7).

E. Variable Most Influential
The calculation of the default values or beta Coefficients of regression coefficients can be used to identify independent variables that most influence on the dependent variable. Coefficients beta value is greatest independent variables that most influence on the dependent variable. Table 10 shows that the beta value is greatest Coefficients variable X4 (population) that is equal to 1,100 so it can be concluded that the population of the independent variables that most influence on the amount of red chili demand in Solok. The population illustrates the potential number of consumers who will buy an item, so there is a tendency when the population of the more the need for food will increase. In the Malthusian theory which stated that "The population will always grow with bertambahnnya number of means of satisfying the needs and population are also limited by the availability of the means of satisfying the needs" (7).

4. Elasticity of Demand
Elasticity of demand is a measure used to determine the response of demand to changes in the factors that influence it. Elasticity of demand can be divided into three kinds, namely; price elasticity, income elasticity and cross elasticity (6). Analysis of demand elasticity red chili in Solok second objective of this study, in which all three kinds of elasticity is measured to determine the response of the number of requests red chili in Solok to price changes, changes in income and changes in the price of other goods (substitute and complementary). In this study, the hypothesis used is alleged that the prices of red pepper has a negative price elasticity, the price of green chili has a positive cross elasticity, onion prices have a negative cross elasticity and income per capita has a positive elasticity.

a. Price elasticity
Analysis of demand elasticity of red chilli in Solok produce price elasticity coefficient values (εp) of -0.120. This value is negative, indicating that the variable price of red chilli has a relationship is inversely proportional to the demand of red pepper. That is, if the red chili prices rose by 1%, the demand for red chili will fall by 0.120%, and vice versa. Red chili demand is inelastic because the coefficient of elasticity is less than 1, which means that the percentage change in the number of requests is less than the price changes.
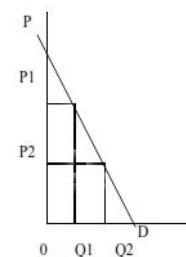

Figure 11. Demand Elasticity curve (Ep<1 = Inelastic)

b. Income elasticity

The results of the analysis of the income elasticity (εI) shows the value of the income elasticity coefficient is 0,001 this means that in the event of a revenue increase of 1%, the amount of demand for red chili in Solok will rise by 0.001%, and vice versa. Figures income elasticity coefficient smaller than one and a positive sign indicates that red chili are normal goods (inelastic). This means that the percentage change in demand is smaller than changes in income, in other words an increase or decrease in income does not lead to any significant change to the amount of red chili demand in Solok.

c. Elasticity Cross
The results of the analysis of cross elasticity of the price of green chili show elasticity coefficient (εpx1) amounted to 0,293. That is, if the price of green chillies increased by 1%, the number of red chili demand will rise by 0,293%, and vice versa. A positive sign in the coefficient of elasticity showed that the price of green chillies are goods substitution (replacement) of red chili.

The coefficient of cross elasticity of prices of onion (εpx2) generated amounted to -0.635. That is, if the price of onions rose by 1%, the number of red chilli demand would fall by 0.635%, and Inversely. Elasticity of demand is negative shows that onions are complements (complementary) of red chili.

5. Efforts to Meet Demand Guide Red Chili in Solok
The third objective of this study was to determine the strategic attempt to do in order to meet the demand of red pepper in Solok, especially for the Regional Government of Solok, so it can be used as one of the considerations in the policy making community economic development in the city of Solok. The data used are primary data obtained by distributing questionnaires to producers, traders, consumers and local government apparatus.

A. Manufacturers
Based on the results of SWOT analysis, obtained some attempts strategies that can be taken to meet the demand from the producers of red chilli in Solok, as presented in Table 11.

Table 11. Matrix SWOT Analysis of Side Manufacturer

Strategic effort to do that:
a. SO Strategy (Strengths and Opportunies)
1. Increasing local production through intensification of red chilli
2. Enhancing the role of government in the development of red pepper cultivation through guidance and counseling

b. WO strategy (Weaknesses and Opportunies)
1. Utilizing a low-interest loan program for the development of red chili farmers
2. Utilize the fertilizer procurement program subsidized by the Government of Solok in order to ensure availability of fertilizers
3. Develop institutional agricultural extension, training, coaching and empowerment of farmers
4. Enhancing the role of government in the provision of high-tech farm equipment

c. ST Strategy (Strengths and Treaths)
1. Improve product quality in order to compete in the market
2. Increase of production to ensure product availability and stable prices

d. Srategi WT (Weaknesses and Treaths)
1. Creating a quality local poduk without pesticides
2. The use of botanical pesticides and natural fertilizers (compost) to increase the production of red chilli

B. Merchant
The SWOT analysis provides some strategies that can be an effort to meet the demand from the side of red pepper traders in Solok, as presented in Table 12.

Table 12. Matrix SWOT Analysis of Side Traders

Strategic effort to do that:
a. SO Strategy (Strengths and Opportunies)
1. Establish partnerships with farmers / farmer groups chili to meet market demand is likely to increase
2. Create a processed products with diverse variants and packaged such that it can increase the sale value
3. Utilize existing associations to expand market share

b. WO strategy (Weaknesses and Opportunies)
1. Utilizing a low interest credit program to develop business
2. Establish partnerships with local producers to terjaminnnya availability of supplies

c. ST Strategy (Strengths and Treaths)
1. Improve product quality in order to compete in the marketplace
2. Improve product quality through post-harvest processing and good storage so as to increase the sale value

d. Srategi WT (Weaknesses and Treaths)
Short build marketing chain in order to reduce the cost of transportation and maintaining price stability

C.   Consumers
The SWOT analysis provides some strategies that can be an effort to meet the demand of the consumer side of red pepper in Solok, as contained in Table 13.

Table 13. *Matrix SWOT Analysis of the Consumer Side*

Strategic effort to do that:
a. SO Strategy (Strengths and Opportunies)
1. Stockings local red chili when the price is cheap
2. Consuming substitution goods and your competitor's product is an alternative option when the price is high to reduce spending

b. WO strategy (Weaknesses and Opportunies)
1. Utilize government programs in order to utilize yard area around the house with a local red chili plant
2. Utilize Internet technology to plant in the yard of red chili
3. Utilize Internet technology to study a variety of dishes

c. ST Strategy (Strengths and Treaths)
More selective and careful in shopping in order to avoid cheating traders

d. Srategi WT (Weaknesses and Treaths)
1. Utilize yard area for growing local organic red chili
2. Vary the dishes with different flavors archipelago

c. Local government
Based on the results of SWOT analysis, obtained some attempts strategies that can be taken to meet the demand of the red chili Solok City Government, as contained in Table 14.

Table 14. *Matrix SWOT Analysis of Local Government*

Strategic effort to do that:

a. SO Strategy (Strengths and opportunies)
1. Utilization of funds to support agriculture through farmer institutional development
2. Utilizing the help of machine tools of agriculture through farmer / group / gapoktan

b. WO strategy (Weaknesses and opportunies)
1. Reactivate Village Unit Cooperatives (KUD) as microfinance institutions in rural areas for the development of small businesses
2. Conduct training of agricultural machinery equipment operation through farmer / group / gapoktan
3. Guidance and counseling to farmers / group / gapoktan about how good farming in order to increase production to meet market demand

c. ST Strategy (Strengths and Treaths)
1. Form a monitoring team within the framework of subsidized fertilizer distribution in conjunction with law enforcement authorities
2. Increase kualitasi local products with good post-harvest handling in order to compete in the market

d. Srategi WT (Weaknesses and Treaths)
1. The use of botanical pesticides to tackle pests and diseases of plants and produce products that are free of pesticides
2. Promote the seed aid program for the preservation of local varieties

V. CONCLUSIONS AND RECOMMENDATIONS
1. Factors affecting demand for red chili in Solok significantly is the price of red chilli itself, the price of green chili as a substitute goods, population and per capita income.
2. Analysis of demand elasticity of red chilli in Solok shows:
a. Elasticity of demand for red chillies against price inelastic ($\varepsilon p < 1$).
b. On cross elasticities, green chilies are goods substitution of red chili indicated by the coefficient of elasticity is positive ($\varepsilon px +$). While the cross elasticity coefficient on the onion is negative ($\varepsilon px -$), this indicates that the onion is complementary goods from red chili.

c. Figures income elasticity coefficient is smaller than one and a positive sign indicates that red chili are normal goods are inelastic.

3. Efforts to do the most strategic in meeting the demand of red pepper in Solok can be seen from SO strategy (Strengths and opportunies) created.

A. Sides Manufacturers
a. Increasing production through intensification of local red chilli
b. Enhancing the role of government in the development of red pepper cultivation through guidance and counseling

B. Side Traders
a. Establish partnerships with farmers / farmer groups chili to meet market demand is likely to increase
b. Creating processed products with diverse variants and packaged such that it can increase the sale value
c. Utilizing the existing association to expand market share

C. Sides Consumer
a. Doing Stockings local red chili when the price is cheap
b. Consuming substitution goods and your competitor's product is an alternative option when the price is high to reduce spending

D. Side of Local Government
a. Utilization of funds to support agriculture through farmer institutional development
b. Utilizing the help of machine tools of agriculture through farmer / group / gapoktan

Based on analysis of the factors affecting demand for red chili in Solok obtained that the variables that most influence is the number of residents, the suggestions can be submitted by the authors is to improve the implementation of family planning programs.

Thank-you note

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