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An Analysis of the Demand for the Consumptionof Rice Substitutes in Households in the Province of Maluku

William Louhenapessy[1], Basri Hasanuddin[2], Madris[3], Paulus Uppun[4]

[1]Pattimura University Ambon, Indonesia
willy_louhenapessy@yahoo.co.uk
[2]Hasanuddin University, Indonesia
basrihasanuddin@yahoo.com
[3]Hasanuddin University, Indonesia
madriskandar@gmail.com
[4]Hasanuddin University, Indonesia
upnpaul@gmail.com

Abstract**—** *The aim of this Research is to analyse the partial relationships between the variables of the price of rice substitutes, the price of rice, income per household and the number of household members against the variables of household food availability and household food consumption patterns in Maluku Province. This research was carried out in Maluku Province using a sample of 200people. Data used in this research is the primary data based on questionnaires and interviews with respondants and using secondary data taken from SUSENAS data covering a research period from 1995 through to 2014. The analysis used to test the hypothesis is the regression analysis using the SPSS application. The results of this research demonstarte that the variables of the price of rice substitutes, the price of rice, household income and the number of household members has a significant influence on the variables of the household food availability and the pattern of household food consumption in Maluku Province.*

Keywords**— The Price of Rice Substitutes, The Price of Rice, Income Per Household, Number of Household Members, Household Food Availability, Pattern of Household Food Consumption, Maluku.***

I. INTRODUCTION

At this moment the world is facing two great crises, that is the food crisisand the energy crisis. The food crisishas been triggered by the phenomena of global warming and the uneven distributionof food. While the energy crisishas been triggered by the great reduction of reserves of fossil fuel energy (Louhenapessy, 2010). Food is a basice need of the people that has to be fulfilled so that it is a humanright for all people to obtain food. The increase in the population and the quality of life of the people causes the demand for food to conitinuosly increase. Robert Maltus (in Abdurachim, 1973 and Hafsah, 2006) explained that the increase in population was not in proportion to the growth of world food supply, where food materials will increase according to arithmetical progression while the population will increase according to geometrical progression, which causes scarcity in the supply of food in the world. Therefore, the need for food for all the people of Indonesia has to become one of the priorities innational development.

The definition of food security since the world food conference in 1971 until the 90'scontinued to experience change starting from global and nationallevels, to the householdand individualscales that can be seen from the food first perspective to the livelihood perspectiveandfrom objectiveindicatorstosubjective perception (Maxwell and Frankenberger, 1992).

Indonesia is a country with a large population andcovers a vast area so that the problem of food security is an important agenda in the development of the economy. Data demonstrates that food security situation in Indonesia at this time is still weak. This can be seen from the following conditions: (a) the number of population experiencing food insecurity (consumptionlevel of less than 90 percent of the recommended 2,000 cal/cap/day) andextreme food insecurity (consumptionlevel of less than 70 percent of the recommendation) is still quite large, that is 36.85 million and 15.48 million people in 2002; (b) the number of toddlers who are experiencing malnutrition is still quite large, i.e. 5.02 million and 5.12 million toddlers in 2002 and 2003 (Khomsan, 2003). Data from Susenas (2010) also shows that consumptionlevel of rice of the

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population of Indonesia in 2009 was the highest in the world, i.e. 102.2 kilogram/capita/year or almost twice the average consumptionof rice of world population which is only 60 kilogram/capita/year. This data shows that endeavours to create food security in Indonesia need to be carried out.

In Indonesia, food is associated with rice because rice is the main staple food. Based on the writer's research, data shows that rice is the staple food of more than 95 percent of the population in Indonesia. This situation makes their consumptionpattern dominated by rice commodities. Therefore, the government is always endeavouring to increase the availability of the main food especally rice. This can be seen from the government policies related to food are still focused on the commodity of rice. Besides that, the government also carries out strict control concerning the availability of rice and is not unwilling to import rice. The consumptiondependence of the people of Indonesia on rice needs to be quickly overcome in order to increase food security. Therefore, alternative food sources, such as local foods can become the solution to overcome the problem of food security in Indonesia which is a country that possesses various other types of food such assago, corn and various other types of tubers that can become the source of food for the people. Food besides rice has local historical and cultural roots so that the majority of the people of Indonesia, especially ln Eastern Indonesiaare used to consuming local food such as tubers, cornand sago. This indicates really that alternative food sources can become a consumption alternativefor the people of Eastern Indonesia andrice can be focused to supply the needs in Java.

The policy of implementing food security by making use of local foods is the right step, because of the availability of local foods in each area and the ease by which they can be developed. For example, the people of Papua and Maluku are able to consume sweet potatoes as the staple food to replace rice. Nusa Tenggara Timur and North Sulawesi as the main producers of corn can consume corn as the staple food to replace rice. Anther commoditywhich also hasthe possibility as a staple food to replace rice is sago which is widely available in Eastern Indonesia and Sumatera (Nainggolan, 2004).

Bustaman and Susanto (2007) explain that the farming of sago in Maluku Provincecan be utilised as a food source and has been proven to be the solution to the local food problem in this area. The people in the Maluku Provincegenrally consumesago and other local foods as a source of staple foods in the past. According to Louhenapessy (2007), in the 1980's, 33% of the people of Maluku Provincestill used sagoas the staple food, 50% used sago and tubers and only 17% used rice as the staple food. However, Girsang (2014) states that the consumptionof sagoand other local food in Maluku Provincehas started to decrease while the consumptionricehas increased significantly in the last decade.Data from Susenas (2009) shows that these has been a shift in the consumption patterns of the people of Maluku Provincewho used to consume local food to consuming rice, where in 2005 the total of number of riceconsumption was 68,52 kg/cap/year and has continued to increase in 2009 to 85kg/cap/year.

In Maluku Province, there are approximately 52,000 ha of sagoforests which have the potential to produce more than 268 kg of carbohidrateper capita per year for 1.55 million population of Maluku. Factors that influence the food consumption patterns in one region are the availability of the local food commodities. The availability of local foods has become the main important factorbecause it is one of the three mainpillarsfood security. The availability of food is linked to the supply of food to fulfill the needs of the whole community, both from the point of quantity, quality, variety, andsafety. The distribution factorfunctions to create a distributionsystem that is effective and efficient in order to guarantee that the community can procure food in the reasoanable quanitity, quality and continuity with prices that are affordable. The consumptionfactorfunctions so that the pattern of the national utilisation of food fulfills kaidah quality, variety, nutritional value, safety and halal norms (Rossi, 2010).

The food consumption patterns of the community generally are influenced by social and cultural factors, demography and lifestyle factors,including the relationship to the risk of certain degenerative illnesses. The food consumption patterns of the community also are significantly related to the food insecurity or food securityconditions of the community.Evaluating food consumption patterns is one method that can be used to understand the food and nutrition situation of a community. One method used to evaluate the qualitive nature of food consumption patternspangan can be reflected in and demonstrate the sufficiency of individual dietary intake by evaluating the variety and quality of the nutritional value of the food. Rice is the main source of energy that is consumed in Indonesia, while the main source of energy of rice substitues is obtained from cassava (Yudaningrum, 2011). The main difference in food consumptionis obtained from the consumptionlevels of the community, which show that the consumptionof ricein the vllages is much higher that theconsumptionof ricein the cities.

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II. LITERATURE REVIEW

Conceptual and TheoreticReview Concerning Demand

The theoryof consumer demand is based on the theory of consumerbehaviour. Consumer behaviouris the direct behaviour that is involved in the procuring, consumptionand the finishing off of the product and services, including the decision making process before and after the action reveals consumer behaviourin determining the consumptionof goods. While the level of personel demand is the desire of the consumerto purchase certain goods at various price levels over a certain period of time. Therefore, the demand for a number of goods hasa great influence on the price of those goods. The higher the price of the goods means that the demand for certain goods will decresase, and the reverse is also true.General demand theory describes how a consumerconsumes a certain number of goods at a certain price level. If the price is high, then the quanity of goods consumed decreases on the other hand if the price is low, then the quanity of goods consumed rises*citeris paribus*.In the consumption process the consumer uses the income that he has obtaied from the productionprocess. The problem is how does a consumerallocate his income to procure a certain number of goods so that theconsumerwill achieve maximum satisfaction.This is because the main aim of the consumerin the consumptionprocess is to achieve maximum satisfaction.

Household Consumptionof Rice SubstitutesExpenses

The consumption patterns of the community describes the allocation and compositionor form of consumptionthat is generally valid for members of the community. Consumptioncan be defined as an activity in satisfying the needs or desires at this time in order to increase prosperity. Thus, the allocation of consumptionis very dependant on the definition and perception of the community concerning needs and the obstacles they face. The life of urban communities demands a consumptionlifestyle that is totally fast and instant. The consumptionbehaviour that is of urban communities no longer considers the function or use of goods that are purchased rather they take into account the social status attached to the particular goods.Urban household consumption patternsare caused by the busy lifestyle of each member of the household especially when the mother goes to work, then householdconsumption patterns that are applied when the members of the household get together in one place and order various types of fastfood, without waiting long and also saves time on eating.

Household Food Availability

Food availability for the community does not guarantee food securityhousehold, this is because the purchasing power of the community is not able to afford the food or the householddoes not have access to to the food although it is readily available in the market. Therefore, householdfood availablity is more determined by the ability of the householdto control their food needs. The ability to control is more influenced by the ability of the householdin their own ability to produce food and their ability to purchase food in the market. Therefore, ability to buy food becomes the source of household food security, which is more depenant on householdpurchasing power (Pakpahan, *et al*., 1993). In order to achieve food securityfood availability is needed in sufficient numbers and quality, distributed with affordable prices andsafe to be consumed by every citizen to support daily activities all the time.(Saliem *et al*., 2002).

The Price of Rice Substitutes

Sago, corn and tubers are rice substitutesthat are utilized in Indonesia. The use of rice substitutesis based on the availability of food in a region originates from the producelocal family farmers and then developed into alocal food habit or regional household consumption patternsat a low cost. In fact diverse household food consumption patternshave been in existence for a long time, but as a result of excessively dominant and intensive government policies in the field of rapid rice production, covering all aspects of the industry resulting in a shift from consuming rice substitutesto consuming rice (Ariani, 2010).This has occurred in Maluku where sagoand other local food consumption patterns have decreased, while the consumptionof imported ricehas increased significantly. Besides the community consumption patterns, another factor that also has influenced this situation is the price of rice substitutes. The results of research Ilham *et al*. (2006) show that the definite price of rice substituteswill encourage the community or householdto have alternative foodconsumptionin order to protect the stability and availability of food at the community level.

The Price of Rice

The price of food is an important point for the householdwhen deciding which types of food to be consumed. In this case, the majority of the population of Indonesia consume rice because the price is subsidized by central government. The normal price of riceis Rp 10,000 per kg (USD 1 per kg), but the central government subsidized the price of rice up till 80 percent so that the cost for each household is around Rp 2,000 per kg. However, subsidized rice has been allocated by village officials to all rural households and has failed to solve the problem of the target group of poor households. Therefore every household receives around 5 kg per month.

Household Income

Generally, household needs can be divided into two large categories, that is food and non food needs. Thus at certain

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income levels, households will allocate their income to fulfill these two needs untuk. Naturally the amount of food needed by an individual or a household akan will reach saturation point while non food needs including the quality of food is not limited in the same way. Thus, the size of income (that which is produced and total expenses)which are spent for food of a householdcan be used as an indicator of householdprosperity (Tri Bastutiand Mewa Ariani, 2007).The size of income will determine the types of food consumed by a household. The types of food consumed by the household will determine household consumption patterns(Sumarwan dan Sukandar, 1998). Income becomes an important factorin determining household expenses, including food consumption patterns. If income increase then householdconsumption patterns will be more diverse so that consumptionof foodwith high levels of nutrition will increase (Yudaningrum, 2011)so householdfood availability will be stable.

Number Members in a Household

The amount of financial reponsibilities is a characteristicrelated to the increase in income yang berhubungan, including expenses and household food consumption, the more the number of householdmembers then the costs will increase thus expenses andconsumptionwill increase (Arida dan Fadhiela, 2015). At the family level the smaller the number of family members, the smaller the needs that have to be fulfilled by the family, and the reverse is true. So that in a family whose household members are many then the needs that have to be fulfilled will also be greater (Adiana dan Karmini, 2012). Further it is said that the greater the financial responsibilities of a family is one of the factors that influences the household consumption patterns. The more the members of a household, then the consumption patterns will be more diverse because each member of the householdmay not have the same taste in food. The number of family members is liked to the householdincome that eventually influences household consumption patterns.

III. RESEARCH METHODS

The location of theresearchis in Maluku Province, with samples taken in Ambon, Central Maluku Regency, West Seram Regency andEast Seram Regency. Samples were taken from 200 respondentstswith the same number of respondentsts taken in each Regency. This Researchis quantitative and qualitative in nature. The types of data used in this research are secondary data from the nationalsocio-economicsurvey (SUSENAS), several publications of the Central Bureau of Statistics (BPS), reports and publications from the Ministry of Agriculture of the Republic of Indonesia, and publications from the National Food SecurityBoard andthe Maluku Province RegionalFood Security Board.

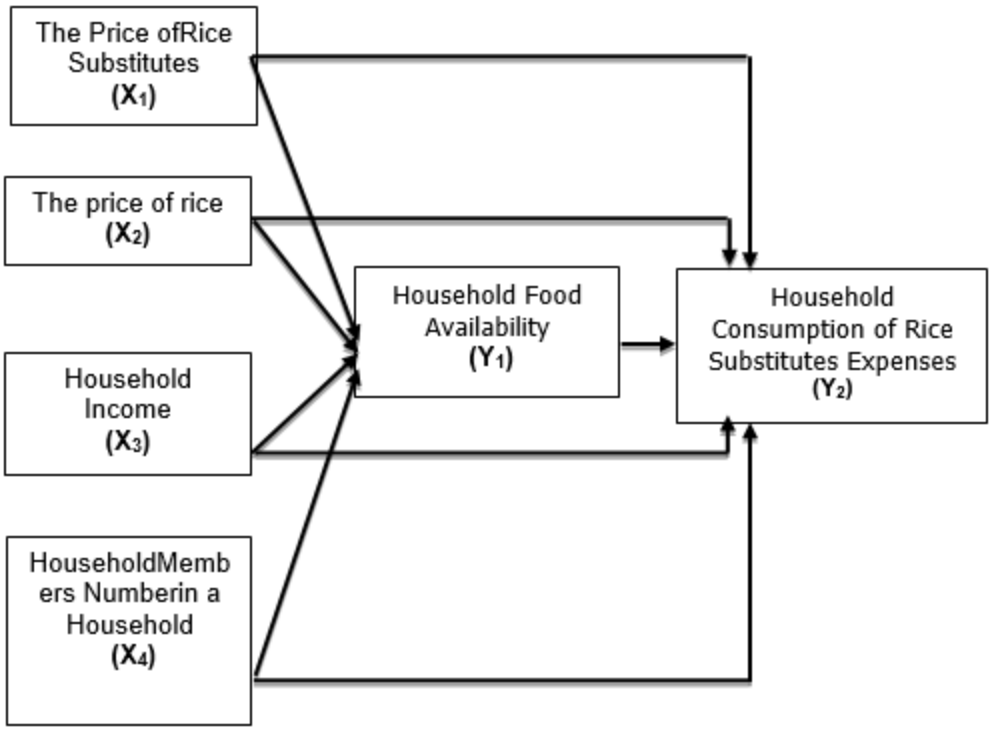

Fig.1: Conceptual Model Design

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Primary data was obtained from questionnaires that were distributed to respondentsts and interviews. The number of population of the area of research is 539,254 people, spread through three regencies and one municipality, West Seram Regency, Central Maluku Regency, East Seram Regency and the City of Ambon as the capital city of Maluku Province.200 people were used as the Samplein this research, each regency and city represented by 50 respondentsts. Variables used in this researchanalysismodel were (a).Household Food Availability; (b). Household Consumption Patterns; (c). The Price of Rice substitutes; (d). The Price of Rice; (e). HouseholdIncome; (f). Number of Household Members.

IV. RESULTS AND DISCUSSION

The price of rice substitutesis one of the variables used in this researchanalysis model, this is because it is believed that the price of rice substitutescalculated in rupiah can give an overview of the readiness andability of a householdto prepare food stocks in a month. Thus the price of rice substitutesvariable in this researchcan be defined as the value of money from the types of ricesubstitutes that can be calculated in rupiah.

The price of ricesubstitutes is a price substitution forthe price of rice. This is because if the price of riceis high then householdrespondentstscan make a substitutionin the consumptionprocess that is to consume other types of food besides rice, such as sago, tubers, nuts and other types of food.

Table.5.1: Allocation ofHousehold Income of Repondents for theConsumptionof Rice Substitutes In the Area of Research 2017

Household Income	Total	Percentage
≤ 30,000	80	40
31,000 – 40,000	25	12.5
41,000 – 50,000	44	22
≥ 50,000	51	25.5
Total	200	100

Source: Processed Primary Data

Table-5.1shows the householdincome groups for rice substituteconsumption in a month in the area of research.From the data above it is known that households that allocate less than ≤ Rp. 30,000as 80 householdsor 40% of the total respondents. Households that allocateincome between Rp. 31,000 – Rp. 40,000 and between Rp. 41,000 – 50,000 for rice substituteconsumptionare 25 households 12.5% of the total householdrespondentsand 22 householdsor 22% of the total households. While the allocation of income ≥ Rp. 50,000 are 51 householdsor 25.5% of the total householdrespondents.

Information from Table-5.1 can be analysed further that if 40% of householdsin the researcharea allocate income in order to consumerice substitutes, because this has a closely related to household consumption patterns of respondentsin Maluku who tend to consumerice substitutesbesides rice. It was also discovered that the choice of such incomeallocationwas because the rice substituteswere cheaper than the price of ricebesides the factorof the availability of rice substituteswere much more easily accessed both in urban and rural areas.

Other phenomena that can be analysed is the households that allocateincome rice substitutesconsumption ≥ Rp. 50,000 was 25.5% which is second. This was not according to what had been hoped theoretically that every increase in the price of rice substitutes should be followed by a reduction in the householddemand for rice substitute productsthat should influence the availability of household rice substitutes. But the results of correlation and facts in the area of researchdemonstrate a parallel comparison, with the understanding that if there is a rise in the price of rice substitutesthen it is followed by an increase in the consumptionof rice substitutesin order to add to the availability of household rice substitutesin the area of research.

According to micro economic theory it is known that the law of demand states that if the prices of a product rises, then the number of products consumed with tend to fall*(citeris paribus)*.But the facts in the field show a different situationthat is a deviation of behavior of householdrespondentsin carrying out consumption activity. According to the opinion of the researchers a form of paradox occurs in Maluku, this is in fact is in accordance with the findings of Sir Robert Giffen in Northern Ireland that in micro economic theory is calledthe Giffen*paradox*.

The priceis the value associated with certain goods or products that is used as a calculation tool in the economictransactionprocess. Based on this understanding then the price of ricein this researchdefined as the value in rupiah that is associated with riceproducts that function as a calculation tool in the transactionprocess. The price of riceis one important variable in this research, because riceis one of the strategic foods in Maluku besides rice substitutes, because in various studies and analysesconcerning food then ricealways becomes the material of research, study and analysis.

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Table.5.2: Income allocationHouseholdRespondents For Rice Consumptionin the Research Area 2017 (Price per Sack and Price per Kg)

Price per Sack	HouseholdRespondents	Percentage
≤ Rp. 250,000	92	46
≥ Rp. 250.000	108	54
< Rp. 10,000	55	27.5
≥ Rp. 10.000	145	72.5

Source: Processed Primary Data

Table-5.2 clearly shows the actual situation in the area of researchthat householdrespondentswho consumericeat the price level of rice/kg ≥ Rp. 10,000 is 72.5% or 145 households greater than the number of householdrespondentswho consumerice at the price level of ≤ Rp. 10,000 which was only 27.5% 55 households. It is known that the perception of householdsin this researcharea tend to consumericeof a better quality with certain brand names compared to cheaper riceat a lower price. This means it can be concluded that householdrespondentsboth rural and urban possess an awareness concerning the consumption ofricethat is healthier and bof better quality to maintain carbohydrate nutrition rates to fulifill their needs. Another reason households in the research area consumebetter quality rice although a higher price has to be paid is because the relatively high purchasing power of the householdrespondentsso that income allocationcan be directed to consumegood quality rice.

Table.5.3: Income of Household Respondents InResearchArea in Maluku, 2017

Total Income for Household Members	Total	Percentage
1,000,000 – 4,999,999	54	27
5,000.000 – 9,999.999	55	28
≥ 10,000,000	91	45
Total	200	100

Source: Processed Primary Data

Table-5.3 provides information thathouseholds54 household atau 27% of total householdrespondents have an income at a level between Rp. 1,000,000 – Rp. 4,999,999. While 55 householdsor 28% of the total respondents Sedangkan householdhave an income level of between Rp. 5,000,000 – Rp. 9,999,999 and 91 householdsor 45% of the total householdrespondentswho have an income level in one month more than Rp. 10,000,000.Incomeas shown in table-5.1 is the income Besides income allocationof household respondents, consumption of ricecan be seen from the price per sack (25 kg). Thus it is known that householdsin the research areathat consumericewith a price per sack level (25 kg) at ≥ Rp. 250.000 amounted to 108 householdsor 54% of the total household respondents. While household respondents that consumericeat the price level per sack (25 kg) ≤ Rp. 250.000 only amounted to 46% of the total household respondentsor 92 household respondents. From the information fromthe table above it can be concluded that this occurs because of the awareness of the household respondents concerning consumption and theincome factoras explained above.

Household income,wages andsalaries based on the work hours that have been completed, overtime, all bonuses andallowances, calculation of time when off work, bonus that is not a regular payment, rewards; and the value of paymentsin kind. There aretwo components, that is: *(1)*for usual work hours or for work that has been completed, and*(2)*for overtime. All other income components were added together on aggregate.The income indicator used was rupiah (Rp). The source of incomeof the respondentscame from farming and nonfarming jobs.According to research results, the majority of income of householdrespondentsin Maluku comes from basic work as farmers. Besides farmers, householdrespondents also obtained income incomeas fishermen and breeders. Other forms of work includedunskilled labourers, construction labourers, own business andcarpenters. In the following tablethe size of the average income of householdrespondentsin a month can be seen. ofhouseholdrespondentsthat originates from farming and non-farming work. This is because the great variety in the characteristics of the householdmembers in these fourRegencies / City of the samplearea.

The diminishing availability of rice substitutesfor the householdrespondentscertainly implications that are not good for the consumptionactivities of householdmembers in a month. The understanding being that the total number of rice substitutes that are consumed have diminished meaning that the nutrition factorthat originates from these rice substituteswill also diminish and long term will greatly influence the quality of the health of the members of the household in the research area. However on the other hand there is another phenomena that has been discovered in this research area, that is, when the income of the householdrespondentsrises, it does not have a significant influence on on the household consumption patterns, this is because the additional income is not followed by an increase in consumption ofrice substitutesrelated to endeavours to increase the availability of rice substitutesof householdsin the research area.

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From the observationresultsit is known that a rise in incomefor the householdrespondentsoften changes their householdconsumptionexpenses where decisions on consumptionhabits shift from consumption of rice or theconsumptionofrice substitutes such as the use of money to pay bills to a third party, he purchasing of electronic goods, andalso other third party needs This of course has a close relationship to the change in the consumptionbehavior of householdrespondentsaccording to the needs of each household in theresearch area. This situation is also caused by the rise in income of householdsin the research areathat are not always followed with an increase in the consumptionof rice substitutesin order to add to the availability of rice substitutesfor the householdrespondents.

Other findings in the four Regencies/City in Maluku as the research area are that besides farming and laboring that jobs beside the main occupation of householdrespondentsare very sparse which causes the income of the majority of householdrespondents to be low. Low household income can affect the level of food consumptionof the household. But households with high income also do not guarantee food availability in decent amounts in each householdor does not meet the minimum standard. This situation can be caused by household consumptionhabits in the consumptionprocess, or it can be caused by the low level of education of the head of the householdso that knowledge and insightconcerning how to carry out the consumptionprocess that fulfills the standardnutrition requirements correctly and accurately according to the needs of the memebrs of the householdin a month. Although not every head of household gets income from non-farming work, but income from non-farming work is needed to fulfill the needs of the household. While the housewife, who does not have any job except organize the housework, is expected to help the head of the householdin working.

The total of financial responsibilities is a characteristic that is related to an increase in income, including expenses andhouseholdfood consumption. The more the number of members of the householdneed costs are greater so that expenses and consumptionwill be greater. Members of a householdconsist of the husband (head of the household), wife and child. The greater the numbers of members of the household, then the expenses and food needs will also be greater. The results ofthis researchconcerning the members of the householdthat was carried out in four Regencies / City in Maluku can be seen in Table-5.4 below, that explains that 54 householdsconsisting of between 3 – 4 householdmembers is 27% of the total householdrespondents, while there were117 householdsconsisting of between 4 - 6 householdmembers or 58% of the total householdrespondents and29 households consisting of more than6 householdmembers or atau 14%.

The information in table-5.4 explains that the average household in theresearch areaincluded 4 - 6 members consisting of husband, wife, child and other family members that were the financial responsibility of the head of the family. Of course the number of householdmembers has great implicationson the household food availability in theresearch area.

Table.5.4: Number of Members of Household Respondents In theResearch area in Maluku, 2017

No.	Number of Household Members	Total	Percentage
1	1 – 3	54	27
2	4 - 6	117	58
3	6+	29	14
	Total	200	100

Source: Processed PrimaryData

This is because the head of the household has to allocatehis income for the consumption ofriceandrice substitutesas previously described. Differences occurred in the proportionof riceandrice substitutesconsumptionin theresearch area both in urban and rural area which was actually influenced by on three main factors, that is the habits in the food consumption patterns, the level of income andthe number of household members in householdsof the respondents.

The Results of Analysis of the Relationship between Variables

In describing the results of the researchcarried out by providing an overview of the results of quantitativecalculations according to the model that was used in this research.In analysingthe data to discover the influence of the price of rice substitutes (X1),the price of rice (X2),household income (X3), householdmembers (X4) have a real statistical relationship (significant) towards thedependent variable of food availability (Y1),thus a basic mathematical function is formed where Y1 is the food availability in Maluku, $X1_t$ the price of rice substitutes,$X2_t$,the price of rice$X3_t$household income,and$X4_t$household members, according to the time period of when theresearch was carried out. α_0 is the constantor intercept, is the coefficient regression that is sought, and*e*shows the variable error,andabove estimationmodel used the *OLS(Ordinary Least Square)*approach.

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Table.5.5: The Results of theLinear RegressionEquation Y1

Dependent Variable	Independent Variable	Parameter	Unstandardized Coefficients		Results Analysis		Comments
			B	Std. Error	t-Statistic	Sig.	
KPRT	PRS (X1)	α_1	-1.134	.926	-1.225	0.222	Not Significant
	PR (X2)	α_2	-2.847	1.005	-2.832	0.005	Significant
	HI (X3)	α_3	.011	001	15.390	0.000	Significant
	HM (X4)	α_4	2466.559	1195.718	-2.063	0.040	Significant
Constant = 69,323.971 R square = 0.560 F-statistic = 61.987 Sig. F-statistic= 0.000							

In the results of the analysis the regression equationas seen above was obtained so an interpretation can be made as follows. The above equation provides information that the price level of rice substitutes (X1), the price of rice (X2), household income (X3), household members (X4) have a positive relationship to food availabilityin Maluku (Y1). When the price of rice substitutes (X1), the price of rice (X2), household income (X3), householdmembers(X4)= 0, or experiences no change in the householdthen the value of food availability in Maluku (Y1) = C = 69,323.971.Thus the results of the data analysis (based on appendix 2): Y1 = 69,323.97 – 1,134 X1 – 2,847 X2 + 0.011 X3 – 2466.59 X4. Every single rupiah rise/reduction of therice substitutes (X1) has a positive effect 69,323.971 towards the constant value (α0). The implication being the higher the price of rice substitutes (X1) the higher the value of food availability in Maluku (Y1).

The constant 69,323.971 demonstrates that if there is no increase in the value/price ofrice substitutes (X1), the price of rice (X2), householdincome (X3),andhousehold members (X4) the value of food availability in Maluku (Y1) amounts to 69,323.971. The coefficient regression being–1,134 for X1, – 2,847 for X2, 0.011 for X3 and–2466.59 X4 demonstrates that every additional value unit (price or person) X1, X2, X3 and X4, will produce a rise of -1,134-2,847, 0.011, and-2466.59 across the board.

Based on an analysis of the results it is known that the coeficient determination is 0.560 that demonstrates that the variables of price rice substitutes (X1), the price of rice (X2), household income (X3),andhouseholdmembers (X4)together influence the food availability in Maluku variable(Y1)by 56 percent, and the remaining44 percent is determined by other variablesoutside of this estimationmodel.

In order to find out the relation between the variables of household food availability (Y1), price of rice substitutes (X1), the price of rice (X2), household income of consumer (X3), and the number ofhousehold members (X4), towards householdfood consumption patterns of the community (Y2), therefore a second model was formed with a basic mathematical function of = $f(X_1, X_2, X_3, X_4, Y_1)$.

From this mathematical function a double linear regressionequation as a basic model to form the following equations, where Y2 rice substituteshouseholdconsumption expenses, Y1 food availability in Maluku, X1price of rice substitutes,X2,the price of rice, X3 household income, andX4household members, according to the time period of when theresearchwas carried out. β_0 the constant or intercept, $\beta_{1....}\beta_5$the coefficient regression that is being sought, and*e*shows the variable error,and the above estimation model used the OLS *(Ordinary Least Square)*approach.

The estimation resuts of the equation on the following page, can provide information that the level of food availability in Maluku (Y1), the price of rice substitutes (X1),the price of rice (X2),household income (X3), householdmembers (X4) have a positive relation to the dengan rice substitutesconsumptionexpenses in Maluku (Y2).

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Table.5.6: Results of Linear Regression Equation Y2

Dependent Variable	Independent Variable	Parameter	Unstandardized Coefficients		Analysis Results		Comment
			B	Std. Error	t-Statistic	Sig.	
PKRT	PRS	β_1	.496	.061	8.149	0.000	Significant
	PR	β_2	1.003	.789	1.271	0.205	Not Significant
	HI	β_3	-.937	.871	-1.076	0.283	Not Significant
	HE	β_4	.005	.001	5.288	0.000	Significant
	MH	β_5	3641.467	1026.384	3.548	0.000	Significant
Constant = -225.193 R square = 0.647 F-statistic = 71.036 Sig. F-statistic = 0.000							

When food availability in Maluku (Y1), the price ofrice substitutes (X1), the price of rice (X2),household income (X3), householdmembers (X4) = 0, then the value of maka nilai consumptionrice substitutes expensesin Maluku (Y2) = C = -225.93. Every increase /decrease in food availability in Maluku (Y1) produces a positive effect of .496 towards the constant value (α0). The implication being, the higher the level of food availability in Maluku (Y1) then the value of consumption patterns di Maluku (Y2) will become greater. This phenomenais in accordance with the data findings in the field during the period of researchthat describes the increase in food availability in Maluku (Y1), which is always followed by a greater amount or rise in the total householdrice substitutesconsumptionexpenses in Maluku (Y2).

Secondly, every single rupiah rise or fallof the price of rice substitutes (X1) does not have an effect on the constant value (α0). The implication being that the higher the price of rice substitutes (X1) then the household rice substitutesconsumptionexpenses in Maluku (Y2) is not effected.So that it can be concluded that the price of rice substitutescannot be used to measure household rice substitutesconsumption expenses.

Thirdly, every one rupiah rise /fall in the price of rice (X2) has no effect on the constant value (α0). The implication being, the higher the price of rice (X1) then the value of household rice substitutesconsumptionexpense in Maluku (Y2) is not effected. So that it can be concluded that the price of ricecannot be used to measure householdrice substitutesconsumption expenses.

Fourthly,whenhousehold income (X3) = Rp.1, then rice householdsubstitutesconsumptionexpenses in Maluku (Y2) = Rp. 005 and so on.This condition is according to what was expected that every increase inhousehold income (X3), is always followed by an increase in householdrice substitutesconsumptionexpenses in Maluku (Y2). This phenomenais also in accordance with with data findings in the field during the period of researchwhich describes the rise in householdincome (X3) that is always followed by a greater amount or increase in the total household rice substitutesconsumptionexpenses in Maluku (Y2).

Fifthly when the number of householdmembers (X4)= 1 person, then household rice substitutesconsumption expensesin Maluku (Y2) = Rp. 3,641,467.When thehouseholdmembers (X4)= 2 people the food consumption pattern in Maluku (Y2) = Rp.7,282,934and so on. This condition is in accordance with the expectations that the increase in the householdmembers (X4)always follows with a greater increase in household rice substitutesconsumption expenses in Maluku (Y2) This phenomena is also in accordance with data findings in the field during in the period ofresearchdescribes the increase in householdmembers (X4) of one person is always followed by a graeter amount/ increase in the total household rice substitutesconsumptionexpenses in Maluku (Y2).

Constant-225,193 states that if there is no increase in the values of food availability in Maluku (Y1), the price of rice substitutes (X1), the price of rice (X2), household income (X3),andhouseholdmembers (X4) then the value of household consumption patterns in Maluku (Y2) will be adalah -225,193. The coeffcient regression of 496for Y1, 1.003for X1, -937 for X2, 005for X3 and X4 3,641,467 states that each additional unit value (price or person) Y1, X1, X2, X3 dan X4, will have an effect of 496, 1,003, -937, 005 and3,641,467put together.

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Based on the results analysis it is known that the maka coefficient determination is0.647 that demonstrates that the variables of food availabilityin Maluku (Y1), the price of rice substitutes (X1), the price of rice (X2), household income (X3),andhouseholdmembers (X4)put together effect the food availability in Maluku variable(Y1)of 64.7 percent, and the remaining35.3 percent is determined by variablesoutside this estimationmodel.

V. CONCLUSION

With reference to the results and the discussion that has was put forward in the previous chapter, then it can furthermore be concluded as follows:

1. The price of rice substituteshas a direct influence on householdfood availability in Maluku Province. Anincrease in the price of rice substitutes inMaluku Provinceis alaways followed by an increase in the total household food availability. Besides this, the price of rice substituteshas a direct effect on householdrice substitutesconsumption expenses. Anincrease in the price of rice substitutesin Maluku Provinceis followed by an increase household rice substitutesconsumption expenses.
2. The price of ricehas a direct influence on householdfood availability in Maluku Province. An increase in the price of rice inMaluku Provinceis also followed by an increase in the total of household food availability. Besides this, the price of ricedirectly influences the household rice substitutesconsumption expenses. An increase in the price of ricein Maluku Province dis followed by an increase in household rice substitutesconsumption expenses.
3. Household income directly influences householdfood availability inMaluku Province. An increase in household income inMaluku Provincealso is followed by an increase in the total household availability. Besides this, householdincomedirectly influences the total of household rice substitutesconsumption expenses. An increase in household income in Maluku Provinceis followed by an increase in householdrice substitutesconsumption expenses.
4. The number of householdmembers directly influences householdfood availability in Maluku Province. If the number of household membersincrease then it is always followed by an increase in the total of household food availability.Besides this, the number of householdmembers directly influences the household rice substitutesconsumption expenses. If the number of householdmembers increase then it will be followed by a rise in the level of household rice substitutesconsumption expenses.

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