AGROLAND: The Agricultural Sciences Journal
Vol. 7, No. 2 December (2020), 116 - 125
P-ISSN : 2407- 7585 & E-ISSN : 2407- 7593, Published by Tadulako University

Original Research **Open Access**

ESSENTIAL COMMODITY CONSUMPTION: A STUDY ON FOOD CONSUMPTION EXPENDITURE OF RURAL SOCIETY

Mohamad Ichwan[1)], Patta Tope[2)]

[1)]Department of Economics and Development Studies, Faculty of Economics and BusinessTadulako University, Palu
[2)]Lecturer in the Master of Rural Development Study Program, Postgraduate Tadulako University, Palu

Correspondence author's: Mohamad Ichwan
Email **:** mitandju@yahoo.com

Submit: 7 Januari 2021, Revised: 10 Januari 2021, Accepted: 12 Januari 2021

ABSTRACT

The primary commodity consumed by people is reflected in the highest expenditure to fulfill it within a specific period, the dominance of expenditure in all consumption expenditures indicates the importance of commodities in all households' consumption. This study aims to identify the dominant consumption patterns of food commodities using descriptive analysis of 6,178 households obtained through national secondary data from the 2017 national socio-economic survey (Susenas). Several commodities categorized by largest to smallest expenditure are the basis for determining the largest consumption expenditure as essential commodities. Based on the ranking of consumption expenditures, the three most prominent consumption groups were identified, namely: (1) rice, (2) rice with assortment of side dishes, and (3) fish. Rice, detected through 4,771 households, is the largest consumption commodity, and expenditure on this commodity increases in line with the rise in income, reflected in the mean value of expenditure which is higher in the increasing income group. The expenditure of rice with assortment of side dishes was detected through 3,150 households and had the same tendency as rice, particularly increased expenditure in the higher income groups. Fish consumption expenditure was detected through 3,488 households following the conditions for the two previous commodities, and expenditures increased with higher income. The increased expenditure on the consumption of essential commodities by income groups demonstrates that the tendency to consume is in accordance with Keynes's relationship between consumption and revenue. The higher the income, the greater the consumption expenditure. However, to a certain extent, the specific relationship is that the proportion of increased consumption expenditure decreases with higher income. Based on the elasticity coefficient, it was found that three essential commodities were normal goods. However, the level of consumption sensitivity to rice and fish income was higher than for processed food. In contrast to elasticity, the tendency to consume processed food is higher; the share of the increase in revenue is used to increase consumption of processed food, compared to adding rice and fish. This finding acts as provisional evidence that food consumption has undergone a fundamental change to become more consumptive.

Keywords: Consumption pattern, Marginal propensity to consume, Food consumption, Food consumption expenditure elasticity.

INTRODUCTION

The relatively fast population growth in the last decade — from 1990 to 2010 — has increased serious efforts to maintain food availability for living needs and the availability of non-food for other productive activities. Efforts to preserve the availability of primary, secondary, and tertiary needs to play a role in creating prosperity; on the other hand, failing to meet them can hamper welfare.

Based on the Central Bureau of Statistics (BPS) 2019 records, the proportion of consumption expenditure of rice, other foods, and processed food of Indonesia in 2017 reached 65 percent. The food consumption expenditure, which is relatively higher than non-food consumption, reflects the risk of consumption when food price stability is disrupted; the price stability is a crucial effort to ensure people's purchasing power. The contribution of food prices in increasing food materials inflation reaches around 5 percent, indicating that food prices' stability will guarantee most of the population's ability to consume. Rice price stability is necessary because this essential food plays a vital role in calculating the consumer price index. Changes in prices determine food price movements and the escalation of inflation. The stability of food prices ultimately impacts the poor's consumption capacity so that it plays a role in stabilizing the welfare of underprivileged households.

Poverty is integral from the ability to meet basic food, and non-food needs (Nicholson, 2005) identifies it through an assessment of the large proportion of expenditure on food consumption to all household expenditures as reflected in Engel's law - phenomenon shows when income increases, the ratio of income spent on buying food decreases - in other terms, the elasticity of income food is always between 0 and 1. Based on BPS 2017 records, Central Sulawesi Province during 2008-2010 experienced a tendency: more than 50 percent of the society's expenditure per capita was allocated for food consumption. This phenomenon has initiated the need for a scientific exploration on the consumption patterns of rural society.

The relationship between income and consumption expenditure has long been developed and is known as Engel's Law in which the percentage of expenditure on food consumption decreases with increasing income (Salvatore D. 2006). It can be concluded that there is a unidirectional relationship between income and the proportion of food expenditure. Therefore, the population's consumption pattern can function as a marker of the level of population welfare. The higher the welfare of the people, the proportion of food consumption expenditure tends to decrease. On the other hand, a relatively high proportion of food consumption expenditure can indicate the population's relatively low welfare. Differences in public consumption patterns may reflect differences in income.

The relationship between consumption and income patterns is an intriguing area of study, especially the types of food and non-food commodities dominant in household consumption. Studies of food consumption in Indonesia have been conducted by Marpaung (2006), Sayekti (2009), Purwaningsih, Hartono, Masyhuri, and Mulyo (2010). Ahmad, Rahmadanih, and Ali (2017) have conducted a more steep study of consumption patterns in rural areas. Ichwan, Moelyono, and Yusuf (2020) have conducted more specific research on household groups' dominant consumption in rural areas.

The development of research on consumption patterns has been going on

for a long time, including efforts to identify the middle class's consumption in China by Zhu (2011), using Chinese General Social Survey data. He tried to review consumption patterns that contain the sense and material culture which society experienced due to globalization. Engel's law's primary variable remains the advancement of research, which is to observe the elasticity of income through household expenditure in rural areas. Sethi and Pradhan (2012) and M. Fasoranti (2014) developed research on the determinants of consumption expenditure among rural residents.

Other development topics regarding the study of the consumption patterns of the elderly in rural communities have been carried out by Lee, Sohn, Rhee, Yoon, and Hua (2014); Ahmad et al. (2017) developed studies with quantitative and qualitative paradigms. Efforts to find a link between consumption patterns and the environment are part of further research development. Economic growth accompanied by increasing population and globalization has resulted in structural changes in consumption patterns worldwide. Besides, efforts to estimate the relationship between changes in consumption patterns and environmental impacts, even more specifically on emissions, have been developed (Sharma, Trung, and Grote, 2018; Caron and Fally, 2018).

Various empirical results on consumption expenditure have strengthened the role of income in consumption patterns. As in the concept of *marginal propensity to consume* /MPC by Keynes, however, he expressly reveals that the increase in consumption is not as significant as an increase in income. It is also emphasized by Engel's Law who uses income elasticity for food, which means that the proportion of food consumption expenditure tends to decrease when there is an increase in income. However, various previous studies have not utilized empirical data to identify MPCs' food, nor have they revealed the dominant food consumption expenditure in rural households. The difference in the population's consumption pattern in rural areas due to differences in household income is a new challenge in further analysis to enrich the research knowledge of the consumption patterns of Indonesian rural households, especially in Central Sulawesi.

RESEARCH METHODS

Referring to BPS records in 2017, during 2008-2010, society spent more than 50 percent of the expenditure per capita for food consumption. Furthermore, Engel's Law (Salvatore. 2006) indicates that the higher the population's welfare, the proportion of food consumption expenditure decreases. Food consumption patterns in Indonesia Marpaung (2006), Sayekti (2009), Purwaningsih et al. (2010), and rural consumption by Ahmad et al. (2017). As well as middle-class consumption by Zhu (2011) and determinants of consumption expenditure among rural residents by Sethi and Pradhan (2012); M. Fasoranti (2014), and Ichwan et al. (2020), found five dominant household commodities in rural areas.

This research will identify the MPC of essential food commodities. Descriptive analysis was carried out on cross-sectional data, namely the variable of consumption expenditure that had occurred thus this study was classified as descriptive. (Sugiyono, 2011; Bungin, 2017; Arikunto, 2013; Anshori and Iswati, 2017). Efforts to determine the pattern of consumption of essential commodities are often carried out by describing food commodities consumed by households in rural areas.

Identification of the most commodities is based on the number of households that consume certain foods and the value of expenditure on food commodities available in the 2017 Susenas national secondary data. Rural households in Central Sulawesi were identified as 4,832, equivalent to 78 percent of the 6,178 Susenas survey households. The number of households are the focus of

examining consumption expenditures in order to identify food consumption expenditure for one month. The determination of dominant consumption is carried out by sorting from the highest amount of expenditure to the smallest expenditure until the three most significant consumption is identified, namely (1) Rice; (2) Rice with assortment of side dishes; and (3) Fish.

Attempts to find MPC coefficients were carried out using Keynes basic concept but applied differently. In the basic concept of MPC obtained through the ratio between changes in consumption and changes in income, Keynes's implementation of his idea of consumption is to apply consumption expenditure in one year (Pindyck and Rubinfeld, 2018). In this research, changes in consumption and income are applied based on changes in consumption expenditure and income changes in groups, namely the lowest income group and the highest income group.

RESULTS AND DISCUSSION

Essential commodities were determined by sorting food consumption expenditures from largest to smallest. The first stage identifies eight dominant food commodities that are sorted based on the composition in the Susenas data, namely: (1) rice; (2) sugar; (3) chilly; (4) cake; (5) fish; (6) cigarette; (7) rice with assortment of side dishes; and (8) beverage. Next, the five commodities with the most expenditure in one month are sorted; at this stage, the order is determined based on the highest to the smallest expenditure consisting of (1) rice; (2) cigarettes; (3) rice with assortment of side dishes; (4) fish; and (5) sugar. Out of five largest expenditures in rural households includes non-essential consumption, namely cigarettes, this consumption ranks second. Besides, sugar is not included in essential consumption, so that in the following explanation, the essential consumption included in the analysis are (1) Rice; (2) Rice with assortment of side dishes; (3) Fish.

Starting with **rice** consumption, households identified as having rice expenditure are those with a positive expenditure on rice — that is, those with a rice expenditure value greater than zero. The number is 4,771, or equivalent to 98.7 percent of 4,832. It divides them into five household groups, the first 20% as the lowest rice expenditure household group to the fifth highest income group. Based on this classification, the amount in one group is relatively the same as the number in the other four groups. Therefore, the mean value of expenditure in each group can be an identifier of the difference in rice consumption expenditure among the five income groups.

It was found that the mean value of rice consumption expenditure increased along with the increase in expenditure for each income group, thus reflecting that the pattern of consumption expenditure for this commodity tends to follow income conditions. Rice consumption increases when income is higher (Ichwan et al., 2020), as seen in Figure 1, which provides information on this trend. The attempt to explain the differences in expenditure based on income groups are carried out by relating the five rice consumption expenditure groups with the highest and lowest income groups. The vertical axis reflects the number of households that have expenditure on rice consumption; the farther from the point of origin, the greater the number. The flat axis represents the five rice expenditure groups; the first group shows the lowest 20 percent of households. The farther away from the point of origin indicates the next 20 percent and ends in the highest 20 percent expenditure group.

Associating the lowest and highest income groups in each expenditure group will result in households at each coordinate point. This number represents the number of households with expenditure on rice consumption according to the highest and lowest income groups. The number of rice

consumers in the lowest income group will be larger in the lowest expenditure group than the highest income group. Conversely, the highest income group will be larger in the largest expenditure group compared to the lowest income group.

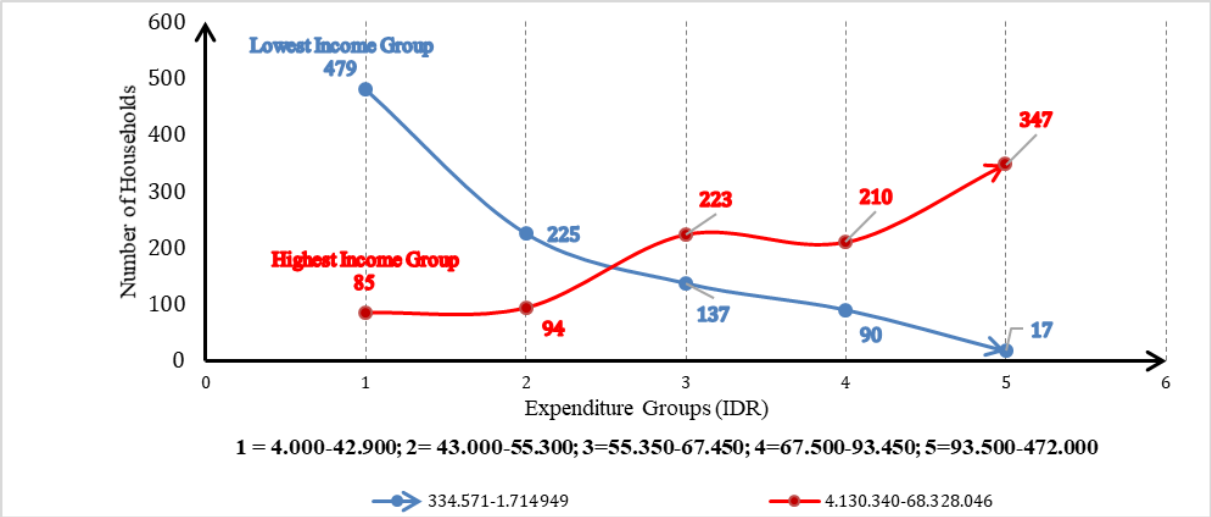

Figure 1. Number of Households with the Highest and Lowest Income by Rice Consumption Expenditure Group (N = 1,907 out of N = 4,771 Consumers).

When consumption expenditure conforms to income, it is believed to be found in the lowest income group. Those with the least consumption expenditure dominate the number of households. This number will decrease in the highest income group of households. In the highest income group, on the contrary, what happens is that those with the highest consumption expenditure dominate the number of households. However, this number will decrease in other income groups. Households in the lowest and highest income groups amounted to 1,907 or reached 39.9 percent of those who consumed rice.

Their respective distributions are as follows. In the lowest income group, the lowest rice consumption expenditure was 479 (85%) households and decreased based on the increasing expenditure group. On the other hand, in the highest income group, rice expenditure was highest at 347 (95%) households and decreased based on the increasing expenditure group. When focusing on the third group, whose expenses are IDR 55,350 - IDR 67,450, this group consists of 360 households, and the largest proportion is around 62 percent, which is the highest income household compared to 38% of the number of households with the lowest income. Furthermore, the group with higher rice consumption, namely the group with the fourth rice expenditure, namely IDR 67,500 - IDR 93,450, and the fifth, IDR 93,500 - IDR 472,000, is increasingly dominated by those with the highest income with 70 percent and 95 percent respectively.

This phenomenon is proof that rice consumption expenditure follows household income; the higher the income will encourage rice consumption expenditure. Besides, it also proves that rice in rural households is a group of normal goods characterized by its inelastic demand, indicated by the elasticity of the low-income group of (-) 0.04 and high income of (+) 0.31. Consumption of rice, which is the primary commodity, is increasingly sensitive to income in the highest income groups and insensitive to income for those with the lowest income. This finding is consistent with Recalis and Salas (2008), Sethi and Pradhan (2012); Fasoranti (2014); and Ahmad et al. (2017).

The tendency to consume rice is found by determining the changes in the amount of consumption expenditure, namely calculating the difference between expenditure for the highest and lowest income groups. The change in consumption is IDR 259,300, and the change in income is around IDR 35,204,000, so that the tendency to consume is minimal, namely 0.007, which is a figure indicating an increase in income IDR 100,000 will be used to increase rice consumption by IDR 736. The increase in income allocated to increase rice consumption is very small, even though rice is an enormous food expenditure.

The second largest consumption expenditure in food consumption is **rice with assortment of side dishes**; this expenditure is manifested in 3,150 households and is carried out to meet basic needs. Four hundred thirty-four households carried out this consumption in the lowest income group and 765 in the highest income group. In the lowest income group, consumption expenditure gradually decreases in the number of households when expenditure is higher, and vice versa occurs in the highest income, one corroborating evidence that they are more likely to purchase processed food (Ichwan et al., 2020). The distribution of the number of households in the lowest and highest income groups in each expenditure group is shown in Figure 2.

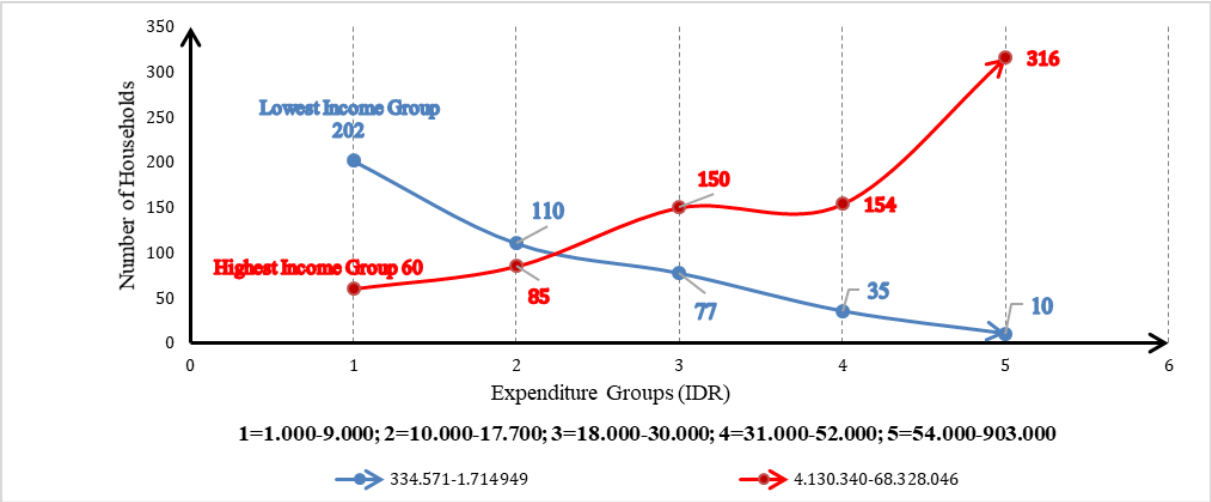

Figure 2. Number of households with the highest and lowest income according to the expenditure group for rice with assortment of side dishes consumption (N = 1,199 from N = 3,150 Consumers).

The amount of expenditure calculated based on each expenditure group's mean value can be a comparison of the amount of consumption with the previous commodity. Expenditures in the first group of IDR 5,000 / month are generated by: (IDR 1,000 + IDR 9,000) / 2, then second to fifth IDR 13,850 / month, IDR 24,000 / month, IDR 41,500 / month, and IDR 478,500 / month. Particularly for the highest expenditure group, the amount of rice with assortment of side dishes consumption is greater than rice consumption, indicated by the mean value of expenditure of around IDR 119,200, which is greater than the expenditure on rice commodities, indicating that the fulfillment of household food consumption for high-income groups, is carried out through processed food consumption.

In rural communities, rice with assortment of side dishes is an everyday commodity, indicated by the number of the elasticity coefficient in the lowest income group of (-) 0.02 and in the highest group of (+) 0.04. Compared to rice consumption,

the elasticity in the highest income group is found to be relatively low; this condition shows that in the high-income group, the changes in the number of consumers from the lowest expenditure to the highest expenditure are not as fast as their income changes (Ichwan et al., 2020). Such results are increasingly convincing that this consumption is not as important as rice consumption but does so to meet basic needs that are not always available.

The change in consumption expenditure for processed food was found to be IDR 473,500 with a change in income of around IDR 35,204,000, and the tendency to consume is 0.013. One indication is that if income increases by IDR 100,000, the share allocated to increase consumption is IDR 1,345, this value is higher than rice consumption. This finding may explain the tendency of rural communities to be more consumptive in meeting their food needs.

The third commodity that plays a role in the most extensive food consumption expenditure is **fish**. The number of households that were detected spending on fish consumption was 3,488. The expenditure on fish consumption in each group varies, namely at 20 percent of households with the smallest expenditure ranging from IDR 2,000 - IDR 10,000 and 20 percent of households with the largest expenditure varying from IDR 36,000 to IDR 280,000, which is the most comprehensive expenditure range of the other groups. The mean value of expenditure was around IDR 53,600, indicating an expenditure that was almost one-fold of the expenditure in the previous group.

Following the distribution pattern for the two previous commodities, it is found that the number of households in the lowest income group decreases as fish consumption increases. The opposite occurs in the highest income group; in this group, the more fish consumption is in, the higher consumption group, a form of consistency between consumption expenditure and income (Ichwan et al., 2020). This trend is shown in Figure 3.

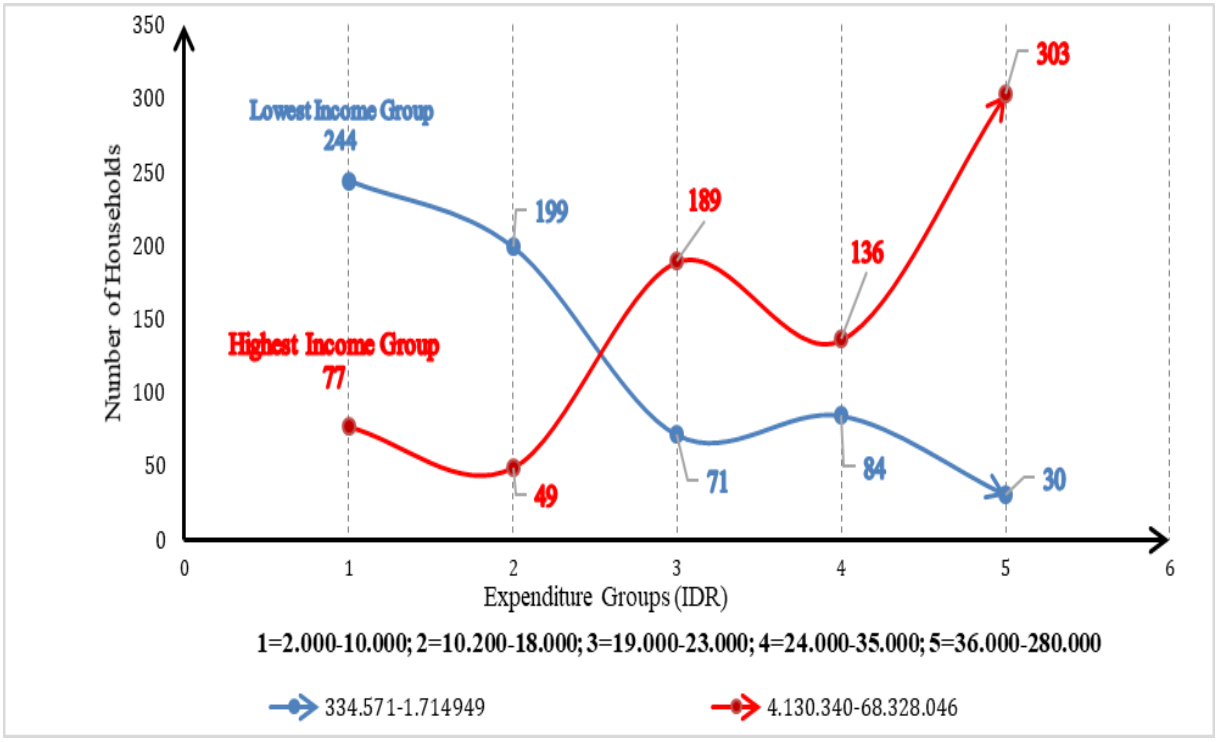

Figure 3. Number of Households with the Highest and Lowest Income by Fish Consumption Expenditure Group (N = 1,382 of N = 3,488)

The number of fish consumers in the highest income group is more than the lowest income group; their number increases regressive in each increasing expenditure group. Fish is a normal goods consumption as indicated by the elasticity of (-) 0.05 in the lowest income group and (+) 0.11 in the highest income group, fish consumption is more elastic in the highest income group. It is reasonable that when changes in the number of consumers increase in the higher expenditure group, the need for fish consumption grows for those with higher incomes (Ichwan et al., 2020). Consumption of this commodity is almost no different from the consumption of rice, has a similar pattern of income sensitivity; this finding is consistent with Recalis and Salas (2008); Sethi and Pradhan (2012); M. Fasoranti (2014); and Ahmad et al. (2017).

The change in consumption expenditure on fish commodities is IDR 152,000 with a change in income of around IDR 35,204,000, a coefficient of propensity to consume is 0.004, a minimal number. It indicates that if there is an increase in IDR 100,000, the share allocated to increase consumption is IDR 431. The tendency to consume this commodity tends to be the same as rice but is relatively different from rice with assortment of side dishes.

This study found that the income elasticity of three essential commodities was normal goods but differed in their sensitivity between rice and fish and processed food. In the highest income group, rice and fish's elasticity is higher than rice with assortment of side dishes, indicating that the sensitivity of rice and fish consumption expenditure on income is higher than rice with assortment of side dishes. However, the tendency to consume rice with assortment of side dishes is higher than rice and fish; one evidence is that when there is a change in rural communities' income, the proportion of increased income allocated to increased processed food consumption will be more significant than for additional consumption of rice and fish. Based on the findings regarding elasticity and the tendency to consume essential commodities, rural communities face fundamental food consumption changes. They tend to be more consumptive in meeting their food needs.

CONCLUSIONS AND SUGGESTION

Conclusion

This research uses descriptive analysis on 6,178 households obtained through national secondary data from the national socio-economic survey in 2017. Three essential consumption expenditures were obtained, namely: rice, rice with assortment of side dishes, and fish. Rice expenditure was detected through 4,771 households, mixed rice commodity expenditure through 3,150 households, and fish consumption expenditure through 3,488 households. The elasticity coefficient found shows that the three essential commodities are normal goods. However, the level of consumption sensitivity to rice and fish income is higher than for processed food.

Meanwhile, based on the propensity to consume coefficient, it was found that processed food was higher than rice and fish. It indicates that the portion of the increase in income used to increase processed food consumption is more significant than to increase rice consumption and fish. This finding is provisional evidence that in rural communities, food consumption has undergone a fundamental change to become more consumptive.

Suggestion

Although it is found that there is a consistent trend between consumption expenditure and income through cross-tabulation, especially when comparing the lowest and highest income to detect expenditure patterns. However, this method is limited to expressing consistency through its distribution, namely the frequencies of each category.

For this reason, it is suggested that further efforts to ensure the relationship between various groups of consumption expenditure and income groups should continue to test the hypothesis through analysis of *chi-square*. Likewise, efforts to identify elasticity and propensity to consume are carried out based on OLS or ML's technical estimates.

ACKNOWLEDGEMENTS

The author realizes that the writing of this article is integral from the attention of many parties, from data availability to writing the research results. Therefore, the authors would like to thank the Central Sulawesi Central Bureau of Statistics for authorising the utilization of data and the formation of research model data.

REFERENCES

Ahmad, Ahfandi., Rahmadanih, and Ali, M. Saleh S. Patterns of Food Consumption and Production of Mountainous Community in Sinjai District, South Sulawesi Province, Indonesia. *International Journal of Agriculture System* (IJAS). 2017 Volume 5 Issue 1 June. Retrieved from https://www.researchgate.net/publication/318122299_Patterns_of_Food_Consumption_and_Production_of_Mountainous_Community_in_Sinjai_District_South_Sulawesi_Province_Indonesia.

Anshori M and Iswati S. *Quantitative Research Methodology*. Surabaya: Airlangga University Press. 2017.

Arikunto, S. *Procedure Research*: *A Practical Approach*. Jakarta: Rineka Cipta. 2013.

Bungin, B. *Quantitative Research Methods*: *Communication, Economics, and Public Policy, and other social sciences*. Edition 2. Jakarta: Kencana. 2017.

BPS, 2019. *Central Sulawesi Province in Figures*. Catalog 1102001.72

BPS, 2017. *Micro Data, Module Household Consumption in Central Sulawesi.*

Caron, Justin and Fally, Thibault. Per Capita Income, Consumption Patterns, and CO2 Emissions. *Papers conference and seminar*. 2018. (online) obtained from https://are.berkeley.edu/~fally/Papers/CO2 paper.pdf.

Ichwan, M., Moelyono, M., Yusuf D. 2020. Consumption Patterns of Rural Community: A Study of Five Food Commodities Expenditure In Central Sulawesi. 2020. *Russian Journal of Agricultural and Socio-Economic Sciences*. https://rjoas.com/issue-2020-05

Lee, Seonglim., Sohn, Sang-Hee., Rhee, Eunyoung., G. Lee, Yoon., Zan, Hua. Consumption patterns and economic status of older households in the United States. *Statistics Monthly Labor Review. US Bureau of* Labor. 2014 (online) obtained from https://www.bls.gov/opub/mlr/2014/article/pdf/consumption-patterns-and-economic-status-of-older-households.pdf.

Marpaung, Harum. M. Community Consumption Patterns: Profile of Consumer Buying Behavior, DI Yogyakarta. *E-Journal of Phenomenon:* 2006 vol. 4 No. 2. ISSN: 1693-4296. Directorate of Research and Community Service, Islamic University of Indonesia. Yogyakarta.

M. Fasoranti Mary. The Determinants of Consumption Pattern Among Rural Dwellers of Ondo State Case Study of Akoko North west Local Government. 2014, *European Scientific Journal*.

Nicholson, W. *Microeconomic Theory: Basic Principles And Extension*. 9th Edition. Ohio: South-Western, Thomson Corporation. 2005.

Purwaningsih, Y., Hartono, S., Masyhuri, Mulyo, JH. Analysis of Household Expenditure Patterns by Level of Food Security in Central Java Province. *Journal of Development Economics*, 2010 Volume 11, Number 2, December 2010, pp. 236-253.

Racelis, Rachel H. and Ian Salas, JM Have Lifecycle Consumption and Income Patterns in the Philippines. *Discussion Paper Series No. 2008-11*. Philippine Institute for Development Studies. 2008. (on-line) available from https://www.ntaccounts.org/doc/repository/RS2008b.pdf

Pindyck, Robert S. and Rubinfeld, Daniel L. *Microeconomics, 9th Edition, Global Edition*. Pearson Education Limited. 2018.

Salvatore, Dominick. *Microeconomics: Schaum, s Outlines*, ed fourth. Translation: Rudy S and Haris M. Jakarta: Erlangga. 2006.

Sayekti, A. Ayiek Sih. Patterns of Household Food Consumption in Historical Areas of Rice and Non-Rice Food in Indonesia. Faculty of Agriculture, *Instiper*, Yogyakarta. Thing. 2009, 201-218.

Sethi, Narayan and Pradhan, Hemanta Kumar. The Patterns of Consumption Expenditure in Rural Households of Western of India: an Engel Ratio Analysis. *OIDA International Journal of Sustainable Development*. 2012. Ontario International Development Agency, Canada ISSN 1923-6654 (print) ISSN 1923-6662 (online) available at www.oidaijsd.com http://www.ssrn.com/link/OIDA-Intl-Journal-Sustainable-Dev.html

Sharma, R., Trung Thanh Nguyen., and Grote, Ulrike. Changing Consumption Patterns — Drivers and the Environmental Impact. *Sustainability*, 10, 4190. 2018. (on-line) obtained from https://www.mdpi.com/2071-1050/10/11/4190/pdf/1

Sugiyono. 2011. *Quantitative, Qualitative, and R & D Research Methods*. The 13th edition. Bandung: Alfabeta. 2011.

Zhu, Di. Consumption patterns of the middle class in contemporary China: a case study in Beijing. *Journal of Sustainable Development*. 2011. (on-line) obtained from https://www.research.manchester.ac.uk/portal/files/54507982/FULL_TEXT.PDF