ISSN : 1412-8837
e-ISSN : 2579-9959
JURNAL AGRISEP
Kajian Masalah Sosial Ekonomi Pertanian dan Agribisnis
DOI: 10.31186/jagrisep.22.1.195-206

DEMAND ANALYSIS OF MARINE FISH IN SOUTH CILACAP SUB-DISTRICT: A LINEAR APPROXIMATE ALMOST IDEAL DEMAND SYSTEM (LA AIDS) MODEL APPROACH

Analisis Permintaan Ikan Laut di Kecamatan Cilacap Selatan: Pendekatan Model Linear Approximate Almost Ideal Demand System (LA AIDS)

Diva Tasya Salsabila[1]; Herman Sambodo[2]; Suharno[3]
[1),2),3)]Department of Economics Development, Faculty of Economics and Business, Jenderal Soedirman University, Purwokerto, Indonesia
Email: herman.sambodo@unsoed.ac.id

ABSTRACT

This research aims to analyze the factors that influence the demand and its elasticity for marine fish in the South Cilacap Sub-District, Cilacap Regency. For data collection, interviews and questionnaires were used with respondents consisting of 100 households, while the Almost Ideal Demand System (AIDS) was used for analysis. According to the results, the demand for marine fish was influenced by several factors, namely price, fish expenditure, income, number of family members, and tastes. Also, the price of elasticity of the four fish commodities was inelastic. Income elasticity of tuna, skipjack, and squid were inferior goods, while shrimp were luxury goods. The cross-price elasticity of the four fish commodities is more complementary. This research suggests that the relevant government agencies must improve facilities and infrastructure to maintain the quality and availability of fresh marine fish commodities. The Government through related departments or managers of local Fish Auction Places (TPI) need to improve facilities and infrastructure as well as improve infrastructure, for example providing fish coolers so that quality is maintained and ensuring the availability of fresh marine fish commodities can be maintained. Furthermore, the gemarikan program (love eating fish program) can be maximized to increase the taste and awareness, and interest of the people of Cilacap Regency in consuming marine fish as a side dish.

Keyword: AIDS, demand, marine fish

ABSTRAK

Tujuan penelitian ini adalah untuk menganalisis faktor-faktor yang mempengaruhi permintaan ikan laut dan elastisitas permintaan ikan laut di Kecamatan Cilacap Selatan Kabupaten Cilacap. Jumlah responden terdiri dari 100 rumah tangga. Pengumpulan data menggunakan metode wawancara dan kuesioner sedangkan untuk alat analisis menggunakan Almost Ideal Demand System (AIDS). Hasil dari penelitian ini menunjukkan bahwa permintaan ikan laut dipengaruhi oleh beberapa faktor yaitu harga, pengeluaran ikan, pendapatan, jumlah anggota keluarga, dan selera. Elastisitas harga sendiri keempat komoditas ikan bersifat inelastis. Elastisitas pendapatan ikan tuna, ikan cakalang, dan cumi termasuk barang inferior, sedangkan udang termasuk barang mewah. Elastisitas harga silang dari keempat komoditas ikan lebih banyak bersifat komplementer. Saran dari penelitian ini yaitu, Pemerintah Dinas terkait perlu melakukan peningkatan sarana dan prasarana agar dapat terjaga kualitas dan ketersediaan komoditas ikan laut segar. Pemerintah melalui dinas terkait atau pengelola Tempat Pelelangan Ikan (TPI) setempat perlu meningkatkan sarana dan prasarana serta meningkatkan infrastruktur, misalnya menyediakan pendingin ikan agar kualitas tetap terjaga dan memastikan ketersediaan komoditas ikan laut segar dapat terjaga. Untuk meningkatkan selera dan kesadaran serta minat masyarakat Kabupaten Cilacap dalam mengonsumsi ikan laut sebagai lauk, program gemarikan dapat lebih dimaksimalkan.

Kata Kunci: AIDS, permintaan, ikan laut

INTRODUCTION

Indonesia has an area of water covering 75% of its total land area as well as 17,508 islands and an 81,000-kilometer coastline with abundant fisheries natural resources (Suharno et al., 2018). The fishery sector contributes to meeting export demand, providing industrial raw materials, and the food needs of the Indonesian population (Virgantari et al., 2011). According to the Central Statistics Agency, later abbreviated as Badan Pusat Statistik Cilacap (2019), compared to other agricultural sub-sectors, the growth rate of the fisheries sector to GDP in 2014-2018 was the highest. The increase in GDP growth was due to the continuous increase in fishery productions, both aquaculture and capture fisheries. Indonesia's increasing fish production also affects the rising fish consumption. According to the Indonesian Ministry of Maritime Affairs and Fisheries, later abbreviated as KKP, the level of fish consumption in Indonesia increased from 2015 to 2019. However, in 2017 the number was still relatively low once compared to neighboring countries such as Malaysia, Singapore, and Japan (Widria, 2019). This is due to the Indonesian people's lack of awareness and knowledge about the benefits of eating fish as a source of food and protein.

Java is one of the most populous islands in the country, and a high population can affect the increase in demand for food needs (Faharuddin et al., 2013). Central Java province has the potential to be developed in terms of marine capture and public water capture fisheries (Suharno & Widayati, 2015). Furthermore, Cilacap Regency which is located on the south coast contributes significantly to fishery production and South Cilacap Sub-District produces the largest marine capture fish in this regency. This is because the majority of the population, 4,156 people, work as fishermen (Badan Pusat Statistik Cilacap Regency, 2019). Since people's consumption patterns are influenced by natural resources and local culture, the abundant availability of marine capture fish in this Sub-District can affect the demand for fish consumption (Tiffany et al., 2020).

According to Table 1. the fish consumption rate in Cilacap is lower than in Central Java and nationally. This means that although fish is rich in protein content which is useful in the body and this regency has abundant fish production, the community still lacks in consuming it, hence consumption rate is relatively low. This is due to several factors such as the fact that people are more likely to consume chicken, lack of public understanding and knowledge about nutrition and health benefit of fish, and limited marketing facilities (Djunaidah, 2017). According to Rambe et al. (2014), consumer purchasing power and prevailing prices are some of the factors that affect demand for marine fish. Once the price is cheap and the supply is fixed, there will be an increase in fish demand and vice versa. In addition to consumer purchasing power and prices, the number of family members, and consumer tastes also influence the demand.

Table 1. Development of Fish Consumption Figures 2014-2018 (Kg/Capita)

Year	National	Central Java Province	Cilacap Regency
2014	38.14	20.92	16.11
2015	41.11	22.37	17.29
2016	43.94	26.71	18.65
2017	46.49	29.81	22.93
2018	50.69	33.48	25.93

Source: Direktorat Jenderal Perikanan Tangkap Kementerian Kelautan dan Perikanan, (2018).

Based on data published by Badan Pusat Statistik Cilacap Regency (2018), the production of marine fisheries dominates compared to general fisheries or aquaculture fisheries, in 2018 the production in marine fisheries was recorded 29,595,539.99 Kg with 25.93 Kg/Capita/year fish consumption rate which is still relatively low. Cilacap Regency, which is located directly facing the Indian Ocean and Segara Anakan Area, has the potential and abundant avaibillity of fish resources so that it contributes significantly to the supply of protein food

sources and is expected to have a high fish consumption rate, especially in South Cilacap Sub-District. The main problem is the abundant availability of sea-caught fish, but people's interest in consuming fish as side dishes is still low. It is interesting to study further how marine fish consumption patterns and the factors that influence them. In addition, studies on the elasticity of demand for marine fish in this area are rarely carried out. It is hoped that by knowing the elasticity of demand for fish, we can understand price changes based on the fluctuations in the percentage of the number of fish demanded or the percentage change in the price of fish.

Based on the background and problems above, this research aims to identify the effect of marine fish prices, fish expenditure, consumer income, number of family members, and tastes on the demand for marine fish in the South Cilacap Sub-District, Cilacap Regency, as well as its elasticity.

RESEARCH METHOD

This research used a quantitative method and this research was conducted in the South Cilacap Sub-District, Cilacap Regency because South Cilacap Sub-District contributes the most of production of marine fisheries which produces 76.74% of all marine fisheries production in Cilacap Regency. Meanwhile, a relatively high population occurred in South Cilacap District, Cilacap Regency, with 23,851 households (Badan Pusat Statistik Cilacap Regency, 2019). Furthermore, proportionate stratified random sampling was used as the sampling technique, and according to the Slovin formula (Suliyanto, 2006), a sample of 100 households was obtained.

The data sources used in this research are primary data and secondary data. Primary data was obtained from interviews and questionnaries distributed to 100 households in the South Cilacap Sub-District. Secondary data was obtained from Central Statistics Agency and Fisheries Office of Cilacap Regency.

The classical assumption test consisting of normality, multicollinearity, and heteroscedasticity was used as the stage of the analysis technique. Meanwhile, the LA/AIDS model in the linear form developed by Deaton & Muellbauer (1980), which consists of research variables including price, fish expenditure, income, number of family members, and tastes, was used to analyze the demand model. The LA/AIDS model in this research could be formulated in the following equation:

$$w_{ij} = \alpha_{i0} + \sum \gamma ij \ln pj + \beta \ln\left(\frac{Y}{p*}\right) + \alpha_{i1} \ln Pndptn + a_{i2} \ln JmlAK + a_{i3} D_1 S + e_i$$

Where :

Wi = The proportion of expenditure on commodity group i-th to total expenditure on fish consumption

i, j = 1,2,3,4 (type of fish 1 = tuna, 2 = skipjack, 3 = shrimp, 4 = squid)

α, γ, β = AIDS model parameters
ln pj = Natural logarithm (ln) of the jth estimated fish commodity price
Y = Total household fish consumption expenditure
p* = Stone price index estimated by $ln \frac{Y}{\sum \ln pj}$
Pndptn = Income
JmlAK = Number of family members
D_1S = Dummy taste for freshness level of fish (D1=0: fresh fish, D1=1: non fresh fish)
e_i = Error term

An Almost Ideal Demand System (LA/AIDS) model, and the Seemingly Unrelated Regression (SUR) analysis method was used to estimate the parameters of several demand equation systems from the Linear Approximation. This was performed to estimate that the system of equations is interrelated and fulfills the BLUE (Best Linear Unbiased Estimator) rule. Moreover, to fulfill the demand theory in the estimation of the LA/AIDS model, some limitations needed to be applied which were as follows: (1) Symmetry ($\gamma_{ij} = \gamma_{ji}$); (2) Homogeneity ($\sum_j \gamma_{ij} = 0$); (3) Adding Up ($\sum_i \alpha_i = 1$, $\sum_i \gamma_{ij=} = 0, \sum_i \beta_i = 0, \sum_i \theta_i = 0, \sum_i \emptyset_i = 0$).

RESULT AND DISCUSSION

Respondents to this study were 100 households in South Cilacap District who bought and consumed tuna, skipjack tuna, shrimp and squid. The age range of the respondents in this study ranged from 23-62 years. Most respondents were aged between 43-52 years with a total of 40 respondents. Respondents with the least number of respondents aged between 53-62 years were 16 respondents.

After being declared to have passed the classical assumption test, the estimation results below were processed. The data obtained from the results of interviews in the field is then processed using Stata 15.0, as presented in Table 2.

The estimated income parameter is both positive and significant to shrimp demand. This means that a 4.45% increase in income will result in an equivalent increase in demand. Once family income rises, the amount of shrimp consumed rises as well, because people rarely eat shrimp during low income. Moreover, the calculated parameter of the number of family members has a positive and substantial effect on squid demand, implying that a large number of squid-loving family members will raise demand by 4.84%. This occurs because, compared to other commodities, the consumption frequency of squid in households is more as it is the most preferred choice for family members. Furthermore, the taste dummy on freshness level showed a positive

and significant effect only on shrimp demand. This suggests that assuming all other variables remain constant, there is a difference in demand for fresh and non-fresh shrimp. As a result, the inhabitants of the South Cilacap Sub-District prefer fresh shrimp to non-fresh shrimp. According to the inhabitants of the South Cilacap Sub-District, fresh shrimp has better benefits for the body and tastes better than non-fresh shrimp.

Table 2. Estimation Results of the LA/AIDS Model for Fish Demand

Variable	Commodity			
	Tuna fish	Skipjack	Shrimp	Squid
Constant	-97.63	-7.57	57.16**	49.04*
	(0.00)	(0.56)	(0.00)	(0.01)
Ln_pt	15.97**	-0.11	-5.94**	-9.92**
	(0.00)	(0.95)	(0.00)	(0.00)
Ln_pc	-0.11	7.52**	-3.68*	-3.72
	(0.95)	(0.00)	(0.01)	(0.05)
Ln_pu	-5.94**	-3.68*	18.24**	-8.62**
	(0.00)	(0.01)	(0.00)	(0.00)
Ln_pcu	-9.92**	-3.72	-8.62**	22.26**
	(0.00)	(0.05)	(0.00)	(0.00)
Ln_fish Expenditure	14.42**	3.91	-6.19**	-2.30*
	(0.00)	(0.00)	(0.00)	(0.26)
Ln_inc	2.48	-3.15	4.45*	0.29
	(0.28)	(0.05)	(0.03)	(0.90)
Ln_JmlAK	-3.03	0.22	1.61	4.84*
	(0.20)	(0.89)	(0.45)	(0.04)
Dselera	-1.80	-0.46	3.39*	-1.46
	(0.28)	(0.68)	(0.02)	(0.39)
R-Square	0.47	0.13	0.45	0.48

Source: Primary Data Processed, 2021

*Note: *significant at 5% alpha, **significant at 1% alpha*

According to Table 3. the commodities of tuna, skipjack, shrimp, and squid are inelastic, indicating that the four commodities have less effect on price changes. Shrimp has a positive elasticity value and this is not in accordance with the theory of demand. Based on the results of the interview, respondents consume shrimp once there is a desire to consume, and to fulfill that desire, they will still buy it, no matter the price.

Table 3. Price Elasticity

Commodity	Value of Price Elasticity	Properties of Elasticity
Tuna fish	-0.44	Inelastic
Skipjack	-0.04	Inelastic
Shrimp	0.58	Inelastic
Squid	-0.42	Inelastic

Source: Primary Data Processed, 2021

Table 4. below shows that the income elasticity of tuna, skipjack, and squid is negative. This suggests that as household income rises, demand for the four commodities will fall, indicating that they are all inferior goods. In contrast to the positive value of shrimp income elasticity, as income rises, so does the demand for shrimp, making shrimp a luxury item. This is due to the relatively high price of shrimp in comparison to other types of marine fish.

Table 4. Income Elasticity

Commodity	Income Elasticity Value	Properties of Elasticity
Tuna fish	-1.89	Elastic
Skipjack	-0.28	Inelastic
Shrimp	2.44	Elastic
Squid	-1.98	Elastic

Source: Primary Data Processed, 2021

Table 5. below shows that the sign of the coefficient of cross-price elasticity varies between positive and negative. Assuming the value is positive, the relationship between goods X and Y is substitution. Meanwhile, once the value is negative, the relationship becomes complementary. According to the results of interviews, the majority of respondents process marine fish commodities as a mixture of vegetables. For example, assuming the respondents cook kale, they will top it with tuna or shrimp and then serve it with processed skipjack or squid as the side dish.

Table 5. Cross Price Elasticity

Commodity	Cross Price Elasticity			
	Tuna fish	Skipjack	Shrimp	Squid
Tuna fish		-0.28	-0.50	-0.48
Skipjack	-0.28		-0.07	-0.06
Shrimp	-0.50	-0.07		0.55
Squid	-0.48	-0.06	0.55	

Source: Primary Data Processed, 2021

Table 2. shows the estimation results of the LA/AIDS model for fish demand, which indicates that the price variable has a positive sign for the four commodities. Therefore, as the price variable increases, so will the demand for tuna, skipjack, shrimp, and squid. According to the results of Lee & Nam (2019), the price variable has a positive effect on the demand for raw fish in South Korea. These results were supported by Wahyuni et al. (2016) which stated that fish prices have a positive effect on the proportion of fish expenditure. Meanwhile, other fish price variables have both a negative and significant influence on the demand for marine fish. These results are consistent with Ermansyah et al. (2020) that an increase in the price of mackerel will cause a decrease in the demand for tuna.

The estimated fish expenditure parameter has a significant positive sign on tuna demand, indicating that an increase in total fish expenditure will lead to an increase in demand for this fish. Meanwhile, the fish expenditure variable was negative and significant for shrimp and squid, indicating that an increase in total fish spending will result in a decrease in their demand. This is possible due to the higher price of shrimp and squid in comparison to tuna and skipjack. According to Arthatiani et al. (2018), an increase in total fish expenditure will lead to an increase in demand for marine fish. The income variable has a positive and significant effect on shrimp demand. This indicates that an increase in household income will lead to household consumption of shrimp. According to Kusdiyanto (2014), income has a positive effect on the demand for marine fish in Surakarta. Similarly, Udoh et al. (2013) discovered that income has a positive influence on the proportion of expenditure on vegetable protein foods, animal protein foods, and fatty foods.

The estimated parameter of the number of family members in the squid commodity is positive and significant, indicating that the greater the number of squid-loving family members, the higher the demand. Similarly, Luhur et al. (2020) discovered that households with more than five family members consume more marine fish. The estimated parameter of the taste dummy is positive and significant for shrimp demand, but negative and insignificant for tuna, skipjack, and squid. This indicates that the consumption of the people of South Cilacap Sub-District for fresh shrimp is higher than the consumption of non-fresh. According to Rozalina & Bahagia (2017), the taste factor has a positive effect on the demand for milkfish in the Peureulak Market, East Aceh Regency. The results are in line with Cahyaningrum et al. (2014) which stated that taste has a positive and significant effect on the demand for Sardinella fish at PPI Blanakan.

Based on the results, tuna, skipjack, and squid commodities have a negative price elasticity value and this is in accordance with the theory of demand, while shrimp has a positive elasticity value. These results were in line with Wahyuni et al. (2016), stating that the price elasticity of the fish food

group is inelastic. Similarly, Suryanty & Reswita (2016) discovered that the price elasticity of carp is inelastic and has a negative sign.

In this research, the income elasticity of tuna, skipjack, and squid is negative, meaning that the three commodities are inferior goods. According to the results of interviews, the majority of people of the South Cilacap Sub-District make a living as fishermen whose yields are not only for sale but also for their consumption. Therefore, changes in income do not significantly affect the number of commodities consumed. Once income increases, the community does not necessarily increase the consumption of marine fish, hence tuna, skipjack, and squid become inferior commodities. These results supported the claims of Ermansyah et al. (2020) that the income elasticity of the commodity of duck eggs, domestic chicken meat, and domestic chicken eggs is negative and includes inferior goods. Meanwhile, income elasticity in shrimp commodities is elastic and positive. This indicates that demand for shrimp is sensitive to changes in income and includes luxury goods. These results were consistent with Arthatiani et al. (2018) that shrimp is a luxury item because it has an elastic income elasticity with a positive sign.

In this research, the cross-price elasticity between tuna, skipjack, shrimp, and squid is more dominantly negative. This means that there are more are complementary than substitutes among the four commodities. Furthermore, the cross-price elasticity value of tuna to skipjack, shrimp, and squid is negative, indicating that the two goods are complementary. According to Arthatiani et al. (2018), the cross elasticity of marine fish commodities to freshwater/brackish fish is complementary. These results are supported by Wahyuni et al. (2016) stating that there is a complementary relationship between fish and beef. Also, this revealed that the cross-price elasticity of shrimp and squid is positive, indicating that the two goods are substitutes, and this was supported by Azizah et al. (2020).

CONCLUSION AND SUGGESTION

Conclusion

Several factors, such as price, fish expenditure, income, number of family members, and tastes influence the demand for marine fish. The price of marine fish has a positive and negative effect on the demand for these four commodities. Fish expenditure positively and significantly affected the demand for tuna but had a negative and significant effect on shrimp and squid. Income has a positive and significant effect on shrimp demand. Furthermore, the number of family members has a positive and significant effect on the demand for squid. The taste dummy variable on the freshness level is positive and significant for the demand for fresh shrimp. Hence, people have a higher tendency to consume fresh than non-fresh shrimp. The four fish commodities

have a negative price elasticity. Tuna, skipjack, and squid have lower income elasticity, while shrimp are luxury goods. Furthermore, cross-price elasticity was stronger for the four commodities than the substitutes.

Suggestion

Based on the results of the study, the majority of the people of South Cilacap District, Cilacap Regency, prefer to consume fresh marine fish compared to non-fresh marine fish. Therefore, to maintain demand for fresh marine fish, the Government through related departments or managers of local Fish Auction Places (TPI) need to improve facilities and infrastructure as well as improve infrastructure, for example providing fish coolers so that quality is maintained and ensuring the availability of fresh marine fish commodities can be maintained.

One of the government programs to increase public awareness and interest in fish consumption is the Gemarikan Program. In order to increase the tastes and awareness and interest of the community, especially the people of Cilacap Regency, the Gemarikan program can be further optimized, for example, by collaborating with the Education Office to educate schools regarding the benefits of eating or to be able to disseminate information to mothers as a determinant of cooking menus families to consume more marine fish as a side dish and benefits of eating fresh fish and non-fresh fish that are equally good such as protein, vitamins, and minerals.

REFERENCES

Arthatiani, F. Y., Kusnadi, N., & Harianto. (2018). Analisis Pola Konsumsi Dan Model Permintaan Ikan Menurut Karakteristik Rumah Tangga Di Indonesia. *Jurnal Sosial Ekonomi Kelautan Dan Perikanan,* 13(1), 73-86. doi: 10.15578/jsekp.v13i1.6967

Azizah, R. N., Siswadi, B., & Khoiriyah, N. (2020). Analisis Permintaan Pangan Hewani Rumah Tangga Di Kelurahan Dinoyo Kecamatan Lowokwaru Kota Malang. *Jurnal Sosial Ekonomi Pertanian Dan Agribisnis,* 8(1), 1-10. Retrieved from https://garuda.kemdikbud.go.id/documents/detail/2960157

Badan Pusat Statistik Kabupaten Cilacap. (2018). *Kabupaten Cilacap Dalam Angka 2004-2018*. Cilacap: Badan Pusat Statistik Kabupaten Cilacap

Badan Pusat Statistik Kabupaten Cilacap. (2019). *Kecamatan Cilacap Selatan Dalam Angka 2019.* Cilacap: Badan Pusat Statistik Kabupaten Cilacap

Cahyaningrum, D. S., Wibowo, B. A., & Sardiyatmo. (2014). Analisis Faktor-Faktor Yang Mempengaruhi Permintaan Ikan Tembang (*Sardinella fimbriata*) Di PPI Blanakan Subang Jawa Barat. *Journal Of Fisheries Resources Utilization Management And Technology,* 3(3), 150-157.

Retrieved from https://ejournal3.undip.ac.id/index.php/jfrumt/article/view/5506

Deaton, A., & Muellbauer, J. (1980). An Almost Ideal Demand System. *The American Economic Review*, 70(3), 312-326. Retrieved from: https://www.aeaweb.org/aer/top20/70.3.312-326.pdf

Direktorat Jenderal Perikanan Tangkap Kementerian Kelautan Dan Perikanan. (2018). *Laporan Tahunan Pelabuhan Perikanan Samudra Cilacap 2018.* Cilacap: Kementerian Kelautan Dan Perikanan

Djunaidah, I. S. (2017). Tingkat Konsumsi Ikan Di Indonesia: Ironi Di Negeri Bahari. *Jurnal Penyuluhan Perikanan Dan Kelautan,* 11(1), 12-24. doi: 10.33378/jppik.v11i1.82

Ermansyah, L., Daryanto, A., & Syaukat, Y. (2020). Pola Permintaan Pangan Hewani Di Indonesia. *Jurnal Ekonomi Pertanian Dan Agribisnis,* 4(1), 176-190. doi: 10.21776/ub.jepa.2020.004.01.16

Faharuddin, M. A., Yamin, M., & Yunita. (2015). Analisis Pola Konsumsi Pangan Di Sumatera Selatan 2013: Pendekatan Quadratic Almost Ideal Demand System. *Jurnal Agro Ekonomi,* 33(2), 121-140. doi: 10.21082/jae.v33n2.2015.121-140

Kementerian Kelautan Dan Perikanan. (2017). *Laporan Tahunan 2017.* Jakarta: Kementerian Kelautan Dan Perikanan

Kusdiyanto. (2014). Analisis Perilaku Konsumen Terhadap Permintaan Ikan Di Kota Surakarta. *Seminar Nasional Dan Call For Paper (Sancall 2014): Research Methods And Organizational Studies,* 1(9), 102-108. Retrived from: https://adoc.pub/analisis-perilaku-konsumen-terhadap-permintaan-ikan-di-kota-.html

Lee, M. K., & Nam, J. O. (2019). The Determinants Of Live Fish Consumption Frequency In South Korea. *Food Research International*, 382-388. doi: 10.1016/j.foodres.2019.03.005

Luhur, E. S., Arthatiani, F. Y., & Suryawati, S. H. (2020). Faktor-Faktor Penentu Keputusan Pembelian Ikan Di Kabupaten Sumba Barat Daya, Nusa Tenggara Timur. *Jurnal Sosek KP,* 15(2), 213-221. doi: 10.15578/jsekp.v15i2.9270

Rambe, R., Yulinda, E., & Bathar, L. (2014). Analysis Of Household Consumer Demand Against Sea Fresh Fish In North Padangsidimpuan District Padangsidimpuan City North Sumatra Province. *Jurnal Online Mahasiswa Fakultas Perikanan Dan Ilmu Kelautan Universitas Riau,* 1(1), 1-4. Retrived from: https://jom.unri.ac.id/index.php/JOMFAPERIKA/article/view/4180/4073

Rozalina & Bahagia. (2017). Faktor-faktor Yang Mempengaruhi Perminaan Ikan Bandeng (*Chanos-chanos*) Di Pasar Peureulak Kabupaten Aceh Timur. *Jurnal Penelitian Agrisamudra,* 4(2), 39-48. doi: 10.33509/jpas.v4i2.283

Suharno & Widayati, T. (2015). Kebijakan Pengelolaan Usaha Perikanan Tangkap Nelayan Skala Kecil Di Pantura Jawa Tengah. *Seminar Nasional Multi Disiplin Ilmu Unibank 2015,* (Pp. 1-8). Retrieved from https://www.unisbank.ac.id/ojs/index.php/sendi_u/article/view/3289

Suharno, Anwar, N., & Saraswati, E. (2018). Do Fishers Need To Diversify Their Source Of Income? A Special Reference In Vulnerable Fishers Of Cilacap Waters, Indonesia. *Aquaculture, Aquarium, Conservation & Legislation,* 11(5), 1605-1615. Retrieved from http://www.bioflux.com.ro/docs/2018.1605-1615.pdf

Suliyanto. (2006). *Metode Riset Bisnis*. Yogyakarta: Penerbit Andi

Suryanty, M., & Reswita. (2016). Analisis Konsumsi Pangan Berbasis Protein Hewani Di Kabupaten Lebong: Pendekatan Model AIDS (*Almost Ideal Demand System*). *Jurnal AGRISEP,* 15(1), 101-110. doi: 10.31186/jagrisep.15.1.101-11

Tiffany, A. E., Mudzakir, A. K., & Bamba. (2020). Analisis Tingkat Konsumsi Ikan Laut Dan Faktor-Faktor Yang Mempengaruhi Pada Masyarakat Semarang. *Journal Of Fisheries Resources Utilization Management And Technology,* 9(1), 25-34. Retrieved from https://ejournal3.undip.ac.id/index.php/jfrumt/article/view/29361

Udoh, E. J., et al. (2013). The Structure Of Food Demand In Urban City Of Nigeria: An Application Of A Linearized Almost Ideal Demand System (LA/AIDS). *Journal Of Development And Agricultural Economics*, 12-18. doi: 10.5897/JDAE12.042

Virgantari, F., et al. (2011). Analisis Permintaan Ikan Di Indonesia: Pendekatan Model Quadratic Almost Ideal Demand System (QUAIDS). *Jurnal Sosek KP,* 6(2), 191-203. doi: 10.15578/jsekp.v6i2.5772

Wahyuni, D., Purnastuti, L., & Mustofa. (2016). Analisis Elastisitas Tiga Bahan Pangan Sumber Protein Hewani Di Indonesia. *Jurnal Economia,* 12(1), 43-53. doi: 10.21831/economia.v12i1.9544

Widria, Y. (2019). *Direktorat Jenderal Penguatan Daya Saing Produk Kelautan Dan Perikanan.* Retrieved from https://kkp.go.id/djpdspkp/bbp2hp/artikel/11443-pemindangan-teknik-pengolahan-ikan-yang-memiliki-potensi-meningkat-kan-konsumsi-ikan-nasional