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Prototype the Economic of Coconut Farmer Household in Indragiri Hilir Municipality, Riau Province

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Abstract: Coconut farming is the main livelihood of the majority of households in Indragiri Hilir. Although the penetration of oil palm plantations has entered the region, the existence of palm, coconut smallholders, in particular, is still maintained. In order to maintain the existence of the coconut as a commodity with a great contribution to the economy Indragiri Hilir, it is necessary to alignments economic policy. This study was conducted with the aim of analyzing the impact of economic policies on household economic decisions coconut farmers associated with the production, allocation of working time, income, consumption, and investment. Simultaneous equations econometric approach with two stages least square method (2SLS) was used to answer the research objectives. The result of the analysis showed that the increase in coconut prices and the hired labor in coconut farming impact contrary to the policy of increasing wages. Increasing the price of coconut and the use of hired labor a positive impact on farm household economy in terms of increased production, income, household consumption, and investment, but a negative impact on the allocation of working time. Meanwhile, wage increases have a negative impact on production, income, consumption and business investment, but a negative impact on the allocation of working time. Therefore, the policy of increasing the price of coconut through the government's efforts to encourage an increase in the price of coconut through the coconut pricing policies or to realize the strong bargaining position of farmers against market structures tend to be oligopsony needs to be done. In addition, it is also necessary to encourage household persuasive farmers to be more focused on making coconut farming by allocating more time working on his coconut farm.

1 INTRODUCTION

The mining sector still provides the largest contribution to GRDP of Riau Province, but with a declining trend, which is 51.49 percent in 2008 to 45.48 percent in 2012. Resource mining, especially oil and gas, which includes unrenewable resources with a downward trend suggests that this sector can not rely on contribution to long-term development. It is, therefore, necessary in addition to efforts to develop mining resources (especially oil and gas) in order to realize sustainable economic growth.

Based on the GDRP without oil and gas of Riau Province (BPS Riau Province, 2018) shows the agricultural sector is the sector with the largest contribution, which is 31.57 percent of total GDRP, respectively, followed by trade, hotels, and restaurants 17.09 percent, and the industrial sector processing 17.09 percent. A plantation subsector with the largest contribution compared with other agricultural subsectors. Contributions subsector plantations 44.37 percent of the total GDP of agriculture, followed by forestry subsector 27.41 percent, the food crops subsector 11.22 percent, the fisheries subsector 11.14 percent, and the livestock and the results subsector 5.85 percent.

Three plantation crops which a mainstay in the development of agriculture in the Riau Province are oil palm, coconut, and rubber. Acreage and production of palm oil are the biggest, followed by coconut and rubber. Acreage and production of palm oil are likely to increase. Meanwhile, acreage and production of coconut and rubber tend to decrease. Data of acreage and production of three major plantation commodities in Riau Province respectively presented in Tables 1 and 2

Coconut and rubber are the commodities that have been cultivated for generations by the people in the

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Table 1: The Area of Three Major Commodities Crops in the Riau Province, 2013-2017

Commodity	2013	2014	2015	2016	2017
Coconut	521,038	521,792	520,260	516,895	515,168
Rubber	504,139	500,851	505,264	502,906	501,788
Palm Oil	2,258,553	2,372,402	2,399,172	2,411,820	2,424,545
Others	118,082	118,924	119,018	119,591	118,688

Source: Central Bureau of Statistics of Riau Province, 2018

Table 2: The Production of Three Major Commodities Crops in the Riau Province, 2013-2017

Commodity	2013	2014	2015	2016	2017
Coconut	481,087	473,221	427,080	421,654	421,465
Rubber	333,069	350,476	354,257	367,261	374,465
Palm Oil	7,047,221	7,343,498	7,570,854	7,761,293	7,841,947
Others	304,802	302,796	143,230	356,740	383,134

Source: Central Bureau of Statistics, of Riau Province, 2018

Riau Province. However, in the last two decades, people like hypnotized to massively develop oil palm, while the benefits of coconut and rubber are not the same as the benefits of palm oil. In other words, the products of coconut, rubber and palm oil have economic benefits or its own market share. Therefore earnest efforts need to be done so that people continue to develop coconut and rubber as a commodity that has high economic value for the social welfare and the economic resilience of Riau Province.

This study focused on the effort to assess conditions in the household economy coconut farmers because it is believed to still potential developed as one of the community's main source of livelihood in the Riau Province, especially coastal communities. It is based on the idea that natural coastal areas are prime habitat for the development of coconut.

This study was conducted in Indragiri Hilir municipality because it has a land area and the largest oil production compared to other municipality/cities in Riau Province. Acreage and production of coconut in Indragiri Hilir 440.821 hectares and 298.599 tonnes, respectively (Table 3).

The success in the development of coconut farming is largely determined by the economic efficiency of households involved in the business. The success of these households not only resulted in increased household income but can contribute to national revenue and providing employment opportunities. Activities of households include consumption and production are carried out simultaneously. Theoretically, households as consumers aim to maximize their utility, while as producers to maximize profit (Lipsey et al.,).

To achieve the desired objectives, households as consumers and producers should be able to make choices and take the right decision in conducting economic activities. Decisions taken include: (1) the decision to allocate working time and earnings in the activities of coconut farming and other business, and (2) the decision in the activities of private consumption.

Decision-making by households is very directly related to internal factors households, include: education level of the head and household members, age and work experience at the head of the household business activity are practiced as well as other internal factors. In addition, household economic decisions are also influenced by external factors, such as wages, input prices, and output prices. Various actions taken by households and the prevailing economic policies will greatly affect economic decision making coconut farmer households.

Table 3: The Distribution Area and Production of Coconut According to the Municipality/City in the Riau Province in 2017

No.	Municipality /City	Area (Ha)	Production (Ton)
1.	Kuantan Singingi	2,761	1,925
2.	Indragiri Hulu	1,828	250
3.	Indragiri Hilir	440,821	298,599
4.	Pelalawan	16,789	17,430
5.	Siak	1,628	1,193
6.	Kampar	1,714	529
7.	Rokan Hulu	1,139	620
8.	Bengkalis	10,020	9,728
9.	Rokan Hilir	5,362	4,412
10.	Kepulauan Meranti	31,453	27,384
11.	Pekanbaru	15	9
12.	Dumai	1,638	876
	Total	515,168	362,955

Source: Central Bureau of Statistics of Riau Province, 2018

Various studies on household economies have a lot to do in Indonesia, among others: Firstly, a study on the economic analysis of industrial finished products rattan household with two stages least squares method (2SLS) conducted by (Elinur,). Secondly, study on the household economy analysis to develop a theory of agricultural household model through the interrelation between the technological aspects of conservation and non-food consumption by a 2SLS method performed by (Koestiono, 2004). Thirdly, (Priyanti et al., 2007) conducted a study on the economic model of farmer households in crop-livestock integration system. Finally, (Husin and Sari, 2011) conducted a study on the economic behavior of coconut farmer households in the

allocation of labor, production, and consumption in Prabumulih, also using 2SLS.

In general, this study aimed to analyze the impact of economic policies on the economy of coconut farmer households in Indragiri Hilir. Specifically, the objective of this study was to analyze the internal and external factors that affected the allocation of work time, income and consumption expenditure of household coconut farmers.

2 THEORY OF HOUSEHOLD ECONOMIC

Household economic model initiated by Neoclassical economic theory. Later this model was developed by Chayanov then called model Chayanov (Chen and Dunn, 1996). Furthermore, the model of the economy continues to grow through research conducted by (Becker, 1965), (Barnum and Squire,) and (Singh et al., 1986).

Neoclassical economic theory is the beginning of a basic model with a unit of household economic analysis underlying this theory is a microeconomic analysis at the level of consumers and producers. The model developed by integrating Kasyanov between production and consumption decisions to analyze the farmer households (Chen and Dunn, 1996). The household economic models can be used to analyze the economic behavior of agricultural companies entirely using the allocation of working time and sell the entire production is generated to the market. In contrast to the subsistence agriculture that relies on labor in the family so that there is no market surplus. The household economic model based on the theory of households with an integrated treatment between the production and consumption decisions (Barnum and Squire,). (Singh et al., 1986) initiated a model household that can be used to analyze the household farmer and the household in addition to agriculture. The assumptions used in this model is that the household has always worked with maximizing utility, where utility derived from the consumption of goods produced by households, goods purchased in the market and the leisure.

Research on the economic of households conducted simultaneously, in general use the household economic model formulated by Becker (1965). Becker (1965) formulate an agricultural household model which integrates the activity of production and consumption as a whole and the use of labor in the household. There are a number of assumptions used in the economic model of these households, namely:

- The satisfaction of households to consume is not only determined by the goods and services acquired in the market but is also determined by a variety of commodities produced in the household,
- An element of satisfaction is not only goods and services, but including time,
- The time and the goods or services can be used as a production factor in the production of household activity
- Households act as producers and consumers.

In accordance with the theory of household behavior developed by Becker (1965), that the utility does not depend on the number of goods and services purchased, but rather by the number of commodities household-they produce, include: the quality and quantity of children, dignity, recreation, companionship, affection, health status and marital status, then this assumption is the basis of household economic models Becker. Mathematically, the model household Becker formulated as follows:

$$U = f(z) \tag{1}$$

$$Z = g(X,t) \tag{2}$$

Where:

U = utility

Z = household commodities

X = market commodities

t = non-work activity

The household members will always maximize the utility to maximize its income constraints and Z with certain time constraints. Mathematically, it can be formulated as follows:

$$Max\, Z = x(x_1, x_2, \ldots, x_m; t_1, t_2, \ldots, t_k; E) \tag{3}$$

Subject to:

$$\sum^{m} p_i x_i = \sum^{k} w_j I_j + v \tag{4}$$

$$I_j + t_j = T \tag{5}$$

Where

x_i= market commodity i

p_i= price of market commodity i

t_j = leisure

I_j = working time

T = total time

V= property income

With substitute of equation (5) to equation (4), then:

$$\Sigma^m p_i x_i + \Sigma^k w_j t_j = \Sigma^k w_j T + v = s \quad (6)$$

Equation S is called constraint of a full income because S is *full income*.

Assumptions proposed by Becker is that the decline in the total output of household did not make one in the household members become better off and some members of the household become worse off. In other words, what matters is the total output of the household, so that every member of the household willing to cooperate in managing time and commodity markets in order to maximum Z households. To maximize Z households, there requirements (Necessary condition) that must be met such as the following equation:

$$\frac{\mathrm{MP}t_j = (\partial \mathrm{Z}/\partial t_i)}{\mathrm{MP}t_j = (\partial \mathrm{Z}/\partial t_i)} = \frac{W_i}{W_j}, \text{ for all } 0 < t < T \quad (7)$$

If the allocation of working time of household member k = T, then:

$$\frac{\mathrm{MP}t_k}{\mathrm{MP}t_j} = \frac{\mu k}{W_j} \quad (8)$$

Where: $\mu_k \geq W_k$ is shadow price of time k.

$$\frac{\mathrm{MP}x_i}{\mathrm{MP}t_j} = \frac{P_i}{W_j}, \text{ , for all } x_i > \text{ and } 0 < t_j < T \quad (9)$$

Meanwhile, Singh et al. (1986) suggest that household utility is a function of consumption of goods produced by household, consumer goods purchased in the market, and leisure. Mathematically, formulated as follows:

$$U = u(X_\partial, X_m, X_1) \quad (10)$$

Where:

X_a = consumption goods produced by household

X_m = consumption goods purchased in the market

X_1 = leisure

The difference between the model Becker (1965) and models Singh (1986) was on the income equation, the satisfaction-maximizing household income and faced with the constraints of time, but on a model developed by Singh et al. (1986) not only faced with two obstacles, but also incorporate production constraints in the model.

These constraints consecutive ranging from income constraints, the allocation of time and production, formulated as follows:

$$P_m X_m = p_a\,(Q - X_\partial) - w(L - F) \quad (11)$$

$$T = X_1 + F \quad (12)$$

$$Q = q(L, A) \quad (13)$$

Where:

P_m = price of good purchased in the market

Pa = price of good produced by household

$(Q - X_a)$ = surplus production to be marketed

w = wages

L = total of labor

F = family worker

T = household working time

A = fixed input (land)

From equation (11), when the element (L-F) positive means that households hire labor outside the family, otherwise if (L-F) negative means households supply labor outside the family. Third constraints faced by the household can be unified by distributing the time constraints (equation 12) and production (equation 13) into a revenue constraint (equation 11), so that the resulting equation 14 below:

$$P_m X_m + p_\partial x_\partial + w X_1 = wT + \pi \quad (14)$$

$$\pi = P_\partial Q(L, A) - w(L - F) \quad (15)$$

Where:

π = Profit

The equation on the left side (14) is the total expenditure of households on goods (X_m and X_a) and time (X1) are consumed, and the right side shows the development of the concept of full income developed by Becker (1965), where the value of the time available (wT) explicitly noted. Singh et al. (1986) to expand the model Becker (1965) to include the measurement of the level of business profits, namely π = PAQ - wL (equation 15), where the entire workforce is calculated based on market wages.

From equation (10) and (14) can be stated that the households in maximize satisfaction can have a level of consumption of goods purchased on the market (Xm), goods produced by households (Xa), the time consumed by households (X1) and energy labor (L) used in production activities. Taking into account the use of labor input, the condition of the first-order condition can be derived as follows:

$$P_\partial \, \partial Q/\partial L = W \tag{16}$$

From equation (10) and (14) can be stated that the households in satisfaction-maximizing can have a level of consumption of goods purchased on the market (Xm), goods produced by households (Xa), the time consumed by households (X1), and labor (L) used in production activities. Taking into account the use of labor input, the condition of the first-order condition can be derived as follows:

$$L^* = L^*(w, p_\partial, A) \tag{17}$$

Then equation (17) substituted into the right side of the equation (14) produces a full income when profit is maximized through the choice of labor input. Thus, equation (14) can be written as follows:

$$P_m X_m + P_\partial X_\partial + wX_l = Y^* \tag{18}$$

Where: Y^* = Full income when maximum profit.

Equation (18) is now a new constraint in the model, the results of calculation of the first-order condition in succession against Xm, Xa, and X1 as follows:

$$\partial U/\partial X_m = \tau p_m \tag{19}$$

$$\partial U/\partial X_\partial = \tau p_\partial \tag{20}$$

$$\partial U/\partial X_1 = \tau w \tag{21}$$

$$p_m X_m + p_\partial X_\partial + WX_1 = Y^* \tag{22}$$

Referring to the stages in the completion of the equation (16), by simultaneously solving, resolving equation (19) to (22) generates a demand function as follows:

$$X_m = X_m(p_m, p_\partial, w, Y^*) \tag{23}$$

$$X_\partial = X_\partial(p_\partial, p_m, w, Y^*) \tag{24}$$

$$X_1 = X_1(w, p_m, p_\partial, Y^*) \tag{25}$$

From equation (23), (24) and (25), we can say that the amount of demand (consumption) of goods, goods, and services is a function of the price of the goods, the price of other goods, wages, and full income when the maximum profit.

From equation (24), if the assumed price of goods produced by households increased, it will have an impact on the household income gains, mathematically expressed as follows:

$$\frac{dX_a}{dp_a} = \frac{dp_a}{dp_a} + \left(\frac{\partial X_a}{\partial X_a}\right)\left(\frac{\partial Y^*}{\partial X_a}\right) \tag{26}$$

The first element on the right side of equation (26) is expressed as the effect of price changes, which in the case of normal goods had a negative slope, meaning that if the price increases, the demand for these goods and services will comply. Meanwhile, the second on the right side declare the income effect, meaning that if the price of goods produced household increases, the income earned that household will increase, so does the full household income will increase.

In analyzing the economic to note two things: Firstly, it should be emphasized that the price of goods and services consumed by households is considered the market price. Secondly, it should be ensured that the behavior of households in the activity of production and consumption is separable (separate) or non-separable (simultaneously). If the equations of production, the allocation of working time and consumption are included in the model are separable, the estimated system of equations of production and consumption can be done separately, for example, analyze the system of equations of production with an educated guess through profit function or a function of cost, while the system of equations consumption by using approaches Almost Ideal Demand System (AIDS) (Sadoulet and De Janvry, 1996). Whereas, if the system of equations of production and consumption as well as the allocation of working time labor is nonseparable, then the more complex estimation techniques need to be done. Estimation among others can be done by using a Two-Stage Least Square (2SLS) or Three-Stage Least Square (3SLS).

3 RESULT AND DISCUSSION

3.1 Research Location and Time

The study was conducted in February 2017 until December 2017 in Indragiri Hilir, Riau Province, with sampling locations in four districts, namely Mandah, Pulau Burung, Enok, and Keritang. Location of study was determined by deliberate consideration that this area is an area that has a fairly extensive coconut plantation in Indragiri Hilir.

3.2 Data and Sampling Techniques

The data collected in this study include primary and secondary data. The primary data obtained from

interviews with respondents, namely coconut farmer households. Secondary data was collected from the Plantation Office, the Central Bureau of Statistics and other sources. Secondary data used to support the primary data and refine the analysis in this study.

The sampling was done by multi-stages purposive sampling. The number of samples taken for household coconut farmers deliberately taken in the area Indragiri Hilir which of the 12 districts, selected four districts that have a population of households coconut farmers are pretty much the Mandah, Pulau Burung, Enok, and Keritang. For each district was selected three villages, and each village took as many as 15 samples, so that the number of samples taken to local households, the coconut is as many as 180 samples.

3.3 Model Specification

The first stage in the study with the econometric approach is a model specification. At this stage can be illustrated a diagram of the relationship between the variables entered into the model, which then formulated into a number of the equation of structural and identity (Koutsoyiannis, 1977; Interligator, 1978). Simplification of the economic model of coconut farmer households in Indragiri Hilir is presented in Figure 1 below.

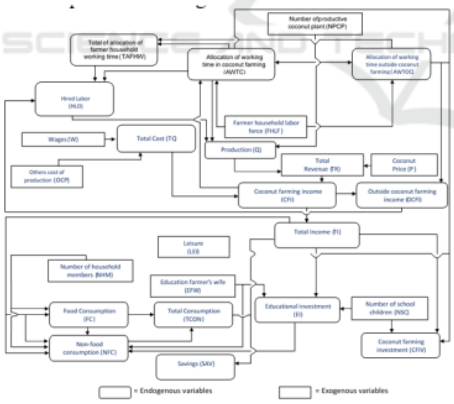

Figure 1: Simplification of Economic Model of Coconut Farmer households

3.4 Model Identification and Method of Estimation

Models are built to be identified first and then estimated. Identification of the model is done by order condition, according to the formula:

$$(K–M) \geq (G–1) \quad (27)$$

Where:

K = total variables in the model (endogenous and exogenous variables)

M = number of endogenous and exogenous variables in the equation are identified

G = number of equations (the number of endogenous variables).

If (K-M) > (G-1), then the equation is overidentified; if (K-M) = (G-1), the equation is exactly identified; and if (K-M) < (G-1), then the equation is unidentified (Koutsoyiannis, 1977; Interligator, 1978).

The identification results of the economic model of coconut farmer households is overidentified (K = 27, M = 4 and G = 16). Based on the results of this identification, the most appropriate estimation method is used the Two-Stage Least Square (2SLS). Needs to be informed that the level of significance is used in discussing the results of this study using the tolerance level of Significantly, up to 20 percent (α = 20%).

3.5 Model Validation and Simulation

Model validation was conducted in order to determine whether a model is valid is used for simulation analysis. Validation of the model performed in this study using the statistical criteria, ie RMSE (Root Mean Square Error), RMSPE (Root Mean Square Percent Error), U-Theil and UM-Bias (Pindyck and Rubinfeld, 1991).

In the economic model of coconut farmer households in Indragiri Hilir, economic policies simulated include:

- an increase in the coconut price by 13 percent,
- an increase in the wages by 14 percent, and
- an increase in the hired labor by 6 percent.

4 RESULT AND DISCUSSION

4.1 Results of Model Estimation

The results of the estimation of the economic model of coconut farmer households in this study are quite good as seen from the coefficient of determination (R^2) of every equation in the model. The coefficient of determination is ranged from 0.4407 to 0.9753 by F test statistic values are quite high (34.48 to

2313.56) and significantly different from zero at the 1 percent level. The coefficient of determination of the smallest (less than 0.5) is on found in household food consumption equation. However, in general, exogenous variables are included in each equation better able to explain the endogenous variables.

Table 4 presents the results of testing on 16 equations in the economic model of coconut farmers household in Indragiri Hilir. From Table 4, it can be stated that the overall sign estimated parameters as expected.

The results of estimation indicate that coconut production is positively influenced but not responsive to changes in the number of productive coconut plant, the allocation of working time in coconut farming, and hired labor. From the aspect of the allocation of work, time can be stated that: Firstly, allocation of working time in coconut farming is not responsive to changes in the coconut farming income (positive), the allocation of working time outside coconut farming (negative), and the household labor force (positive). Secondly, hired labor influence positively but not responsive to coconut farming income. And thirdly, the allocation working time outside coconut farming responsive to outside coconut farming income (positive) and unresponsive influenced by education level farmer's wife this is in line with studies (Nurhayati et al.,) and (Mariyanto, 2015).

The results of the estimation equation household income and expenditure show that:

Firstly, outside coconut farming income responsive to changes in the allocation of working time outside coconut farming (positive), and unresponsive influenced by coconut farming income (negative). Secondly, there are no internal and external factors that are responsive affect food consumption expenditure of coconut farmer households. Instead, there are several factors that are responsive affect non-food consumption expenditure, the total income (positive), food consumption expenditure (negative), and savings (negative). Thirdly, educational investment is positively influenced by the total income, and the number of school children, but unresponsive. Fourthly, coconut farming investment is positively influenced and responsive by total income. Finally, household savings responsive to changes in total income (positive). Savings are also responsive to changes in household total consumption (negative).

4.2 Validation and Simulation Model

The results of the analysis of model validation show RMSE value of all variables endogenous to the economic model of coconut farmer households less than 50 percent, except for variable of hired labor, the allocation of working time in coconut farming, outside coconut farming income, educational investment, leisure, and savings. Furthermore, if the observed value of the U-Theil for each variable endogenous to the economic model of coconut farmer households are quite small, which is less then 0:20, except variables of hired labor, the allocation of working time outside coconut farming, outside coconut farming income, the non-food consumption, total consumption, educational investment, coconut farming investment, and savings have U-Theil value greater than 0.2.

Some endogenous variable that has a value RMSPE more than 50 percent and U-Theil more than 0:20 indicate bias in the estimation models. But when seen from the UM value for all endogenous variables are equal to zero, it can be stated that no systematic bias occurs. Therefore, the economic model of coconut farmer households who built quite well and can be used for policy simulation analysis.

The simulation results show that: Firstly, the increase in coconut prices as well as increased use of hired labor a positive impact on coconut production and the allocation of working time in coconut farming. Instead both these policy simulations negative impact on the allocation of working time outside coconut farming. In a total of allocation of farmer household, working time has increased. The increase in coconut prices is a positive impact on coconut production further positive impact on coconut farming income. On the other hand, the increase in coconut prices that negatively impact the allocation of working time outside coconut farming further negative impact on coconut farming income. Nevertheless, the total income of farmers has increased. The increase in total income is followed by an increase in non-food household consumption, coconut farming investment, educational investment, and household savings. The decline in food consumption is very rational, which according to the Engel law which states that the higher the income, the proportion of income used for food consumption will decrease.

Secondly, the increase in the wage impact at odds with the rising prices and increased outpouring of working families in coconut farming. A wage increase indicates increased costs of production in coconut farming which further negatively impact the

Table 4: The Results of Parameters Estimate and Values Elasticity of Household Economic Model of Coconut Farmer Households in Indragiri Hilir

Equation/Variable	Notation	Parameter Estimate	t-test	Pr >|t|	Elasticity
1. Production of coconut					
Intercept	Q	-2145.84	-2.85	0.0049	
Number of the productive coconut plant	- NPCP	17.05593	6.75	<.0001	0.3813
Allocation of working time in coconut farming	AWTC	5.561301	6.72	<.0001	0.4843
Hired Labor	HLO	6.494564	9.08	<.0001	0.2111
2. Allocation of working time in coconut farming	AWTC				
Intercept	-	486.0200	2.47	0.0144	
Coconut farming income	CFI	0.000036	11.75	<.0001	0.5079
Allocation of working time outside coconut farming	AWTOC	-0.28702	-0.78	0.4375	
Farmer household labor force	FHLF	238.4417	1.57	0.1185	0.3448
3. Hired Labor	HLO				
Intercept	-	-151.558	-0.78	0.4337	
Coconut farming income	CFI	0.000038	12.47	<.0001	
Allocation of working time outside coconut farming	AWTOC	0.363197	1.00	0.3173	0.0001
Farmer household labor force	FHLF	-176.828	-1.18	0.2377	
4. TAWTC = AWTC + HLO	TAWTC = Total of allocation of working time in coconut farming				
5.Allocation working time outside coconut farming	AWTOC				
Intercept	-	-17.8683	-0.19	0.8474	
Outside coconut farming income	OCFI	0.000052	14.00	<.0001	1.9075
Education farmer's wife	EFW	21.07800	2.13	0.0345	0.1935
6. TAFHW = AWTC + AWTOC	TAFHW = Total of allocation of farmer household working time				
7. CFI = TR - TC	TR = Total revenue TC = Total cost				
8. TC = W + OCP	W = wages OCP = others cost of production				
9. Outside coconut farming income	OCFI				
Intercept	-	122263.9	0.08	0.9346	
Allocation of working time outside coconut farming	AWTOC	14085.08	5.05	<.0001	1.9075
Coconut farming income	CFI	-0.03643	-1.56	0.1206	-0.1516
Farmer household labor force	FHLF	1051644	0.92	0.3614	
10. TI = CFI + OCFI	TI = Total income				
11. Food consumption	FC				
Intercept	-	5075269	3.91	0.0001	
Total income	TI	0.261552	3.28	0.0012	0.6653
Number of household members	NHM	1349970	4.47	<.0001	0.3299
Educational investment	EI	-0.27642	-2.58	0.0108	-0.0554
Savings	SAV	-0.23613	-2.56	0.0115	-0.2244
12. Non-food consumption	NFC				
Intercept	-	651523.1	1.41	0.1591	
Total income	TI	0.607739	19.54	<.0001	5.3647
Food consumption	FC	-0.60712	-11.46	<.0001	-2.1009
Educational investment	EI	-0.64552	-18.73	<.0001	-0.4489
Savings	SAV	-0.59526	-17.86	<.0001	-1.9633

Equation/Variable	Notation	Parameter Estimate	t-test	Pr >—t—	Elasticity
13. TCON = FC + NFC + LEI	TCON = Total consumption LEI = Leisure				
14. Educational investment Intercept Total income Number of school children	EI - TI NSc	-1874864 0.049803 3354331	-3.89 5.18 12.35	0.0001 <.0001 <.0001	0.6238 0.9302
15. Coconut farming investment Intercept Total income Number of school children	CFIV - TI NSc	5699621 1.790429 -0.78841	0.35 13.72 -0.66	0.7304 <.0001 0.5114	1.0812
16. Savings Intercept Total Income Total consumption	SAV - TI TCON	1985529 0.952118 -1.20417	0.91 41.19 -9.12	0.3623 <.0001 <.0001	2.4345 -1.6017

decline in household income of coconut farmers. The decrease in income will affect the decline in consumption, investment and household savings.

5 CONCLUSION

Theoretically, household economic decisions are influenced by internal factors and external factors. Nevertheless, empirical analysis of household economic decisions coconut farmers in Indragiri Hilir, only internal factors that are responsive influence the economic decisions of households. From the aspect of production, can not be found factors both internal and external factors affecting responsive, but the variables that most influence is the allocation of working time in coconut farming. From the aspect of the allocation of working time, internal factors that responsive it's affected is the outside coconut farming income. Meanwhile, from the aspect of income, internal factors that responsive affected income of coconut farmers household is the allocation of working time outside coconut farming. Further aspects of expenditures of coconut farmer households in Indragiri Hilir, internal factors that responsively affected are total income and savings.

The policy of increasing coconut prices and hired labor have a positive impact on the economy of coconut farmer households in Indragiri Hilir. Conversely, an increase in wages on coconut farming has a negative impact on the economy of coconut farmer households. This implies that the government's efforts to encourage an increase in the coconut price through the coconut pricing policies or to realize the strong bargaining position of farmers on market structure tends to be oligopsony needs to be done. In addition, it is also necessary to encourage farming households persuasively to focus on doing the coconut farming by allocating more working time on his coconut farm.

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