The Economic Behavior of Paddy Farm Household in Suboptimal Land (Case in Pemulutan Area, Ogan Ilir Regency, South Sumatera Province)

Perilaku Ekonomi Rumah Tangga Petani Padi di Lahan Suboptimal
(Kasus di Area Pemulutan, Kabupaten Ogan Ilir, Provinsi Sumatera Selatan)

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ABSTRAK

Penelitian ini bertujuan menganalisa faktor-faktor dominan yang menentukan perrilaku ekonomi , khususnya yang menentukan aktifitas produktif, yaitu produksi dan pendapatan dari usahatani padi, alokasi tenaga kerja dan pengeluaran rumahtangga petani untuk mencapai ketahanan pangan keluarga. Penelitian ini menggunakan data kerat lintang, dimana jumlah responden yang digunakan 90 rumahtangga petani dari 3 desa di daerah Pemulutan, Kabupaten Ogan Ilir, Provinsi Sumatera Selatan, dan menggunakan analisis deskriptif dan ekonometrik. Estimasi model ekonometrik persamaan simultan menggunakan metode *Two Stage Least Square Method* (2SLS). Hasil studi menunjukkan bahwa umumnya responden mempunyai beberapa sumber pendapatan yaitu dari usahatani padi, non padi dan aktivitas luar usahatani serta dari kegiatan non kerja. Produktivitas padi relatif rendah (3,937 ton/ha), luas lahan garapan petani rata-rata satu hektar, harga jual gabah kering giling (GKG) Rp3000 hingga Rp3800 per kg. Usahatani padi merupakan sumber pendapatan utama (Rp9.844.509 atau sekitar US$ 871 per tahun). Sumber pendapatan lain berasal dari usahatani non padi (Rp662.560), luar usahatani (Rp328.389) dan penerimaan dari kegiatan non kerja (Rp169.444). Secara rata-rata total pendapatan rumahtangga (Rp14.304.898 per tahun) lebih tinggi dari pengeluaran rumahtangga (Rp12.47.427), dimana untuk pangan (68.21%) lebih tinggi daripada untuk non pangan non pangan (31.79 %), thus mereka masih bisa menabung sebesar Rp1.453.581 (9.70% dari total pendapatan). Hal ini wajar karena alokasi waktu kerja paling tinggi untuk kegiatan usahatani padi (sekitar 50.00 %). Perilaku curahan waktu kerja dipengaruhi luas area tanaman padi, pendapatan yang akan diperoleh dari usahatani padi, dan non padi serta umur petani yang masih produktif. Perilaku produksi padi dipengaruhi luas lahan, alokasi waktu kerja total rumahtangga yang dicurahkan dan biaya usahatani yang dibutuhkan. Perilaku konsumsi rumahtangga dipengaruhi oleh pendapatan dan jumlah anggota rumahtangga petani. Perilaku rumahtangga petani padi di daerah ini sering menghadapi perubahan cuaca dan kondisi yang tidak menntu, akantetapi mereka masih dapatmencapai ketahanan pangan keluarga meskipun rendah dengan memenuhi sebagian besar kebutuhan utama keluarga.

Kata kunci: Aktifitas produktif, lahan lebak, padi, perilaku ekonomi, rumah tangga petani

ABSTRACT

This study aims to analyze the determinant factors of paddy farm household's economic behavior, specifically influence the productive activities, that is paddy production and income, family labor allocation and farm household expenditure to achieve their family's food security. This research used cross section data, where 90 paddy farm households (3 villages) as sample in Pemulutan area, Ogan Ilir Regency, South Sumatera

Province, and analyzed by descriptive and econometric tecnics. The estimation of econometric model (the simultaneous equations) used two stages least squares (2SLS) method. The result of this study showed that most respondents have some income sources (from paddy farm, non-paddy farm and off farm activities). The average paddy production is relatively low (3.937 tons/ha), the average tillage paddy area is around one hectare and the dried paddy price around Rp 3 to 3.8 thousands per kg. This paddy farm is the main source income (Rp9,844,509 or around US$ 871 per hectare per year). The other income sources from non paddy farm income (Rp662,560), off farm income (Rp328,389) and non working earning (Rp169,444). On average, the total family income (Rp14,304,898 per year) was higher than total family expenditure (Rp12,47,427), where for food is Rp9,156,394 (68.21%) is higher than for non food consumption is Rp3,691,033 (31.79 %), thus the paddy farm household in this area can make saving around Rp1,453,581 (9.70% from total family income). The highest farm household time allocation is for paddy farming activity (around 50.00 %). The behavior of farm household working time is affected by faddy farm land area, paddy farm income, non farm income and farmer's age. The behavior of household production is influenced by farm land area, the allocation of family labor on the paddy farm and the cost of paddy farming. The behavior of household consumption is affected by total household income and the number of household member. These paddy farm household behavior as adaptation to the climate change in this area, however they still can achieve their food security through fulfilling their primary needs.

Keywords: Economic behavior, household, swampy land, paddy, productive activities

INTRODUCTION

The agricultural sector in developing countries (including Indonesia), will always regard three characteristics, namely (1) agricultural production technology, (2) farm household as a single economic unit, and (3) agricultural products as commodities. Farm household is an important aspect to be studied, considering the majority of agricultural products in Indonesia were contributed by their activities. In reality, there are many complex problems in farm household, their behavior can be divided into three main groups, namely as producer, labor supply and as consumer (Nakajima 1986).

Rice or Paddy in South Sumatera province produced from four kinds of land typologies, that is irrigated land, rain fed land, tidal land, lowland or swampy land. This potential of land in South Sumatera are around 2.28 millions hectares (27.00% of South Sumatera Area). However the usage of this area is not optimal yet, for paddy farming is only 300 thousands hectares (6.50 %). The main constraints to develop this land is biological and physical aspects,

specifically in water irrigation, social economic, institution and infra structure factors. Ogan Ilir (OI) regency as a paddy production centre and the second widest potential area of swampy land (the largest area is Ogan Komering Ilir (OKI) regency). The farmers in this area have paddy cropping pattern once a year, which paddy crop is planted only in dry season before the water receded, whereas during the rainy season, land left fallow because of water logged land is quite high and does not allow for planting rice. This specific characteristic of crop patterns will influence the family labor working time allocation. This farming activities will influence their farm household income and expenditure (consumption and investment or saving). Besides that, this limited time and area will influence their family income to fulfill their primary needs, and their capability to achieve their family food security (Azmi 2012).

From the above discussion it is essential to study about the farm household economic behavior in this sub optimal area, specifically in Pemulutan Area, Ogan Ilir regency, South Sumatera. The main

problem is how the farm household to allocate their internal resources regarding their decision for productive activities, how their family income to be used to fulfill their primary needs and expenditure and what kinds of productive activities to achieve their food security are. Basically, the purpose of this study are (1) to calculate the allocation of working time members of farm households in productive activities (paddy farm, non paddy farm and off-farm activities), (2) to analyze the family income contribution to fulfill their primary needs or their food security, (3) to analyze the factors that influence the farm household economic behavior in this productive activities, that is the allocation of working time, production and consumption in Ogan Ilir Regency.

MATERIALS AND METHODS

This study used the cross section data of 2012 represented by 90 paddy farm households (5.15%) as respondents, from 4 villages purposively in Pemulutan Area, South Sumatera Province. This study used descriptive (by mathematical tabulation) and econometric analysis (simultaneous equation). The identification process proved that this model was over identified so that Two Stage Least Squares (2SLS) method could be applied (Koutsoyiannis, 1977). Data processing was performed by SAS computer program. The analysis of economic behavior was derived from the concept of consumer's utility maximizing, as follow (Becker, 1976 and Nicholson, 2000):

$$\text{Max U} = u(X_a, X_m, X_l) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Subject to: $P_m X_m + P_a X_a + W X_l = S$ …………………............……...........…… (2)

So the Lagrange function can be:

$L = u(X_a, X_m, X_l) - \lambda(P_m X_m + P_a X_a + W X_l - S)$ …………….......................... (3)

First Derivative of L-function can be found on the first order condition (FOC):

$$L_a = \partial U / \partial X_a - \lambda P_a = 0 \ \text{or} \ U_a = \lambda P_a \dots\dots\dots\dots\dots\dots\dots\dots\dots (4)$$

$$L_m = \partial U / \partial X_m - \lambda P_m = 0 \ \text{or} \ U_m = \lambda P_m \dots\dots\dots\dots\dots\dots\dots\dots\dots (5)$$

$$L_l = \partial U / \partial X_l - \lambda W = 0 \ \text{or} \ U_l = \lambda P_l \dots\dots\dots\dots\dots\dots\dots\dots\dots (6)$$

$$L_\lambda = -(P_m X_m + P_a X_a + W X_l - S) = 0 \dots\dots\dots\dots\dots\dots\dots\dots\dots (7)$$

or $\quad P_m X_m + P_a X_a + W X_l = S$ ……………………...…………………........… (8)

Next. by using the equation system, the consumer demands for good and service could be derived

$$X_i = f(P_a, P_m, W. S), \text{for } i = a. m. l \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (9)$$

In case of paddy farm household, the income determined by family productive activities. and will then influence their full income (S), then changed their consumer behavior through demand or the consumption (X^a, X^m, X^l). Consumer behavior will be influenced by production behavior through their income. By doing several times of model specification, the paddy farm household's economic behavior model could be estimated by using the system equation (consists of 11 structural and 8 identity equations). These equations are the allocation of the family working time (husband and wife in those productive activities), production and income (from paddy farm, non paddy farm and off farm activities), consumption (for food and non-food) and investment (on farm and children education).

RESULTS AND DISCUSSION

Research conducted Wardani (2006), states that income from rice farming in the

valley area of Palembang Gandus can not meet their family needs, Yunita (2011), in Ogan Ilir regency stated that the household food security of farmers is still low, Anggraini (2011), Husin and Wulansari (2011) and Husin (2012), stated that the largest expenditure of farm household is for food consumption, so it can be concluded that the farm household food expenditure has a dominant proportion. Research conducted Wijaya (2005). that affect land area farmers work activities more narrow area of land outside the farming activity is larger, as well as research and Rochaeni and Lokollo (2005) stated that members of the working time farming households in the village Setu Gede Bogor aimed more at non-farm activities.

Land tenure is a self-owned (77.7%) and rent (22.2%). Average labor working time allocation for off-farm labor of times greater than other productive activities (paddy farming (%) and non paddy farming (%). This is because of the small and pecific characteristics of paddy land area therefore the of paddy farm can only be done once a year. Average rice production per hectare in the study area is 3.94 tonnes per hectare in the form of dry grain harvest (GKP). Rice productivity if the research is fostered from 4.20 up to 4.50 tonnes per hectare, but if not done fertilizing average productivity is only 2.50 to 3.00 tons per hectare. In this study, only about 3 percent of the planting has been done twice, but only made one-sixth to one-fourth portion of the existing land area. After harvesting rice is usually sold in the form of direct GKP. Farmers sell their crops directly in the form of GKP because they do not have the means to hang like drying floor or tarp, and barns for storage, in addition to consideration in terms of time and labor. The production of rice is then sold to the mill with an average selling price of Rp 3000 to Rp 3800 in accordance with the quality of rice and some dried himself and then in wages to the mill for dikonsusmi. GKP conversion in the form of 1 kg of rice is GKP after drying and milling process is to be 0.54 to 0.60 kg of rice, it is because the shrinkage due to drying, shrinkage and release of shrinkage grain leather is lost or spilled.

The bigger area of paddy land area belong to farm household will produce the higher income. The high paddy productivity due to the good paddy farm operating and supported by usage the high yielding varieties of seeds, accurate dosage of fertilizer and good pest and disease control. The farm household income come from paddy farm, non paddy farm and off farm activities. The paddy farm household income gives the highest contribution (29.00% to 62.30%), the non paddy farming contributes only 2.90 % to 11.30%, whereas the off-farm income give contribution is about 24.20% to 59.00%. This kinds of off farm income are the fishing activities ("bekarang"), fruit selling (such as the kind of mango, rambutan) and transfer income of household members who work and migrate abroad (2.30% to 10.00%).

The household expenditure is dominated by food consumption, especially for rice (as staple food), animal protein dishes and cooking fuel. This fact finding shows that the higher income so that the smaller proportion of food expenditure. This results support the research Purwantini and Ariani (2008), that is the amount of income (the proxy of total expenditure) is spent for food can be used as an indication that the level of household's welfare). So the higher proportion income for food expenditure means that the less wealthy a farm household is.

The farm household expenditures are analyzed in this study consisted of food consumption, non-food consumption and investment or savings. Food consumption expenditure consists of all expenditure of farmers to meet their family needss for carbohydrates such as rice, corn, root crops, wheat flour and sago, the protein requirement of fish, beef, poultry meat, eggs, milk, tempe and tofu, vitamins and fiber needs of the vegetables, fruits, and other needs such as spices, sugar, cooking

oil, coffee and tea, tobacco (cigarettes) and energy for cooking.

Several studies had been done in relation to this topic, whether conducted by these researchers herself or by other researchers, on activities of farm households as one unit, as a producer and a consumer, especially when they interact with the labor market. Study about farm household economic behavior had been done for several commodities in Indonesia such as oil palm (Zahri 2003; Husin, 2007), food crops (Azmi 2012) and rubber farm (Anggraini 2011, Perwitasari 2012). Most of these studies concluded that family labor supply, production and consumption interacted with each other (non-recursive), but another study found that those activities were separable (recursive*)* (Sawit 1993). Therefore, this study was to analyze how family members allocate their working time to several kinds of productive activities, how much each productive activity contribute to their family income, and how their income can be used to fulfill their family's needs (for food, non-food consumption and investment). This study also wanted to prove this interaction and to analyze the factors that influence farm household behavior.

Average yield of paddy farmers in Region Pemulutan, Ogan Ilir regency is around 3,937 kg/ha/year which give income contribution around Rp 9,844,509 (68.8%), while non paddy farm income is around Rp 662,556 (4.63%), off farm income is around Rp3,628,389 (25.36%) and other income (non working earning) is Rp 169,444 (1.18%). The average total farm household income is Rp 14,304,898 is still higher than total expenditure (Rp 14,301,008).

The allocation of household labor time rice farmers in Region Pemulutan Ogan Ilir regency drink a lot of work time allocated for rice farming is the highest ie 89 person-days (50%), while non-paddy farming is 16.00 HOK (8.98%) and for off farm is 73.00 HOK (41.01%). Household expenditures rice farmers in the area

Pemulutan Ogan Ilir regency is for food consumption, amounting to Rp9,156,394 (68.21%), while non-food consumption expenditure was Rp3,691,033 (22.09%) and savings of Rp1,453,581 (9.70%).

The paddy farm households allocate their income for their needs almost equally, that is for food consumption, non-food consumption and for investment or saving.This expenditure share for food consumption in this area (33.89%) is lower than farm household in Prabumulih (51.71%) (Anggreini 2011). This finding is supported by *the Engel's Law,* where the part of income used for food spending tends to decline when income increases. In other words, the higher income households will spend a smaller part of their income for food consumption (Nicholson 2000). This result also proves that the farm household economic behavior will influence each other through their endogenous variables (non-recursive behavior). This same behavior is for the same commodity but different area (Perwitasari, 2012 and Yunita, 2012), for different commodity and area (Zahri, 2003, Husin, 2007, Anggreini, 2011 and Perwitasari, 2012). Therefore, every farm household's decision in one productive activity has to consider other activities, in terms of making income to fulfill their family's need and increase their welfare.

CONCLUSION

Based on the study, generally the paddy farm households in Pamulutan area have some sources of income (paddy farm, non-paddy farm, off farm income and non working earning). The highest portion of family working time for paddy farm (50.00%) give the highest contribution to total income (68.80%). Mostly, the family income is higher than their expenditure, so they are still ability fulfill all their family needs (for food, non-food consumptions) and for investment. In this research, the highest portion of expenditure is for food consumption (68.21%). Estimation of simultaneous equation has proved that the

behavior of family labor supply (working time on productive activities), production and consumption interact each other so that each decision made will influence the others.

The paddy farm households in this area have made accurate decision where they do not rely only on paddy farm income, but they also make income from other sources. In order to develop their paddy farm in term of fulfilling their primary need and source of income, any government intervention (policy) should consider the paddy farm household as a complex economic and non-recursive behavior as indicated by the result of this study. The allocation of household labor time rice farmers in Pemulutan Region still less than the potential of the existing working time, intensification is rarely done due to conventional irrigation system.

It is needed for government intervention to optimize the irrigation system for paddy and non-paddy farming so that it is possible to plant the paddy twice a year. The potential for optimizing work time in off farm by increasing their skills, especially for women. The need for the stimulation increased potential commodities rice, horticulture, crops, agriculture and animal husbandry so that agriculture is no longer cultivated in monoculture and increased production technologies of both agencies and related institutions.

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