

WORKING TIME ALLOCATION OF RICE FARMER HOUSEHOLDS WITH BATAK TOBA TRADITION AT TOBA SAMOSIR NORTH SUMATERA

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ABSTRACT

This research aims to analyze: time allocation and type of women farmer's working and men farmer's working in rice farming and factors that influence on time allocation of women farmer's working. Time allocation of women farmers on rice-farming in Toba Samosir Regency is longer than men farmers. From the regression test on variables that influence with time allocation of women farmers are the education of women farmers, the education of men farmers, the men farmers' period of staying on another town and Batak Toba Tradition about women's domination in rice farming are significantly influence in level of confidence 95%. This research recommended that agricultural development still needs to repair by using local wisdom or local culture. It can create local community that concern about gender equality, so it can increase working-time allocation and increase farm working-quality to create the wealth farmer households and increase the GDP of Toba Samosir Regency on North Sumatera Province.

Keywords: time allocation, rice farmer households, Batak Toba Tradition, Toba Samosir, North Sumatera

INTRODUCTION

Toba Samosir Regency was one of the region that produce large amount of rice on North Sumatera Province. The lakeside area was the fertile land for rice farming. The water debit was quite enough for the rice farming, made the farmers felt comfortably to plant rice. The rice production at Toba Samosir was 3,81 percent from total of rice production and 8th rank in Sumatera Utara Province (Statistik Daerah BPS Toba Samosir, 2014). In 2013, the agriculture sector had made large contribution in Gross Domestic Product of Toba Samosir Regency about 22,53 percent of total GDP (Toba Samosir Dalam Angka, 2014).

The rice farming is the most popular occupation for the rice farming households in Toba Samosir Regency of North Sumatera Province. The lakeside land farming were so fertile and had the

optimum debit of water in every plant season. One of the effort to increase local production of food was by improved human resources through local wisdom. Local wisdom was being a part of culture on farmers' family for so long. One of the application of local wisdom on rice farming was working time allocation. Working time allocation on rice farming in Toba Samosir Regency was so unique. It was dominated by women farmer. This working time allocation was influenced by local culture. It was Batak Toba Culture. The Batak Toba Culture was so patrilineal (men oriented), so that can pushed the women to make their bargaining position up through hardworking. One of that was being the main actor for their rice farming.

There was a phenomena gap between existing condition and ideal condition in working time allocation. In ideal, the men farmer allocated working time more than

women farmer on rice farming. But, in fact, on Toba Samosir, there was more time has been spent by women farmer than men farmer in rice farming.

According to Soekartawi(2001), working time allocation and the quality of human resources was affected by sex, especially in agriculture product. The men labour have specialized in current kind of working as land clearing while the women was planting.

Becker (2006), focused on households' time. Households' time was the scarce resource. Almost 50 percent, time was used for households' activities such as take a rest, cooking, recreating, etc. It was a big part of time. So that, the working time allocation and time efficiency were became important in the study of households' welfare.

The women farmer on Toba Samosir have low education, so traditional, low capital, low working time, limited technology and limited skill and knowledge. The working time allocation was influenced by some factors. There are technical and economic factor, but the main factor that was predicted: Batak Toba Culture.

The research questions are:(1) How about the working time allocation and kind of works women farmer and men farmer on farmer households at Toba Samosir Regency, Sumatera Utara Province? (2) What kind of factors that influenced farming time allocation of women farmer (wife) in farmer households at Toba Samosir Regency, Sumatera Utara Province?

LITERATURE REVIEW

The Theory of Labour Supply

Time Allocation And Labour Supply

Each activity that people do must used time. People have same time: 24 hours a day or 168 hours a week. The activities that people do or community do were various. Judith Monostory (2009) on her research "Work, Leisure, Time Allocation" said that, There were five activities of time use: (1). Paid Work, (2).

Routine housework, (3). Maintenance housework, (4). Child Care dan (5). Individual Leisure. Willingness to allocate time for an activity, means willingness to work for current job. Labour supply can be defined by time allocation for current type of work (Nicholson, 2002). The classification of time allocation can be classified into three groups: (1) Paid work, (2) Unpaid work dan (3) No work (Rania Antonopoulos, 2008). According to Judith Monostory (2009) that 24 hours time was used for : (1) work,(2). house work,(3) Leisure, and (4) Individual Personal Development, so that the relationship could be formulated:

$$T = 24 = TW + THW + TPD + TL$$

T : Total time

TW : Time for work (jam)

THW : Time for house work

TPD : Time for individual personal development

TL : Time for Leisure

Based on the formula, can be defined the equalization of time allocation and type of women and men farmer working on Toba Samosir Regency. It was also used on Axco Dominique, 2007 dan Saleh, Eniza dan Yunilas, 2004 research:

$$CT_{p,l} = CL + CB + CN + CS + CF + CI + CH$$

$CT_{p,l}$ = Total time allocation of women or men farmers of rice farming (hour per planting time)

CL = Time allocation of land clearing activity (hour per planting time)

CB = Time allocation of seeding activity (hour per planting time)

CN = Time allocation of planting activity (hour per planting time)

CS = Time allocation of weeding activity (hour per planting time)

CF = Time allocation of fertilizing activity (hour per planting time)

CI = Time allocation of killing insect activity (hour per planting time)

CH = Time allocation of harvesting activity (hour per planting time)

The Production Function

According to Nicholson (1995), production is an activity to change input to output. According to Soekartawi (2002), the production process can working out when the items that proper for plantation or husbandry or fishery. It were named the production factors. The production factors consist of: land, capital, labour and skill or management. The production function is a function that consist of two variabels or more (independent variable and dependent variable) (Soekartawi,2002).

In Mathematic, Production Function can be defined:

$$Y = aX_1^{b_1}X_2^{b_2}X_3^{b_3}X_4^{b_4}e^\varepsilon$$

Y = rice production

a =intercept/constant

b₁-b₄ = coefficient of regression of independent variables

X₁ = seeds (kgs)

X₂ = fertiles (kg)

X₃ = labours (HOK)

X₄ = waters (m³)

e =natural logaritm , e=2,718

ε = error

One of the production factor is labour.It is working time allocation in rice farming. In measuring factors that affected working time allocation of rice farmer was used this formula:

$$Y = f (X_1, X_2, X_3, \dots, X_n)$$

And then, this formula is changed into the multiple regression formula:

$$Y = A + a_i X_i + \varepsilon$$

Y = time allocation of rice farming

X_i = influenced factors of time allocation

The multiple regression model is:

$$H_i = A + a_1 P_i + a_2 P_s + a_3 L + a_4 \text{prod} + a_5 Y_{\text{kel}} + a_6 S_m + a_7 \text{bud}$$

H_i = Working time allocation of women farmer on rice farming (hour per planting time)

A = intercept

a₁...a₈ = coefficient of regression

P_i= education level of women farmer

P_s= education level of men farmer

S_m = time period of men farmer living on another town

bud= Batak Toba Tradition about women's farmer domination in rice farming

The Meaning of "Son" in Batak Toba Culture

One of the important part of life in Batak Toba community was the birth of children. That was the part of the life direction of Batak Toba community: hagabeon(many of children), hamoraon (richness), hasangapon (prestige). One of the most popular in Batak Toba community is "Anakhonki do Hamoraon di au" (the son was the most valuable for me). In Batak Toba community, "anak" means the son, while "boru" means the daughter.

In patrilineal system in Batak Toba community, only men that can continue the dynasty and surviving the prestige of their family and their village.The men as a central figure of culture ceremony (Lumbantobing,1992).

The Previous Research

Adeyonu (2012) researches about gender dimension on time allocation of farmer households at Nigeria. It findings that there were three main activity in farmer households: farming activity, non-farming activity, household activity. Using descriptive statistic analysis as frequency, percentage, mean and standard of deviation. Men were allocated more time for farmer activities and non-farmeractivities than women that allocated more time for domestic or households activities.

Nalinda (2006), findings that the factors that influenced working time allocation of husband and wife are: the own of land, the age of husband, the age of wife, level of husband's education, level of wife's education, the households income, the household expenditure, households working time, number of depended family, number of working family.

Proposition and Hypothesis

Proposition I:

According to Theory of Production, one of production factor is man (human resource). The education level of wife (women farmer) was a part of human resources. The findings of Nalinda research (2006) in Sleman on working time allocation of "melinjo" chips farmers shows that there was a working time decreasing when the education level of wife was increased. It had been caused of she can work efficiently. Based on proposition I: **Hypothesis I:** There is a negative effect of women farmer education level to women working time allocation on rice farming at Toba Samosir.

Proposition II:

The men farmer education level is one of variable that affect to working time allocation of women farmer on rice farming. When the men farmer education level is higher, his point of view is wider, especially in gender equality. So, the men farmer feels that he must help his wife in working on rice farm.

This proposition is the same as Nalinda research (2006) on Sleman of "melinjo" chips farm households working time allocation that shows tend to decrease working allocation time when the men farmer level of education is up. Based on proposition II:

Hypothesis II: There is a negative effect of men farmer education level to women working time allocation on rice farming at Toba Samosir.

Proposition III:

The time period of the men farmer was living in another town is affect to women working time allocation on rice farming. If the men farmer had been living in another town in past or had been staying out of Toba Samosir in past, just like lived in Medan or Jakarta or the other city in Indonesia longer, so the women working time allocation on rice farming will decrease. If the period of living in another town in past is longer, his point of view is wider, especially in gender equality. So,

the men farmer feels that he must help his wife in working on rice farm. Based on proposition III: **Hypothesis III:** There is a negative effect of the period of men farmer's living in another town in past or had been staying out of Toba Samosir in past to women working time allocation on rice farming at Toba Samosir.

Proposition IV:

The patrilinealistic of Batak Toba Culture was very "male orientation". This caused the hardworking wife to increase her bargaining position. The effect of Batak Toba Culture in households affected working time allocation of women farmer on rice farming. Based on proposition IV: **Hypothesis IV:** There is a positive effect of the Batak Toba Culture in farmer households to women working time allocation on rice farming at Toba Samosir.

RESEARCH METHOD

Research Location

This research was located on Toba Samosir Regency at North Sumatera Province. It concentrated at three districts: Laguboti District, Balige District and Porsea District. The three districts have the most rice farmer on Toba Samosir Regency. The rice farmer households were the objects of this research.

Sampling Method

The purposive sampling method is used for this research. The Slovin formula was used to calculate the sample with 10 percent terms of error.

$$n = \frac{N}{1 + Ne^2}$$

n = total of sampling

N = total of population

e = critical value (%)

Source: Sugiyanto, 1998

The Toba Samosir Regency Statistic Data of Agriculture noted, there are 21.885 farmer households. Balige District have 3.027 farmer households, Porsea District have 2.423 farmer households and Laguboti District have 5.625 farmer households .

As sampling were 99 farmer households, consist of 99 women farmer and 99 men farmer. There are 30 farmer households in Balige District, 28 farmer households in Porsea District dan 41 farmer

households in Laguboti District.

RESULT AND DISCUSSION

Time Allocation And Type of Women And Men Farmer Working on Rice Farming at Toba Samosir North Sumatera

The time allocation and type of women and men farmer working on rice farming is seen on Table 1:

Table 1. Time Allocation And Type of Women And Men Farmer Working on Rice Farming

No.	Type of working	Time allocation of women farmer hour/planting time	Time allocation of men farmer hour/planting time
1.	Land clearing	0	38,58
2.	Seeding	15,48	0
3.	Planting	20,65	0,36
4.	Weeding	11,12	0
5.	Fertilizing	13,60	2,54
6.	Killing insect	0	4,80
7.	Harvesting	8,79	10,79
	Total	69,64	57,07

Source: Primary datas processed,2017

Based on Table 1.: For one period of planting time, the women farmer allocation time on seeding (15,48 hours), planting (20,65 hours), weeding (11,12 hours), fertilizing (13,60 hours) and harvesting (8,79 hours). Land clearing activity was not done by women farmer because it needs big power. Activity of killing insect with insectisida were also not done by women farmer because it was dangerous for women.

For one period of planting time, the men farmer allocation time on land clearing (38,58 hours), planting (0,36 hours), fertilizing (2,54 hours), killing insect (4,80 hours) and harvesting (10,79hours). The activity of seeding and weeding were not done by men farmer

because both activities still could be done by women farmer.

The Estimation Of Time Allocation Model Of Women Farmer Working on Rice Farming at Toba Samosir North Sumatera

The factors that affect on working time allocation of women farmer are: f (women farmer's education level, men farmer's education level, width of land, the amount of rice production, income of side jobs, the men farmer time/period of living/staying on another town at past, and Batak Toba Tradition). The regression of the model is:

$$H_i = 307,764 - 0,298P_i - 0,404P_s - 0,135S_m + 0,156bud$$

H_i = Working time allocation of women farmer on rice farming (hour per planting time)

A = intercept

a_1, \dots, a_8 = coefficient of regression

P_i = education level of women farmer

P_s = education level of men farmer

S_m = time period of men farmer living on another town

bud = Batak Toba Tradition about women farmer's domination in rice farming

Table 2. The Result Of Regression Test For Time Allocation Model Of Women Farmer Working on Rice Farming at Toba Samosir North Sumatera

No	Independent Variable	Coefficient of Regression	t count	P value
1	Constanta	307,764	10,095	0,000
2	Women farmer level of education	-0,298	-3,411***	0,001
3	Women farmer level of education	-0,404	-5,701***	0,000
4	Time of living on another town in past for men farmer	-0,135	-2,230***	0,028
5	Batak Toba Tradition	0,156	2,025***	0,046
	t tabel (1%)	2,36461		
	t tabel (5%)	1,66039		
	t tabel (10%)	1,29016		

Source: Datas Processed

*** = Significance on error terms 5%

Model Interpretation and Discussion

The interpretation and discussion of working time allocation of women farmer on rice farming are:

1. Education level of women farmer

The coefficient of education level of women farmer -0,298. It means: If education level of women farmer up one level, the working time allocation of rice farming will decrease 0,298 percent. Statistically, it means that: If education level of women farmer increasing, the working time allocation of rice farming will be decreasing. It may be caused of the

higher education level can make the women farmer do various jobs, just like trading some goods and traditional fabrics called "ulos".

2. Education level of men farmer

The coefficient of education level of men farmer -0,404. It means: If education level of men farmer up one level, the women working time allocation of rice farming will decrease 0,404 persen. Statistically, it means that: If education level of men farmer increasing, the women

working time allocation of rice farming will be decreasing. It may be when the men farmer education level is higher, his point of view is wider, especially in gender equality. So, the men farmer feels that he must help his wife in working on rice farm.

3. Time or period of men farmer living on another town at past

The coefficient of time or period of men farmer living on another town at past is 0,135. It means that: If the men farmer had been living in another town in past or had been staying out of Toba Samosir in past, just like lived in Medan or Jakarta or the other city in Indonesia longer, so the women working time allocation on rice farming will decrease 0,404 percent.

If the period of living in another town in past is longer, his point of view is wider, especially in gender equality. So, the men farmer feels that he must help his wife in working on rice farm.

4. Batak Toba Tradition about women farmer's domination in rice farming

The coefficient of Batak Toba Tradition about women farmer's domination in rice farming is 0,156. It means that: If the Batak Toba Culture more influenced in rice farmer households so the women working time allocation on rice farming will increase 0,156%. The patrilinealistic of Batak Toba Culture caused the hardworking wife to increase her bargaining position through working time allocation especially on rice farming.

CONCLUSION

1. The findings of this research show that at Toba Samosir Regency in one planting time or period (four months), the working time allocation of women farmer consist of seeding activity, planting, weeding, fertilizing, and harvesting. Land clearing activity was not done by women farmer because it needs big power. Activity of killing insect with insecticide were also not done by women farmer because it was dangerous for women. The

activity of seeding and weeding were not done by men farmer because both activities still could be done by women farmer.

2. The findings at Toba Samosir Regency show that on working time allocation of women farmer was affected by women farmer's education level, men farmer's education level, the men farmer time/period of living/staying on another town at past, and Batak Toba Tradition about women farmer's domination in rice farming.

RECOMMENDATION

From the findings of this research: The factors that affected on working time allocation of women farmer are women farmer's education level, men farmer's education level, the men farmer time/period of living/staying on another town at past, and Batak Toba Tradition about women farmer's domination in rice farming. The agriculture development was focused on technology still needs to repair with increasing the level of education of community and improvement of local wisdom: Batak Toba Culture. The men farmer's time/period of living/staying on another town at past was the good tradition so it must be conserved. It is not only in time allocation but also on increasing the quality of rice farmer working to increase amount of rice production and to increase the GDP of Toba Samosir Regency.

LITERATURES

Adeyonu, A.G. 2012. Gender Dimensions of Time Allocation of Rural Farming Households in Southwest Nigeria. *Current Research Journal of Social Sciences* 4(4):269-276.

Badan Pusat Statistik, 2013. *Sumatera Utara Dalam Angka 2013*.

Becker Garry S. 2006. *A Theory of The Allocation Time*: [http:// www.jstor.org](http://www.jstor.org)

Cobb, C.W., Douglas, P.H. 1925. *A Theory of Production*.

- Dominique Axco, 2007. *Time Allocation Between Work Family Over The Life-Call A Comparative Gender Analysis of Italy, France Sweden and The United States*: IZA_DP No 3193.
- Eachren Mc William. 2002.(Terj.) *Economic ; A Contemporary Introduction*. Jakarta. Salemba Empat.
- Eniza Saleh dan Yunilas.2004. Perbandingan Alokasi Waktu Tenaga Kerja Wanita dan Pria Dalam Usaha Penggemukkan Sapi di Kecamatan Hamparan Perak Kabupaten Deli Serdang. *Jurnal Komunikasi Penelitian* 16(6):70-76.
- Ghozali, H.I. 2011. *Aplikasi Analisis Multivariate dengan Program IBM SPSS 19*. Badan Penerbit Universitas Diponegoro, Semarang.
- Gronou M. and S. Methfessel .1976. *Theory of The Allocation of Time*. Berlin.
- Gujarati,D.2003. *Basic Econometrics. Fourth Edition*.Mc.Grow-Hill: New York.
- Khalida Jamali, 2009. *The Role of Rural Women in Agricultural and It's Allied Fields: A Case Study of Pakistan*: European Journal of Social Science Vol.7, Nop 3 (2007).
- Koutsoyiannis, A.1994. *Modern Microeconomics*.2nd Edition. Mac Millan.
- Lumbantobing, A. 1992. *Makna dan Wibawa Jabatan Dalam Gereja Batak*. Jakarta: BPK Gunung Mulia.
- Mastuti S. Dan Hidayat N.N. 2010. Peranan Tenaga Kerja Perempuan dalam Usaha Ternak Sapi Perah di Kabupaten Banyumas. *Journal Animal Production* 11 (1): 40-47.
- Nicholson, Walter. 2005. *Microeconomic Theory*. Ninth Edition. United states of America.
- O.A.Adeleke, , Y.L. Fabiyi, A. Ajiboye and H.M. Matanmi. 2008. Application of Stochastic Production Frontier in the Estimation of Technical Efficiency of Cassava Farmers in Oluyole and Akinyele Local Government Areas of Oyo State. *Research Journal of Agronomy* 2 (3):71-77.
- Panggabean, H.P. dan Sinaga, Richard. 2004. *Hukum Adat Dalihan Natolu Tentang Hak Waris*. Jakarta. Dian Utama dan Kerabat.
- Pasaribu, H. Rudolf. 2001. *Pengaruh Injil Dalam Adat Batak*. Jakarta: Paras Sinar Santi.
- Pollak A. Robert. *The Relevant of Household Production Function and It's Implication for The Allocation Time*, USA. University of Pennsylvania.
- Sobari Priyatna Muhammad, dkk. 1996. *Pembagian Kerja dan Alokasi Waktu Pencapaian Nafkah Pada rumah Tangga Pengambil Rumput Laut Alam di Cikelet Kabupaten Garut*. Buletin Ekonomi Pertanian No.2 tahun 1996.
- Rania Antonopoulos. 2008. *The Unpaid Care Work-Paid Work Connection*. Working Paper No.541: The Levy Economics Institute.
- R. A Olawepo & Bola Fatulu 2012. Rural Women Farmers and Food Productivity in Nigeria: An Example from Ekiti Kwara, Nigeria. *Journal Asian Social Science*, volume 8 no.10, 108-116.
- R. A Olawepo & Yahaya, Y. 2010. *Rural Women Performances and Participation in Agriculture: An Example from a Rural Nigerian Economy*, *Kogjourn*, Department of Sociology, Kogi State University, Anyigba, Nigeria.
- Rika Nalinda. 2006. Alokasi Waktu Kerja Keluarga Pengrajin Emping Melinjo Di Kecamatan Mlati Kabupaten Sleman. *Jurnal Ilmu-Ilmu Pertanian* Vol.2, No.1: 73-86.
- Risyart Alberth,Far Far.2012. Peran Gender Dalam Kehidupan Rumah Tangga di Desa Liang Kabupaten Maluku Tengah. *Jurnal Agribisnis Kepulauan* 1 (1):13-27.
- Shobahiya, Mahasri dan Maryadi. 2006. Aktivitas Perempuan Pedagang Dalam Memenuhi Kebutuhan Jender Praktis dan Strategis di Pasar Klewer Surakarta. *Jurnal Penelitian Humaniora*,7(2):105-120.
- Soekartawi. 2001. *Pengantar Agroindustri*. Penerbit Raja Grafindo Persada. Jakarta.
- Soepriati. 2006. *Peranan Produksi Usahatani dan Gender dalam Ekonomi Rumahtangga Petani Lahan Sawah :*

Studi Kasus di Kabupaten Bogor. Tesis Magister Sains. Sekolah Pascasarjana, Institut Pertanian Bogor, Bogor.

Sugiyanto.1998. *Teknik Sampling*. Jakarta: PT. Gramedia Pustaka.

Sugiyono. 2008. *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Penerbit Alfabeta,Bandung.

Sumatera Utara Dalam Angka. 2014. *Badan Pusat Statistik*.

T.O.Adeyokunnu, 1981. Women Agriculture in Nigeria: A Research SeriesPublication. *The African Training and Research Centre for Women*, Ibadan

Toba Samosir Dalam Angka. 2014. *Badan Pusat Statistik*.