Working Time Allocation of Rice Farmer Households Based on Gender Dimensionof Batak Toba Culture at Toba Samosir North Sumatera

Ulfa Nadra
Doctoral Programme of Economic, Diponegoro University, Indonesia
Economic Faculty Al Azhar University, Medan, Indonesia
Jalan Ringroad, Tj. Sari, Medan Selayang, Kota Medan, Sumatera Utara 20132, Indonesia
ulfa.nadra@yahoo.com

Purbayu Budi Santosa, Hadi Sasana
Faculty of Economic and Business, Diponegoro University, Indonesia
Prof Soedharto Street, Tembalang, Central Java, Indonesia

Abstrak-Penelitian ini bertujuan untuk menganalisis: curahan waktu dan jenis pekerjaan perempuan petani (istri) dan laki-laki petani (suami) dalam pekerjaan pertanian padi dan faktor-faktor yang mempengaruhi curahan waktu kerja perempuan petani (istri). Penelitian ini dilaksanakan di Kecamatan Balige, Kecamatan Laguboti dan Kecamatan Porsea di Kabupaten Toba Samosir Provinsi Sumatera Utara. Alasan memilih kecamatan-kecamtan tersebut adalah karena penduduk di kecamatan-kecamatan tersebut bekerja sebagai petani padi dan lokasi kecamatan-kecamatan tersebut relatif dapat lebih mudah dijangkau. Penelitian ini menggunakan *purposive sampling* dengan jumlah sampel sebanyak 99 rumahtangga petani padi di Kabupaten Toba Samosir. Curahan waktu kerja perempuan petani (istri) dalam pertanian padi di Kabupaten Toba Samosir lebih besar dibandingkan petani laki-laki (suami) Dari hasil uji regresi terhadap variabel-variabel yang berpengaruh terhadap curahan waktu kerja perempuan petani (istri) dalam pertanian padi diperoleh hasil bahwa pendidikan istri, pendidikan suami, lama waktu suami pernah merantau dan Budaya Batak Toba berpengaruh nyata pada tingkat kepercayaan 95%. Penelitian ini merekomendasikan bahwa pembangunan pertanian masih perlu diperbaiki dengan membesarkan *local wisdom* yaitu Budaya setempat agar tercipta masyarakat berbudaya yang peduli kesetaraan gender sehingga dapat meningkatkan curahan waktu kerja dan kualitas kerja petani agar terwujud peningkatan kesejahteraan petani dan peningkatan PDRB terutama untuk Kabupaten Toba Samosir Provinsi Sumatera Utara.

Kata kunci*:* curahan waktu, gender, petani padi, Toba Samosir, Sumatera Utara

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. This research was done in Balige District, Laguboti District and Porsea District on Toba Samosir Regency at North Sumatera Province. The reasons of making these districts as a choice are: peoples of these districts are working as a rice farmers and the location of these districts are easier to reach. This research use purposive sampling with 99 rice-farmers households on Toba Samosir Regency as samples.Time allocation of women farmers on rice-farming in Toba Samosir Regency is longer than men farmers. From the regression test on variabels 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 Culture 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 creates 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: gender, North Sumatera, rice farmer,time allocation, Toba Samosir

1. 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 comfortly 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.In 2013, the agriculture sector had made large contribution in Gross Domestic Product of Toba Samosir Regency about 22,53 percent (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 produation 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 fenomena 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' activitysuch 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 housholds'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 influented by some factors. There are technical and economic factor, buat 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?

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. 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.The classification of time allocation can be classified into three groups: (1) Paid work, (2) Unpaid work dan (3) No work.According to 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:

$$T = 24 = TW + THW + TPD + TL \qquad (1)$$

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 Dominique (2007), and Saleh and Yunilas (2004) research:

$$CT_{p,l}=CL+CB+CN+CS+CF+CI+CH \qquad (2)$$

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 fertiling 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 is a function that consist of two variabels or more (independent variable and dependent variable) (Soekartawi, 2002).
In Mathematic, Production Function can be defined:

$$Y = aX_1^{b1}X_2^{b2}X_3^{b3}X_4^{b4}e^{\varepsilon} \qquad (3)$$

Y = rice production
a =intercept/constanta
b_1-b_4 = coefficient of regression of independent variables
X_1 = seeds (kgs)
X_2 = fertiles (kg)
X_3 = labours (HOK)
X_4 = waters (m^3)
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:
$$Y = f (X_1,X_2,X_3,..........X_n)$$
And then, this formula is changed into the multiple regression formula:
$$Y = A + a_iX_i + \varepsilon$$
 Y = time allocation of rice farming
 X_i = influenced factors of time allocation
The multiple regression model is:

$$H_i = A +a_1Pi + a_2Ps + a_3L + a_4\,prod + a_5Ykel +a_6Sm + a_7bud \qquad (4)$$

H_i = Working time allocation of women farmer on rice farming (hour per planting time)
A = intercept
$a_{1...}a_8$ = coefficient of regression
P_i = education level of women farmer
P_s = education level of men farmer
L = width of rice farming land
prod = rice production of a planting time
Y_{kel} = income of other jobs of a planting time
Sm = time period of men farmer living on another town
bud = Batak Toba Culture

Male 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 shecan 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 eduaction 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:

According to Theory of Production, one of production factor is land.The width of land is affect to to women working time allocation. When the land is wider, the more time was allocated to work on rice farming.Based on proposition III: **Hypothesis III:** There is a positive effecton the width of rice farm landto women working time allocation on rice farming at Toba Samosir.

Proposition IV:

According to Theory of Production, the amount of production is affect to women working time allocation on rice farming. The increasing of rice production will affect women working time allocation on rice farming will be more. It is caused by the women farmer is the central figure or main labour of rice farm on Toba Samosir.It was the same as Nalinda's research (2006) findings that when the production of "melinjo" chips increase, the working time is more and more. Based on proposition IV: **Hipotesis IV:** There is a positive effecton amount of rice production to women working time allocation on rice farming at Toba Samosir.

Proposition V:

The women farmer side job are trading, just like goods store, making and selling "ulos" (the handicraft traditional fabrics) or onions planting.Nalinda's research (2006) findings that is affect to women working time allocation on rice farming at Toba Samosir.On Nalinda's research (2006) findings, the increasing of side job income will affect women working time allocation. Based on proposition V: **Hipotesis V:** There is a positive effectof the women farmer side jobto women working time allocation on rice farming at Toba Samosir.

Proposition VI:

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 VI: **Hipotesis VI:**There is a negative effectof 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 VII:

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 VII: **Hipotesis VII:**There is a positive effectof the Batak Toba Culture in farmer households to women working time allocation on rice farming at Toba Samosir.

2. 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.

$$n = \frac{N}{1 + Ne^2} \tag{5}$$

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, PorseaDistrict have 2.423 farmer householdsand Laguboti District have 5.625farmer 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.

3. 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: Data Processed, 2016

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) andharvesting (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 OfTime 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 Culture). The regression of the model is:

$$H_i = 307,764 - 0,298Pi - 0,404Ps + 0,071L - 0,06 \text{ prod} - 0,016Ykel - 0,135 Sm + 0,156bud \qquad (6)$$

H_i = Working time allocation of women farmer on rice farming (hour per planting time)
A = intercept
$a_{1...}a_8$ = coefficient of regression
P_i = education level of women farmer
P_s = education level of men farmer
L = width of rice farming land
prod = rice production of a planting time
Y_{kel} = income of other jobs of a planting time
Sm = time period of men farmer living on another town
bud = Batak Toba Culture

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	Width of land	0,071	1,212	0,229
5	Amount of rice production	-0,006	-0,108	0,914
6	Income of side jobs	-0,016	-0,399	0,691
7	Time of living on another town in past for men farmer	-0,135	-2,230***	0,028
8	Batak Toba Culture	0,156	2,025***	0,046
	t tabel (1%)	2,36461		
	t tabel (5%)	1,66039		
	t tabel (10%)	1,29016		

Souce: Datas Processed,2016
*** = Significanceon error terms 5%

The interpretation and discussion of working time allocation of women farmer on rice farmingare:
1. Education level of women farmer
    The coefficient of education level of women farmer-0,298 (Table 2). 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. The width of rice farming land
    The coefficient width ofland 0,071was not significant to women working time allocation on rice farming. It may be happened because the women farmer already have the same working time for each planting time. So that, the width of the rice farming land was not significant to women working time allocation on rice farming.
4. The amount of rice production
    The coefficient ofthe amount of rice production -0,06 was not significant to women working time allocation on rice farming.It may be happened because the quality of women farmer's working were not

good and tend to more slowly than men farmer. This findings will be the input for The Toba Samosir Government to improve the women farmer's skill and competency. So that the amount of rice production will increase on the future.

5. The other jobs income

The coefficient of the other jobs income-0,016 was not significant to women working time allocation on rice farming. It may be happened because of many of women farmer have the other activity that can make money, but it was not affect to women working time allocation on rice farming. The other jobs were done at current hours when the women farmer were not working on the rice farm at afternoon. The other jobs are trading, selling goods in small store, local art and craft, palnting onions and some other activity.

6. Time or period of men farmer living on another townat past

The coefficient of time or period of men farmer living on another town at past-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.

7. Batak Toba Culture

The coefficient of Batak Toba Culture 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 willincrease 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.

4. Conclusion

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 insectisida were also not done by women farmer because it was dangerous for women. The activity of seedingand weeding were not done by men farmer because both activities still could be done by women farmer.The findings at Toba Samosir Regency show that on working time allocation of women farmer was affected bywomen 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 Culture.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. 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.

References

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

Becker GS., (2006). A Theory of The Allocation Time: http:// www.jstor.org

Dominique A., (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.

Lumbantobing A.,(1992). Makna dan Wibawa Jabatan Dalam Gereja Batak. Jakarta: BPK Gunung Mulia.

Monostory J., (2009) Work, Leisure Time Allocation: Turkey European Social Report.

Nalinda R. (2006). Alokasi Waktu Kerja Keluarga Pengrajin Emping Melinjo Di Kecamatan Mlati Kabupaten Sleman. Jurnal Ilmu-Ilmu Pertanian Vol.2, No.1: 73-86.

Nicholson, Walter. (2005). Microeconomic Theory. Ninth Edition. United states of America.

Saleh E and 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.

Soekartawi (2001). Pengantar Agroindustri. Penerbit Raja Grafindo Persada. Jakarta.

Sugiyanto (1998). Teknik Sampling. Jakarta: PT. Gramedia Pustaka.

Toba Samosir Dalam Angka. (2014). Badan Pusat Statistik.