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Child Labor Contributions to the Household Productivity and Income of Rubber Farmers in Arakan Valley Complex, Philippines

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Abstract: The study entitled, " Child Labor Contributions of the Household Productivity and Income of Rubber Farmers in Arakan Valley Complex, Province of Cotabato", was conducted to described the socio-demographic characteristics of the rubber farmers; determine the labor contributions of parents and children in rubber farming and in the different farming activities; the household productivity and income of rubbers farmers; difference between the parents and child labor contributions: influence of the child labor contributions on the household income derived from rubber farming and from other farming activities; influence of the number of working children on the household farming productivity; and influence of the number of working children on the number of household farming activities. Rubber grower respondent had an average age of 46. Majority or 81.8% of the respondents were male and 82.8% were married, 84.8% were Catholic and 64.6% belonging to the Ilonggo tribe. Most of the respondents attained elementary and high school education with an average household size of 6 and an average farm size of 1.86. About 76.54% of the total labor input in rubber farming and other farming activities were contributed by the child labor, while only 23.46% of the total labors were contributed by the parents. Rubber had the highest yield per year followed by corn, rice, fruits and lastly vegetables. Only rubber farming showed a significant difference between the parents and the child labor contributions. In rubber farming, only care and maintenance and acid treatment showed a significant influence on the household income, while the total labor cost contributed by the children from the other farming activities had also significantly influenced the household income. Result of the ANOVA revealed that as the number of working children increased, the household income also increased. Duncan's Multiple Range Test (DMRT) showed that the number of children 4-6 and 7-9 had substantially increased the household income. The analysis of variance (ANOVA) result also showed that the number of working children significantly contributed to the increase of the household farming activities. The DMRT, on the other side, indicated that the two higher categories of the number of working children, 4-6 and 7-9 had significantly contributed to the increase in the number of farming activities done by the household.
Keywords: child labor, household productivity, rubber farmers, Arakan Valley Complex, Philippines

INTRODUCTION

Evidence on the important role children play in helping their families cope with extreme poverty comes from both within and across countries. Poor parents in a developing country face a difficult position. Children can make a productive contribution to their family by helping farm or business, working in the formal labor market, or providing domestic services to their household.

According to [3], in their published work on "Child Labor in the Philippines", the latest NSO statistics on working children in 1995 found 3,669,903 working children in the Philippines. This was a far cry from Bureau of Women and Young Workers (BWYW) estimates in 1985 of 5 to 7 million, and UNICEF estimates in 1987 of 5 million. On the whole, the most studied work sectors child workers were garments, vegetable growing, and sales. The NSO reported that majority of child workers was engaged in agriculture, followed by services and manufacturing. Other studies showed that there were more child workers in services, while the trend was consistent throughout the studies with regard to manufacturing.

Most of the child workers studies were between the ages 10-14 years, which age range the ILO said 1 out of every 9 was a child worker [4]. More male than female workers came to be included in the studies. However, data on the age and gender was difficult to compare, because of the variability of different age sets used as basis.

Female children were more associated than their male counterparts with work their mothers were already doing, such as home-related work, while older boys tended to follow their father's work.

The national survey of children 5-17 years old conducted by the NSO showed that there were more

male than female child workers, especially among the older ones where boys doubled the number of girls. Male child workers also outnumbered female counterparts in the work sector of farming and fishing. Similarly other studies observed more boys than girls in stone quarrying, vegetable growing, and poultry farm work.

Child labor is defined as "the participation of child in a variety of work situations, on more or less regular basis, to earn a livelihood for him or herself or for the family." In rural areas where the only source of livelihood is farming, children are commonly and directly utilized as sources of labor to do farm activities to minimize household expenditures thereby increasing family income.

According to [1] poverty in the Philippines is mostly rural. Rural poverty accounts for about 75 percent of national poverty. This is because poverty in the agricultural population, which accounts for about 60% of the total population, largely determines rural poverty. Consistently, child labor statistics reveals that poverty incidence among families with child laborer is about twice the national incidence rate. Hence, this study prompted to determine the child labor contributions to household productivity and income of rubber farmers in Arakan, Valley Complex, Cotabato Philippines.

METHODOLOGY

Research Design

The study made use of the descriptive survey and casual research design. The socio-demographic profile/data of the respondents were gathered, collated, tabulated and discussed. Rubber production data were likewise gathered for purposes of determining their relationships with the household productivity and income of rubber farmers.

Locale of the Study

The study was conducted in the three (3) municipalities of the Arakan Valley Complex, namely: Arakan, Antipas and President Roxas.

Arakan is a third class municipality in the province of Cotabato. According to the 2000 census, it has a population of 34,588 people in 6,605 households. Arakan is subdivided into 28 barangays.

Antipas is another 3rd class municipality in the province of Cotabato, Philippines. According to the 2000 census, it has a population of 19,810 people in 3,826 households. The municipality of Antipas is composed of 13 barangays.

President Roxas is also a 3rd class municipality in the province of Cotabato, Philippines. According to the 2000 census, it has a population of 41,231 people in 8,118 households. President Roxas has 25 barangays.

The complex is situated in the Northeastern part of the province bounded on the North by Bukidnon. Davao del Sur in the Eastern part and other municipalities in the Western part of the complex.

Respondents of the Study

The respondents of this study came from the three (3) municipalities of the Arakan Valley Complex who are identified to be rubber farmers with a land holding of 0.50 hectare and above tappable rubber farms. The rubber farmer were either land owners or tenets. These farmers were identified as rubber farmers through the Department of Agriculture in the municipalities, barangay chairmen and the Bureau of Agricultural Statistics.

Ninety nine respondents were drawn from the aforesaid municipalities to serve the purpose of the study. Specifically, 9 respondents came from Arakan, 43 from PresRoxas and 47 from the municipality of Antipas.

Sampling Procedure

Rubber farmer-respondents were taken from the population of rubber farmers with tappable tree from each of the municipalities. The complete list of rubber farmers in the three municipalities were taken from the Municipal Agriculturist Office. Purposive sampling was first employed to determine the rubber farmers in the study area with at least half hectare and above. Then sample size was determined by using the Slovin's Formula as shown below:

Where: n = sample, N= population, e= margin of error

$$n = \frac{N}{1+N(e)2} \qquad n = \frac{979}{1+979(.10)2} \qquad n = \frac{979}{10.79}$$

n = 91 but with 8 buffer respondents making it a total of 99 respondents

Research Instrument

A well-formulated interview schedule was used for personal interview with the respondents considering their educational status and also, for data gathering purposes. It was pre-tested to minimize difficulty in answering questions and to get accurate and desired information. Respondents during the pre-

test were not anymore included in the final data gathering.

The interview schedule was divided into three parts: Part A covered the socio-demographic characteristics of rubber farming households such as household size, farm size and educational attainment while Part B focused on the level of child labor contributions to rubber farming activities such as care and maintenance, tapping, acid treatment, and collection activities and other farming activities; Part C, delved on the household productivity and income of rubber farmers in the study area as well as the number of farming activities performed by the respondents.

Data Gathering Procedure

Interview method was used in collecting the data needed, such as: the socio demographic characteristics of respondents, labor contributions of parents and children in the different farming activities of rubber farmers, rubber farmers' household productivity and income, differences between the parent and child labor contributions, child labor contributions on the household income derived from rubber farming and other farming activities, number of working on the household productivity, and the number of working children on the number of household farming activities. Other information in actual setting was properly recorded to from part of the data gathering. An immediate field editing of information gathered was done accordingly to ensure that all data needed were complete. Secondary data were also gathered to validate the primary data obtained.

Data Analysis

Generally, socio-demographic characteristics were presented in tabular form and were discussed/interpreted with the use of descriptive statistics, particularly, means, frequencies and percentage. T – test was used to determine the significant difference between the parent and child labor contributions among the households of rubber farmers.

Regression-correlation analysis were employed to test the significant influence of the child labor contributions on the household income derived from rubber farming and other farming activities, while analysis of variance (ANOVA) was used to determine the significant differences of the number of working children on the household income as well as on the number of household farming activities.

RESULTS AND DISCUSSION

Labor Contributions of Parents and Children in Different Farming Activities. Table 1 also presents the seven farming activities considered in this study where both parents and children were engaged in. It indicated that out of the seven (7) farming activities, 4 of these employed more children than parents' labor in the farm. The 4 farming activities that utilized more children than parents were rubber farming, rice farming, corn farming, and fishpond farming.

Rubber Farming

Rubber farming employed the highest labor contribution of children measured in man days in the farm among the different farming activities.. As shown in the table, about 75.86% of the labor inputs in rubber farm were children's contributions, while only 24.14% were contributed by the parents.

Rice Farming

Aside from rubber farming, rice farming had 52.63% labor contributions of children with an average man days of 77.78 and an average cost of P497.78, while only 47.37% of the labor inputs were contributed by the parent labors with an average of 70 man days and average costs of P244.95. Palay (rice) was consistently the major temporary crop of the country, accounting for 2.2 million farms with a combined area of 3.9 million hectares in 2002. This crop accounted for 44.6 % of the total farms in the country, while the farm area shared 40.6 % of the country's total agricultural area (2002 Census of Agriculture). This implies that palay or rice farming can be grown even with other crops, especially, rubber.

Table 1. Labor constribution of parents and children in the different farming activitis of rubber farmers in Arakan Valley Complex

FARMING ACTIVITIES	LABOR CONTRIBUTIONS					
	PARENTS			CHILDREN		
	Mandays	Cost	%	Mandays	Cost	%
Rubber	161.44	31,149.60	24.14	507.40	107.014.28	75.86
Rice	70.00	244.95	47.37	77.78	497.78	52.63
Corn	44.50	233.13	36.39	77.80	459.09	63.61
Livestock	3.38	794.14	51.45	3.19	631.11	48.55
Poultry	3.60	229.80	51.45	4.14	175.25	48.55
Fishpond	3.19	132.83	46.51	3.60	99.49	53.49
Vegetable Garden	61.30	117.17	78.58	16.71	267.23	21.42
Total	347.41	32,901.62	33.49	690.62	109,144.24	66.51

Corn Farming

Corn farming is next to rice in terms of farms and hectarage having 1.5 million farms, covering 2.4 million hectares nationwide (2002 Census of Agriculture). In this study, as one of the different farming activities considered, data showed that about 63.61% of its total labor was contributed by children having an average man days of 77.8 and an average cost of P459.09. On the other hand, only about 36.39% was contributed by parent labors with an average man days of 44.50 and an average cost of P233.13. This implies that children on the average contribute more labor input than their parents. This was attributed to the large household size of respondents where the average household size was 5.56.

Livestock Raising

Livestock raising in this study included the rearing of not only hogs but also cattle, carabao and goats. According to the Census of agriculture, in March 2003, a total of 2.1 million farms had reared 8.6 million hogs, 14.6 percent more than the 1991 total of 7.5 million hogs. About 16.1 percent of the total hogs came from Central Luzon and 12 percent from CALABARZON. Hog raising was the major livestock raising activity throughout the country except in ARMM where cattle was the top livestock raised of about 216.3 thousand heads as reported by NSO in 2003.

In this particular study the data or labor contributions to livestock raising revealed that livestock raising employed 48.55% of the labor inputs contributed by children with an average man days of 3.91 and an average cost of 631.11. on the other hand, 51.45% of the labor inputs were contributed by the parents with an average man days of 3.38 and an average costs of P794.14. Furthermore, results revealed that parents contributed more of the labor input requirement in raising livestock.

Poultry raising among the rubber farmers employed 48.55% of the labor inputs that were contributed by children in the farm with an average man days of 4.14 and an average cost of 175.25, while more than half (51.45%) of the labor inputs were contributed by parents with an average man days of 3.60 and an average cost of P229.80. Relating this to the national scenario, as of March 2003, raising of chicken remained as the top poultry raising activity in the country. The number of chicken raised by 3.5 million farms totaled to 126.7 million heads, almost twice than that of the 1991 inventory of 87.3 million chickens. Among the regions in the country, Central Luzon contributed most to the total chicken raised by as much as 20.7 percent, followed by CALABARZON with 16.1 percent, and Northern Mindanao with 11.4 percent.

Duck raising ranked second with 11.2 million heads tended in 429.7 thousand farms. The number of ducks raised in 2002 was higher by 7.9 percent over the 1991 duck inventory of 10.4 million heads.

It can also be mentioned that the number of quails raised experienced a remarkable increase where the 2002 inventory was almost thrice the 1991 figure. Central Luzon contributed four out of five quails raised in the country. Rubber farmers raised poultry for family consumption and for the market (2002 Census of Agriculture). Results further revealed that parents contributed more of the labor inputs required in poultry raising.

Fishpond Culture

Fishpond culture ranked next to corn farming in terms of the child labor input, with 53.49% of its labor force comp rice children having an average man days of 3.60 and an average costs of P99.49. On the other hand, fishpond farming only employed 46.51% of the parents labor in the farm with an average man day of 3.19 and an average cost of P132.83. Results further revealed that children contributed more of the labor inputs required in fishpond farming.

Vegetable Gardening

Vegetable gardening was one of the farming activities that the entire rubber farmer respondents endeavored to engage. This was the farming activity where parent labor contribution accounted for 78.58% with an average man days of 61.3 and an average cost of P117.17. On the other hand, the child labor contribution in vegetable gardening was only about 21.42% with an average man days of 16.71 and an average cost of P267.23. This implies that parents devote more of their time in vegetable gardening than their children.

In some, child labor contributions across all the different farming activities showed a total man days of 690.62 with a corresponding cost of P109, 144.24 or 66.51% of the total labor contribution. As for the parents labor contributions, data revealed a 33.49% contribution with a total man days of 347.41 and a corresponding cost of P32,901.62.

It was noticed that children had more man days than parents in poultry and fishpond farming activities, but had lesser cost than parents in these farming activities. This explained the difference in the labor cost rates between parents and children. Parents had higher payment rate than children. Studies about selected sectors such as that of [6]on selected agricultural activities and [5]on fishing, indicated that poverty and the need for additional income by poor families contributed to the decision of households to allow or even force children to work.

The findings of the study proved that rubber growers in the area had large household sizes making more working children available and consequently more

child labor contributions especially in rubber, rice, corn and fishpond farming activities.

[7] also stressed in her study that children's contribution was very essential in corn farming with a total annual income contribution of 51.33%, while parents had only of 48.67% contribution.

Furthermore, a 2000 UNICEF (United Nations Children's Fund) project surveyed working children in 36 developing countries representing more than 120 million children with ages ranging from five to 14. While nearly 70 percent of children in these countries were engage in some form of work, less than three percent worked in the formal wage labor market. Most of this wage employment, like most employment overall in the world's poorest economies, was in agriculture.

The same report revealed that poor parents in a developing country faced a difficult decision. Children can make a productive economic contribution to their family by helping in the family farm or business, working formal labor market, or providing domestic services to their household. In these ways, children help feed, shelter, clothe, and otherwise support themselves, their siblings, and other family members. The family's need for the child's economic contribution must be weighed against its desire to invest in the child's future, hopefully breaking the hold that poverty has on their family. Often, schools are unavailable or are of such low quality that there are few options other than work for the child. However, even when other opportunities do exist, parents and children often need to make the sad choice to have the child work because the loss of his or her contribution to the household can worsen the family's poverty.

Table 2:Total annual household productivity and income of rubber farmers in Arakan Valley Complex

COMMODITY	YIELD			
	INCOME			
	Quantity	Unit	(P/year)	(P/Month)
Crops				
Rubber	632,987	kgs	24,364,133	2,030,344
Rice	35,750	kgs	368,705	30,725.42
Corn	37,760	kgs	376,012	31,334.33
Vegetables	1,585	kgs	36,500	3,041.66
Fruits	2,530	kgs	49,220	4,101.66
Sub-total			25,194,570	2,099,548
Animals				
Carabao	69	heads	1,120,000	93,333.33
Cattle	167	heads	2,221,250	185,104.2
Goat	201	heads	153,800	12,816.67
Chicken	1,333	heads	148,805	12,400.42
Duck	325	heads	39,040	3,253.33
Fish	1,090	kgs	140,920	11,743.33
Sub-total			3,823,815	318,651.3
GRAND TOTAL			**29,018,385**	**2,418,199**

Crops

Among the different crops grown by rubber farmers, it came out that rubber was the highest yielder with 632,987 kgs. and correspondingly, gave the highest equivalent income of P24,364,133 annually or P2,030,344 monthly. Second highest yield was observed in corn with a yield of 37, 760 kgs and corresponding income of P376, 012 pesos annually or P31, 334.33 monthly. The third highest yielding commodity grown by the respondents was rice which gave a yield of up to 35,750 kgs. per year with a corresponding annual income of P368,705 or P30,725.42 monthly. It was also observed that fruit crop was one of the least yielding commodities among the crops grown with a yield of 2,530 kgs. Fruit gave an annual income of P49, 220 or P4,101.67 per month. Aside from fruits, vegetables also produced the least annual yield with only 1,585 kgs. The equivalent income per year was P36, 500 or P3,041.67 monthly income.

Animals

The animals raised by rubber farmers in Arakan Valley Complex that were considered in this study were: chicken, cattle, carabao, goat and fish. Chicken proved to be the highest yielding animal with a production yield of 1,333 heads a year and an equivalent annual income of P148,805 or P12,400.42 monthly. It should be noted however, that chicken did no generate the highest income yearly. Cattle which ranked second to the last yielding animal raised produced the highest income of P2,221,250 annually or a monthly income of P185,104.2. The next highest income generating animal grown was carabao which

was the least yielding (69 heads a year) the carabao generated an annual income of P1,120,000 pesos or P93,333.33 pesos per month. Goat was the third highest income generating among the animals grown generating an annual income of P153,800 or P12,816 monthly. On the other hand, fish gave the least income per year of (P140, 920) having a yield of 1, 090 kgs a year only with a monthly equivalent income of P11,743.33. Lastly, duck also produced least yield annually with only 325 heads. It also generated the least income yearly with only the P39,040.00 or a monthly P3,253.33.

Aside from rubber, respondents also grew other crops and raised animals to augment their income from rubber and also to make use of their idle time as tapping rubber did not entail so much time.

Related to the result on average income were the findings of the 2000 Family Income Expenditure Survey (FIES) which revealed that North Cotabato had 191,892 families that year with an average income at current prices of P82,098 in 2000. Average family income was up by 20.5% over P68,108 in 1997, translating to an average annual increase of 6.42%. Furthermore, an average annual family income of P82,098 was observed in 1997.

Results further revealed that aside from rubber the household grew other crops as well as raised animals where their children also contributed in the labor requirement of the different farming activities they had engage in.

Difference Between the Parents and Child Labor Contributions Among the Households of Rubber Farmers

The data on the difference between the parent and child labor contributions among the households of rubber farmers in Arakan Valley are presented in Table 3.

The farming activities in this study were based on the commodities engaged in by the rubber farmers in Arakan Valley. There included rubber farming, rice farming, corn farming, poultry, fish, vegetable and livestock raising.

Table 3.Difference between parents and child labor contributions among the households of rubbers farmers in Arakan Valley Complex

COMMODITY	PARENTS	CHILDREN	t-VALUE	Probability
Rubber	161.44	507.4	10.971	0.000**
Rice	70.00	77.78	0.703	0.533
Corn	44.50	77.8	1.631	0.147
Poultry	3.38	3.19	0.498	0.624
Fishpond	3.60	4.14	0.790	0.512
Vegetable	61.30	16.71	1.295	0.209
Livestock	1894.46	1664.21	1.621	0.109

** Highly significant

Rubber Farming

T-test results revealed that parents labor contributions had a mean of 161.44 while the mean of child labor contributions in rubber farming was 507.40. with a t-value of 10.971 and P value of .000. Hence, there was significant difference between the adult and child labor contribution in rubber farming at 1% level of significance. This means that more child labor was observed in rubber farming than the parents counterpart. This was attributed to the large average household size (5.6) of the rubber farmers in the study area in addition to the fact that under rubber tree any work appeared to be light for children as they would not be directly exposed to sunlight.

Rice Farming

Among the ninety three (93) rubber farmers with rice farms, a mean of 70 was observed for parent labor contributions in rice farming while a mean of 77.78 for the child labor contributions was observed in the same farming activity. Results further revealed that although a high mean was observed for the child labor contributions in rice farming, the difference was not significant having a t-value of – 1.299 and P value of .197. This further means that the labor contributions of both parents and children in rice farming were the same.

Corn Farming

Result of the study revealed that parents labor contributions in corn farming had a mean 44.5 while the child labor contributions mean was 77.78 with a t-value of 1.631. The P value of 0.147 indicated that there was no significant difference observed between the parents and child labor contributions in corn farming.

Poultry Raising

Among the 99 rubber farmer-respondents only 22 of them were poultry raisers. Relation to the mean the mean of parent labor contributions (3.38) and child labor contribution (0.498) in poultry raising, t-test result showed that there were no significant difference between the two having a t-value of 1.433 and P value of 0.624 which means that their contributions in the same farming activity were the same.

Fish Farming

It was also found out that two (2) of the ninety nine (99) rubber farmers had fish farms. Comparing their means of 3.6 for parent labor contributions and 3.19 for child labor contributions, t-test result indicated no significant difference observed having a t-value of 0.498 and P value of 0.624. This could be due to the danger of drowning when children worked in the fishponds in addition to their exposure to sunlight. The child labor contributions in this farming activity could be seen only during feeding time of fishes in the pond.

Vegetable Farming

It was observed that all rubber farmers also grew vegetables in their respective farms or backyards. Results revealed that parent labor contributions with a mean of 16.3 was higher than the child labor contributions mean of 16.71. Comparing the two means, t-test result revealed no significant difference between the 2 means of parent labor contributions and child labor contributions in vegetable farming as indicated by the t-value of 1.295 and t-value of 0.209.

Livestock Raising

Data showed that of the ninety nine (99) rubber farmer-respondents eighty two (82) of them were livestock raisers. It was further observed that so much labor was used in livestock raising as indicated by parent labor contributions of 1894.46 man days and child labor contributions of 1644.21 man days. Subjecting such means to t-test, revealed that the difference between the two was not significant with a t-value of 1.621 and a P value of 0.109. This implies that child labor contribution in livestock raising is important and cannot be taken for granted.

Among the seven (7) farming activities earlier enumerated, it was only rubber farming were there was a significant difference between the parent and child labor contribution. This further means that indeed the child labor contributions in rubber farming is of great importance and that the help of the children can-not be overlooked as it contributes a lot to the increase in their income.

Based on the foregoing results of the study, the hypothesis which stated that the parent and child labor contributions do not have significant difference was rejected.

The result of the study also confirmed the findings of [2], which concluded that children and parents were perfect labor substitutes and that the marginal productivity of children was roughly one-third to one-half of their male parent counterparts to some extent this could reach up to 50%.

Relationship of Child Labor Contribution to Household Income Derived from Rubber Farming

The data or degree of relationship of the child labor contributions to the household income derived from rubber farming and other farming activities are shown in Table 4a and 4b. Relationship of the Child Labor Contributions To Household Income Derived from

Rubber Farming

Child labor contributions in rubber farming were based on the four (4) major activities of rubber farming namely: care and maintenance, tapping, acid treatment and collection of cup lumps.

It can be gleaned from the same table that among the four (4) major activities in rubber farming, there were only two activities, particularly care and maintenance (t-value 5.036 and P= .000) and acid treatment (t-value 4.414 and P= .001) which significantly influenced the household income of rubber farmers at 1% level of significance.

The model developed is:

Y = -150.505 + 23158.963 care and maintenance + 1653.236 acid treatment.

The positive signs of the beta coefficients showed a direct relationship between the child labor contributions in care and maintenance (23158.963, t-value – t value - .006) and acid treatment (1653.236, t-value 3.414) in rubber farming and the household income. It could therefore be inferred from the developed model that as the child labor contributions increased in the two major activities in rubber farming, more household income would be attained. This further means that when the children helped more in the care and maintenance as well as in the acid treatment more income would be realized.

The other major activities in rubber farming such as tapping with a beta coefficient of -868.280 and a t-value of -1.815, and collection with a beta coefficient of -414.106 and a t-value of 3.414 had no significantly influence on household income derived from rubber farming. This means that whether the children helped or not help in the tapping and collection activities, the same household income would be attained.

As to the goodness of fit of the model, the coefficient of determination (R^2) of .712 indicated that 71.2% of the variation or change in the household income was captured by the model, as influenced by care and maintenance and acid treatment activities in rubber farming. This finding confirmed [2], that the average contribution of each working child was estimated at 4 to 7% of household income, although there was substantial variation with contributions ranging up to 50%. These results underlined the dependency of poor households on child work for survival.

Considering the foregoing results, the hypothesis which stated that the child labor contributions do not significantly influence the household income derived from rubber farming was therefore rejected relative to the following variables care and maintenance and acid treatment.

Table 4a. Relationship of the child labor contributions to household Income derived from rubber farming, Arakan Valley Complex

CHILD LABOR CONTRIBUTIONS	β	Standard Error	t-value	Probability
Constant	-150.505	23158.963	-0.006	0.996
Care and Maintenance	7422.755	1473.936	5.036	0.000**
Tapping	478.356	-868.280	-1.815	0.073
Acid Treatment	1653.236	484.192	3.414	0.001**
Collection	-414.106	226.468	-1.829	0.071

** Highly significant
$R^2 = 0.712$

Relationship of the Child Labor Contributions to the Household Income Derived from Other Farming Activities

The data pertaining to the relationship of the child labor contributions to the household income derived from other farming activities are shown in Table 4b. There are two types of analysis used in measuring the relationship of child labor contributions to household income derived from the other farming activities. The first was the use of Pearson r correlation to determine relationship of the child labor contributions to other farming activities and to household income derived from the other farming activities. Second, was the use of regression analysis to determine the total child labor contributions has a significant influence on the household income derived from the other farming activities.

Results revealed that the total child labor contributions significantly influence the household income, taking into account all the different farming activities as one. When correlated individually with the household income however, it was found out that of the seven (7) farming activities, two were significantly related at 1% level to household income. These were, rubber farming (t=0.437, Prob. = 0.000) and corn farming (t=0.277, Prob. = 0.006). This means that the labor contributions of children in rubber and corn farming had contributed in the increases of income derived from these two farming activities. This further implies that as the child labor contributions in these farming activities increases, household income also increase.

On the other hand, child labor contributions in vegetable gardening also significantly influenced the household income with a t-value -124 at 5% level significance. This implies that even child labor contribution is lesser than their parents' labor contribution, household income derived from the different farming activities remain the same.

The study of [2], affirmed the result of this study when he reported that the income contribution of child work was undoubtedly a key factor influencing child work and schooling decisions. Yet, few studies have attempted to directly measure this contribution. This was particularly the case for work performed on the household farm, as in the case for the vast majority of child workers, rather than for wages. In this study, it was estimated that a household income functioned with child labor included as an input. Cockburn's study used a variety of functional forms and compared alternative child labor variables.

The five (5) other activities that were found not significant with household income were rice farming (t= 0.159, Prob= 0.116), livestock and fish farming t= -0.344, Prob= 0.209) and vegetable gardening (t=-.234, Prob = .020). This implies that regardless of the amount of the child labor contributions on these five areas of farming activities, the farmers will still get the same annual income.

Generally, even if the child labor contribution varied in different farming activities results revealed that it significantly influence household income (t= 0.466, Prob=0.000). This implies that generally child labor contribution cannot be simply discounted from the whole farming activities (Table 4b).

Based on the foregoing result of the study, the hypothesis which stated that the child labor contributions do not significantly influence the household income derived from rubber framing was therefore rejected.

Table 4b. Relationship of the child labor contributions to the household income derived from the different farming activities of rubber farmers in Arakan Valley Complex

CHILD LABOR CONTRIBUTION	Coefficient	Probability	Remarks
In rubber farming	0.437	0.000**	Significant
In rice farming	0.159	0.116	Not Significant
In corn farming	0.277	0.006**	Significant
In livestock farming	0.110	0.325	Not Significant
In poultry raising	0.219	0.168	Not Significant
In fishpond raising	-0.344	0.209	Not Significant
In vegetable gardening	-0.234	0.020*	Significant
Total Child labor	0.446	0.000**	Significant

** Highly significant
* significant at 5% level

In another perspective, when the total labor contributions expressed in total labor cost incurred in the other farming activities were regressed to household income, results revealed that it significantly influenced the household income of the rubber farmers in the study area.

The model developed is:

Household income = 192894.2 + .922 total child labor cost

The positive sign of the beta coefficient showed a direct relationship between the total child labor cost contributions in the other farming activities and household income. Specifically, the higher the labor cost equivalent contributed in the other farming activities, the higher was the household income derived from the same source (Table 4b).

CONCLUSIONS

Based on the foregoing results of the study, the following conclusions were drawn:

1. There was a significant difference between the parent and child labor contributions.
2. Child labor contribution significantly influenced on the household income derived from rubber farming.
3. Child labor contributions significantly influenced household income derived from the other farming activities.
4. The number of working children in the farm significantly influenced the household productivity.
5. Finally, the number of working children in the farm significantly influenced the number of farming activities engaged in.

RECOMMENDATIONS

Based on the result of the study, the study recommendations are the following:

1. While parents welcome and are benefited by the labor contributions of their children, they should not neglect to invest in the future of their children, as parents they have the moral obligations to prepare a better future of their children. Furthermore, when opportunities for their children to attend to school, they should have an open mind to make a decision to let them go and not make the sad choice to have their children work because the loss of their contribution to household can worsen the family's poverty.
2. Further study on the same field in other areas not covered by the study and the social effect of child labor is highly recommended.
3. The more in depth study of the child labor contributions in the different farming systems is also strongly recommended.

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