LABOUR CONTRIBUTIONS OF WOMEN TO CROP PRODUCTION ACTIVITIES IN THREE REGIONS OF WEST AFRICA: AN ANALYSIS OF FARM-SURVEY DATA

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Introduction

In 1928 the classic work of Hermann Baumann¹ described the division of labour in agriculture among men and women in 213 cultural groups in Africa. On the basis of secondary sources, Baumann suggested that in 117 cultures (55%) men and women shared equally in all agricultural tasks. In 23 cultures (11%) men undertook agricultural work alone or nearly alone, and in 73 cultures (34%) women were responsible for all field work except the physically demanding task of land clearing.

Almost certainly, the division of agricultural labour has changed since 1928, but the research approach of collating data and showing gender variations in agricultural work by region and cultural group remains attractive. This perhaps explains why the work of Baumann continues to be cited in the current literature on gender and agricultural production in sub-Saharan Africa.

In 1970 Ester Boserup² cited the work of Baumann and characterized Africa as a region of female farming *par excellence* where nearly all the tasks connected to food production continue to be left to women. Further evidence for this empirical generalization was based on secondary sources from 15 village samples in 10 African countries. A careful reading of this widely cited work shows that Boserup was interested in prudently bringing international attention to the role of women in African food production while clearly stating:

The available data, although insufficient for drawing up a picture for the whole of Africa, gives very useful information about male and female work input in African farming in the number of local case studies ... A variety of circumstances can help explain why a relatively small number

of men take part in agricultural work. Older men can often stop working by leaving it to their usually younger wives or to their children, while many old women are widows who must fend for themselves. More boys than girls go to school and more young men than young women are away from the villages, working for wages in towns or plantations or attending schools. Since in African villages virtually all the women and many girls, even very young ones, take part in the work, the agricultural labour force tends to become predominantly female (p.20).

Boserup concluded from the village samples that "In nearly all cases women were found to do more than half the agricultural work; in some cases they were found to do around 70% and in one case nearly 80% of the total. Thus, the available quantitative information about work input by sex seems to indicate that even today village production in Africa south of the Sahara continues to be predominantly female farming" (p.22).

Since the mid-1970s, the empirical detail so evident in the work of Baumann and in the speculative generalizations of Boserup have been ignored and the assertion of the dominance of women in sub-Saharan food production has been accepted widely as an unequivocal fact among many engaged in agricultural research in Africa. That the dominance of women in sub-Saharan agriculture has become widely accepted as an axiomatic social fact is evident from a wide variety of International sources.

Consider, for example, an article in *African Farmer*, where Marie-Angelique Savane asserted, "It is now a well established fact that women are the main producers of food in Africa. Wherever you go south of the Sahara, at least 80% of the food in a majority of the areas is produced by women."³ Writing for the Foöd and Agriculture Organization of the United Nations (FAO), M. Vervoorn stated that "in Africa, for example, on the average three-quarters of agricultural work is done by women."⁴

Similarly, Leghorn and Roodkowsky offered the observation that "in most of sub-Saharan Africa, women make up 50% to 90% of the agricultural labour force and manage one-third to one-half of all farms."⁵ Yet another citation appeared as a photograph caption in *African Farmer*: "Women produce 90% of Africa's food."⁶ Other observations about the role of women in African agriculture include, "The best evidence available indicates that the majority of small scale food farmers in sub-Saharan Africa are female ... United Nations data, based on small scale studies and surveys suggest that women contribute two-thirds of all hours spent in traditional agriculture in sub-Saharan agriculture."⁷ Others have described the role of women in sub-Saharan agriculture as "significant,"⁸ "remarkable,"² "underestimated,"⁷ and even "invisible."⁹

The view that the women of sub-Saharan Africa are almost solely responsible for all agricultural work was also offered by the president of the International Fund for Agricultural Development (IFAD) who stated that "rural women are the invisible farmers of the Third World. In Africa they produce, process, and store almost 80% of the food that families consume."⁹

Although the importance of empirical generalizations in science cannot be denied, such generalizations about women and agriculture in sub-Saharan African should be continually investigated and refined. This scientific task has not been realized in the literature on women and agriculture in Africa; rather, a sort of conformity to the generalization about 80% food production by African women characterizes the literature.

Another characteristic feature of much of the literature on the role of women in agriculture in Africa is a lack of documentation about regional and cultural variation and the assumption of an undifferentiated division of agricultural labour dominated by women. Thus, the literature often suggests that regardless of country, region, cultural group, climate, or types of food crops women in sub-Saharan African always and everywhere are the dominant source of labour for food production. One particularly unfortunate corollary of this generalization is that African men contribute little to agricultural work.

Micro-socioeconomic Research

Our assessment that gender-specific data based on micro-socioeconomic research are needed to elucidate the role of women in agriculture in sub-

Saharan Africa has been confirmed by others. In a workshop on women and agriculture, Saflios-Rothschild stated that "sex-segregated" agriculture data are needed to make the role of women in agriculture more visible and to correct the invisibility of the role of women in agricultural statistics.¹⁰ Macrostatistics detailing the role of women in agriculture have also been described as "far from adequate."¹¹ Microlevel research and development projects have been suggested as a prerequisite for addressing the total picture of the food system in any region.¹²

We further agree with an assessment that it is a vast overgeneralization to argue, as some authors have done, that women produce 60%-80% of the food in Africa. Research needs to move beyond descriptive and anecdotal studies to more quantitative micro-socioeconomic research on rural households and the roles of men and women in different farming systems.¹³ Fortunately, in the past decade there has been a spate of such work. This study is another contribution to this growing literature¹⁴.

Objectives

The main objectives of this paper are to (1) use farm-survey data to describe and test hypothesis about the labour contributions of women for the crop production activities of land preparation, planting, weeding, pest control, fertilizer application, harvesting, and marketing in three regions of West Africa and (2) discuss the implications of the results for the design and implementation of policies to enhance the role of women in agricultural production and economic development in the sample regions.

The Sample Regions and Data

In 1988 the International Fertilizer Development centre conducted baseline socioeconomic farm surveys in locations selected within the humid region of Ghana, the savanna region of Togo, and the Sahelian region of south central Niger. The Soil Fertility Restoration Project (1988-92) was intended to determine the agronomic, economic, and social benefits of using fertilizer and other soil amendments to increase and sustain food crop production in three contrasting agro-climatic and socioeconomic regions of West Africa.

To facilitate comparisons between and within villages and regions, two villages in each country were chosen for survey work and a random sample of 60–70 farmers stratified by sex was selected from each village.

The sample villages in Ghana, - Adjamesu, and Hwideim – are located in the Ashanti region near the regional commercial centre of Kumasi. The village of Adjamesu with an estimated population of 2,258 is substantially larger than Hwidiem of which the estimated population is 998. The estimated population density of the sample area is between 75-80 persons/ km². The principal crops cultivated by the Ashanti people in the region are maize, cassava, plantains, cocoyams, and a wide variety of vegetables. The sample in Ghana comprises 121 farmers, 54 men and 67 women. Men in the sample reported cultivating 100 plots comprising 30.6 ha, and women reported 136 plots on 31 ha.

The sample villages in the Maradi region of south central Niger are Tchizon and Maiguero. The village of Tchizon with a population of 1,500 is somewhat larger than Maiguero with an estimated population of 1,000. The estimated population density of the sample area is between 40-50 persons/km². The principal crops cultivated by the Hausa people in the region are millet, sorghum, and cowpeas. The sample in Niger comprises 129 farmers, 92 men and 37 women. Men reported cultivating 238 plots comprising 421 ha. For women these figures are 67 and 56 ha, respectively.

The sample villages in the Dapaong region of northern Togo are Naki-Est and Kpembona. The village of Naki-Est has an estimated population of 1.700 and Kpembona about 800. The estimated population density of the sample area is between 80-100 persons/km². The principal crops cultivated by the Moba-Gourma people are millet, cowpeas, groundnuts, and rice. The sample in Togo comprises 125 farmers, 96 men and 29 women. Men reported cultivating 368 plots comprising 267 ha. For women these figures are 75 and 21 ha, respectively.

The descriptive information about the sample is summarized in Table 1. This table shows 242 men and 133 women farmers, representing 65% and 35% of the total sample, respectively. Throughout this paper, names of countries will refer to the corresponding villages, regions and cultural groups. The labour use analysis for the total sample is based on 984 plots comprising 827 ha. The survey data were collected through the use of a questionnaire that contained open and closed end items. The survey generated data on gender as related to cultural groups; marital status; household location, composition, education, and employment; land availability and tenure; the use of machinery, animals, equipment, and credit; sources of information about fertilizers; crop areas and management; the use and costs of fertilizers, organic manures, and crop residues; the use of labour by activity; disposal and use of crop production; and finally, the perceptions of farmers about constraints to fertilizer use and agricultural production.

The remainder of this paper is organized in four sections that discuss the use of various types of labour for the agricultural activities of land preparation, planting, weeding, fertilizer application, pest control, harvesting, marketing, and storage. The four sections are (1) method of statistical analysis, (2) labour specialization by sex and the contribution of hired labour by country and activity including aggregate use of labour for all crop production activities by country, (3) aggregate contribution of women and hired labour for the main crop production activities of land preparation, planting, weeding, and storage, and (4) summary, conclusions, and implication for extension work.

Method of Statistical Analysis

First, statistical analysis involving the use of the t statistics was conducted to test various hypotheses.

1. To determine the importance or significance of the contributions of labour from men, women, children, and hired labour to the various production activities (i) and to crop production in general (aggregate), the following hypotheses were tested:

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a. $H_{s}: \mu m_{i} = 0$ a. $H_{s}: \mu m_{i} > \mu m_$		Null	Alternative
	a. b. c.	$H_{o}: \mu m_{i} = 0$ $H_{o}: \mu w_{i} = 0$ $H_{o}: \mu c_{i} = 0$ $H : \mu h = 0$	a. H _a : µm _i >0 b. H _a : µm _i >0 c. H _a : µc _i > 0 d. H : µh _i >0

where : μm , μw , μc , and μh are parameters of the mean percentage labour contribution of men, women, children, and hired labour, respectively, to a given crop production activity (i=1, ..., n activities) and to crop production in general (i=0).

2. To determine the presence and degree of sex specialization in performing various crop production activities and the overall task of crop production in general, the hypotheses tested were as follows:

<u>Null</u>	Alternative		
$H_{o}: \mu w_{i} - \mu w_{i} = 0$	H _a : μm _i - μw _i > 0 or H _a 2: μm _i - μw _i 0		

The rejection of H_o with either H_a or H_a^2 as the alternative hypothesis implies the predominance or specialization of men or women, respectively, in performing activity i. If the null hypothesis (H_o) is not rejected, then neither sex has a statistically significant predominant role in performing activity i (thus, men and women have no significantly different levels of labour contribution to the activity), and it can be concluded that there is no specialization by sex in the performance of such activity.

3. To determine the influence of the sex of the plot manager (defined as one who makes decisions about crops, inputs, and other matters related to agricultural production) on the degree of sex specialization in performing various crop production activities, the following hypotheses were tested:

 H_{o} : $(\mu m_{i} - \mu w_{i}) m - (\mu m_{i} - \mu w_{i}) w = 0$

 H_{a} : $(\mu m_{i} - \mu w_{i}) m - (\mu m_{i} - \mu w_{i}) w^{T} 0$

where m = men and w = women to indicate the sex of the plot manager. Thus, the rejection of the null hypothesis indicates a significant influence of the sex of the plot manager on the degree of specialization by sex for performing activity i.

4. Finally, hypotheses were tested to determine the influence of the sex of the plot manager on the relative contribution of hired labour in performing a particular activity i and crop production in general (i=0). These hypotheses were:

 $\mathbf{H}_{o}: \ (\boldsymbol{\mu}\mathbf{h}_{i})\mathbf{m} - (\boldsymbol{\mu}\mathbf{h}_{i})\mathbf{w} = \mathbf{0}$

H: $(\mu h)m - (\mu h)w'0$

Rejection of the null hypothesis H_a was meant to imply a significantly greater dependency of either men or women plot managers on the contributions of hired labour (h) in performing a particular activity i or crop production in general (i= 0).

Second, statistical analysis involving the use of Duncan's multiplerange test was conducted to compare means of (1) the degree of gender specialization in performing various activities (μm_i - μw_i), (2) the contributions of women to various activities (μw_i), and (3) the contribution of hired labour to various activities (μh_i), by country and sex of the plot manager.

Labour Specialization by Sex and the Contribution of Hired Labour

In this section the results of hypotheses tested on the labour contributions of men, women, children, and hired labour for the tasks of land preparation, planting, weeding, pest control, fertilizer application, harvesting, and marketing are discussed. Results of hypothesis testing on task specialization by sex and the contribution of hired labour for these tasks are also presented and discussed. Labour contribution as used here means the percentage or proportion of the total workdays per hectare that are performed by men, women, children, and hired labour. In these calculations, 2 days of labour of a child (<13 years) are assumed to be equal to 1 labour day of an adult.

Ghana

The sample mean labour contributions of men, women, children, and hired labour and results of tests for Ghana are presented in Table 2. Disregarding the sex of the plot manager, the labour contributions of men are statistically significant in all crop activities, the contributions of women are significant in all activities except pest control, and children have statistically significant but rather small contributions (3-14%) to the labour for land preparation, planting, weeding, and harvesting. These are also the activities having significant contributions from hired labour. Thus, peaks in labour demand appear to occur during periods of land preparation, planting, weeding, and harvesting.

Although men and women contribute significant shares in the labour used for performing almost all activities, their shares vary significantly with the activity. Tests of hypotheses to determine the degree of task specialization by sex were conducted by comparing the means of contributions by Ashanti men and women $(\mu m_i - \mu w_i)$, and tests of hypotheses to determine the influence of the sex of the plot manager on task specialization by sex were conducted by comparing the influence of sex of the plot manager on the outcome of such comparisons. Results show the following:

- 1. For land preparation the labour share of men (70%) is significantly higher than that of women (27%) and the degree of specialization by men in performing this tasks is significantly higher on plots managed by men (79%) than on those managed by women (64%).
- 2. Although women are, on the average and for the sample as a whole, the significant and predominant contributors of labour to the activities of planting (54%) and marketing of agricultural products (66%), the relatively low (but statistically significant) degree of specialization by women in these tasks is significantly affected by the sex of the plot manager.

For the activity of planting, a significantly higher share of labour is provided by men (55%) on plots managed by men and a significantly higher share of labour is provided by women (67%) on plots managed by women. Women specialize in the marketing of agricultural products from plots managed by women (86%), but there is no significant specialization by sex in the marketing of agricultural products from plots managed by men. Thus, specialization by sex in performing the activities of planting and marketing of agricultural products is significantly affected by the sex of the plot manager. 3. For the sample as a whole, the average labour shares of men and women for weeding, pest control, fertilizer application, and harvesting, respectively, are not significantly different. Thus, both men and women contribute about the same amounts of labour to perform these activities. However, with the exception of pest control, the sex of the plot manager has a significant influence on the relative labour contributions of men and women to these activities. Depending on the sex of the plot manager, the shares of labour contributed by women and men for planting follow the same pattern as for weeding. For these activities, men provide the largest share of labour (55% and 65%, respectively) on plots managed by men and women farmers and also the largest share (67% and 61%, respectively), on plots managed by women. For fertilizer application, men provide a significantly higher share of labour (85%) on plots managed by men, but on plots managed by women, differences in labour shares between men and women are not significant. For harvesting, the labour of women represents a significantly higher share (57%) than that of men (24%) on plots managed by women, but on plots managed by men, differences in labour shares of men and women are not significant.

It is evident from these results that land preparation is the only activity that is performed predominantly by men disregarding the sex of the plot manager. For all other activities, with the exception of pest control, the contributions of men's and women's labour are significantly affected by the sex of the plot manager. Male managers tend to depend more on labour provided by men, 66% for all crop activities, and female managers on labour provided by women, 55% for all crop activities.

Togo

The mean labour contributions of men, women children and hired labour and results of tests for Togo are shown in Table 3. Disregarding the sex of the plot manager, the labour contributions of men for all activities are statistically significant. The labour contributions of women are also statistically significant for all activities, except pest control. The labour shares of children, although small, are also statistically significant for all activities except pest control and storage. The labour contributions of hired workers are statistically significant only for the activities of land preparation, planting, and weeding, suggesting that peak labour demand occurs during these three activities.

Both men and women make significant labour contributions for nearly all activities, but their shares vary significantly by activity. Tests of hypotheses to compare the means of labour contributions by Moba-Gourma men and women $(\mu m_i - \mu w_i)$ and to determine the influence of the sex of the plot manager on the outcome of such comparisons show the following:

- 1. For land preparation, the labour share of men (89%) is significantly higher than that of women (4%) and of children (7%) for the sample as a whole, but the degree of specialization by men in performing this task is significantly greater on plots managed by men (92%) than on plots managed by women (75%).
- 2. Although women make significant labour contributions for planting (79%) and harvesting (61%), the sex of the plot manager has a significant influence on the labour contributed by women for these activities. There is no statistically significant difference in the labour contributions of women for harvesting plots managed by men (61%) and by women (75%). But the labour provided by women for planting is significantly affected by the sex of the plot manager as women contribute significantly more labour for this activity on plots managed by women (89%) than on plots managed by men (77%). Disregarding the sex of the plot manager, for the sample as a whole, the labour contributions of men (46%) and women 45%) for storage are not significantly different. Thus men and women contribute about the same amount of labour for storage.
- For the activity of storage, there is no statistically significant difference between the labour contributions of women on plots managed by men (46%) and those on plots managed by women (41%). However, for the activities of weeding and fertilizer

application, the sex of the plot manager has a significant influence on the relative labour contributions of men and women. Specifically, men contribute more labour for weeding on plots managed by men (82%) than on plots managed by women (27%), and women contribute more labour for this activity on plots managed by women (62%) than on those managed by men (12%). This is also the general pattern for fertilizer application.

These results show that, disregarding the sex of the plot manager; the activities of land preparation, weeding, pest control, and fertilizer application are performed predominantly by men. Planting and harvesting are predominantly performed by women. For all activities, men managers tend to depend more on labour provided by men. 63% for all crop activities, and women managers on labour provided by women, (56%) for all crop activities.

Niger

The mean labour contributions of men, women, children, and hired labour and results of t tests for Niger are shown in Table 4. Disregarding the sex of the plot manager, the labour contributions of men are significant for all activities, contributions of women are significant for all activities but marketing, and those of children are small but significant for all activities except pest control. The contribution of hired labour for weeding is small (3%), and it is significant for only this activity.

Both Hausa men and women in Niger make significant labour contributions for nearly all activities, but their shares vary significantly by activity. Tests of hypotheses to compare the means of labour contributions by men and women $(\mu m_i - \mu w_i)$ and to determine the influence of the sex of the plot manager on the outcome of such comparisons show the following:

1. For land preparation, the average labour share of men (75%) is significantly higher than that of women (17%), but the sex specialization in performing this task is significantly affected by the sex of the plot manager. Men have a significantly higher labour share on plots managed by men (88%) and women a significantly higher labour share on plots managed by women (66%).

- 2. The labour contributions of men and women for planting are also significantly affected by the sex of the plot manager. The labour share of men on plots managed by men (50%) is significantly greater than that contribution on plots managed by women (18%). But the labour contribution of women for planting on plots managed by women (75%) is significantly greater that that on plots managed by men (41%).
- 3. Thus, for land preparation and planting, the labour shares of men and women are basically determined by the sex of the plot manager. The labour shares of men and women are significantly higher on plots under their respective management. The influence of sex of the plot manager on labour contributions by men and women is also evident and follows the same pattern for the tasks of weeding, fertilizer application, and harvesting. Specifically, although both men and women make significant labour contributions for weeding, women make a significantly greater contribution to this activity on plots managed by women. The contribution of hired labour for weeding is significant for both men and women, but there is no significant difference between their contributions. Overall, fertilizer application is a specialization of men, but no specialization by sex was observed for harvesting.
- 4. Both men and women make significant labour contributions for pest control; however, regardless of the sex of the plot manager, men contribute significantly more labour than women and are specialized in this activity. For all activities, men managers tend to depend more on labour provided by men, 66% for all crop activities, and women managers on labour provided by women, 67% for all crop activities.

Aggregate Contributions of Women and Hired Labour

Table 4 provides a summary of the aggregate labour contributions of women and hired labour for the agricultural activities of land preparation, weeding, planting, and storage. These activities were included to calculate aggregate contributions because data were available in the samples for the three countries and about 75-85% of the total labour is used for performing these tasks. For all countries and plots, regardless of the sex of the plot manager, hired labour contributed 12% of the labour for these tasks and women 36%. The greatest contribution of hired labour for these activities, disregarding the sex of the plot manager is in Ghana (22%) where the labour contribution of women (43%) is also the largest and significantly different from that in Togo and Niger.

In all countries the sex of the plot manager significantly influences the contribution of hired labour or plots managed by women 16%) and men (11%). These contributions are significantly different and show that, overall, women hired more labour for these activities than did men. The sex of the plot manager also affects significantly the labour contribution of women as that contribution is 59% on plots managed by women and 28% on plots managed by men. Thus women contribute significantly more labour to women managers than to men.

By country and sex of the plot manager, the data in Table 4 show that the aggregate contribution of hired labour is significantly greater on plots managed by women in Togo (23%) and men and women in Ghana (22% and 23%) than on plots managed by men in Togo (16%) and men and women in Niger (2% and 1%, respectively).

The labour contributions of women are greatest on plots managed by women in Niger (67%) and least on plots managed by men in Niger (25%). The influence of the sex of the plot manager on the labour contribution of women is also evident in Togo and Ghana, where women also contribute more labour for plots managed by women than for plots managed by men. As an overall observation, the labour contribution of women on plots managed by women is consistently greater than and significantly different from the labour contribution of women on plots managed by men.

Summary, Conclusions and Implications for Extension Work

The data presented and discussed in this paper do not support the generalization that agricultural work south of the Sahara is dominated by women or that the region is one of female farming *par excellence*. We

have observed variations in the labour contributions of women by activity, region, sex of the plot manager, and the relative contribution of hired labour. It does not appear that women manage the majority of plots; rather, we have documented the concept of joint plot management whereby men labour on plots managed by women and women on plots managed by men. The nature, terms and dynamics of this labour reciprocity require further observation, analysis, and research and thus defy generalizations. Comparisons between agro-climatic regions and cultural groups are clearly necessary to understand the enigma of gender and agricultural labour in sub-Saharan Africa. Labour appears to be based on negotiation and exchange rather than on gender *per se*, and a naturalistic view of a division of agricultural labour in sub-Saharan Africa based solely on gender appears fallacious and generalization on that subject weak.

The literature on the role and contribution of women in sub-Saharan agriculture would benefit infinitely from a better understanding of the factors that affect and explain the contribution of women to agricultural production and how variation in those factors affect the contributions. That task is a topic of future work.

Implications for Extension Work

Despite the lack of data to explain the labour contribution of women, the results of the work presented here can be used as a basis to guide extension work with respect to the sex of farmers and farm workers.

Specifically, technology and training for land preparation involving tools, methods, and timing should focus on men, because this activity is mainly a task specialization of men in all regions. The exception here is Niger where the participation of women in land preparation is very significant.

Technology and training for planting work involving seeds, methods, timing, and plant density would be most effectively presented to women in all regions as their significant labour contributions for this activity show a specialization in such work, especially in Togo.

Weeding is a significant task specialization of men in Niger and especially in Togo. Therefore, resources for technology and training that involve tools, methods, timing, and herbicides would be most efficiently used for bolstering the skill of men in these countries.

Pest control work is overwhelmingly a task specialization of men in Niger and Togo, and in Ghana exclusively men performed such work. Thus training and technology involving herbicides and improved indigenous methods would be most effectively directed toward men.

Fertilizer application is a significant task specialization of men in Ghana, Togo, and Niger, although no overall specialization was observed in Ghana. As men are the predominant contributors of labour for this activity, technology and training concerning fertilizer products, application timing, and methods of application would be beneficially directed toward men.

Harvesting work is overwhelmingly a task specialization of women in all three areas. Therefore, resources for training and technology involving methods and timing, for example, would clearly be most beneficially directed toward women.

Only negligible marketing activity was observed in Togo, and no specialization by sex was determined. Marketing is the specialization of men in Niger and overwhelmingly of women in Ghana. Thus, training and resources for this activity should be afforded appropriately.

Storage activity in Ghana, due to the time of the survey, was negligible, and no significant specialization by sex was observed in Togo. The predominant and significant specialization by men for this activity in Niger indicates that resources and training for such work should be directed toward men.

The discussion presented in this paper will hopefully stimulate policymakers to use resources for training and technology in areas where women as well as men can benefit and thus realize fully their productive potential.

Notes

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Country	Region	Villages	Cultural	Sample Size		
	[Group	Men	Women	Total
Ghana	Ashanti	Hwidiem, Adjamesu	Asante	54	67	121
Niger	Maradi	Tchizon, Maiguero	Hausa	92	37	129
Togo	Savane	Naki-Est, Kpembona	Moba- Gourma	96	29	125
Total	<u>l. </u>	· · · · · · · · · · · · · · · · · · ·	L=	242	133	375
Percent		······································	·	65	35	100

Table 1: Description of the Samples in Ghana, Togo and Niger

Activity	Gender of Plot Manager	Men	Mean Labou Contribution	r 1 ⁴ Children	Differences Between Men & Women	Task Specialization by Gender	Contribution of HiredLabour
Land preparation	Men Women Both	(ûmi) 79a 6 4b 70**	(ûwi) 19a 33b 27**	(0ci) 2a 3a 3**	((ûmi-ûwi) 60** 31b** 43**	Men Men Men	(0hi) 34a** 42b** 38**
Planting	Men	\$5a	35a	10a	20a**	Men	10a**
	Women	25b	67B	8a	-42b**	Women	7a**
	Both	37**	54**	9**	-17**	Women	9**
Weeding	Men	65a	31a	4a	34a**	Men	27a**
	Women	33b	61b	6a	-28b**	Women	24a**
	Both	47**	48**	5**	-1	None	25**
Pest Control	Men	65a	35a	0	30a	None	0
	Women	Ob	Ob	0	0b	None	0
	Both	65*	35	0	30	None	0
Fertilizer Application	Men	85a	15a	0a	70a*	Men	0a
	Women	34b	60b	6a	-26b	None	10a
	Both	51**	45**	4	6	None	7
Harvesting	Men	53a	36a	11a	17a	None	17a*
	Women	24b	57b	19a	-33b*	Women	0b
	Both	42**	44**	14**	-2	None	10*
Marketing	Men	56a	44a	0a	12a	None	0
	Women	4b	865	10a	-82b**	Women	0
	Both	29**	66**	5	-37*	Women	0
All activities	Men	66a	29a	5a	37a**	Men	22a**
	Women	39b	55b	6a	-16b	Women	23a**
	Both	51**	43**	6**	7*	Men	22**

Table 2: Mean Labour Contributions of Men, Women, Childrern and Labour for Major Agricultural Activities in Ghana

Note: Storage is excluded because activity was negligible.

* Means with different letters in each column cell are significantly different at the $\alpha \approx 0.01$ level in pair-wise comparison between men and women

managers

^b Percentage of labour contributions of men minus those of women

* Statistically significant at the $\alpha = 0.05$ level

** Statistically significant at the $\alpha = 0.01$ level

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Activity	Gender of Plot Manager	Men	Mean Labou Contribution Women	r I ^r Children	Differences Between Men & Women	Task Specialization by Gender	Contribution of HiredLabour
Land preparation	Men Women Both	(0mi) 92a 75b 89**	(ûwi) 2a 16b 4**	(ûci) 6a 9a 7**	((âmi-ûwi) 902** 59b** 85**	Men Men Men	(0hi) 16a 40b** 20**
Planting	Men	15a	77a	8a	-62a**	Women	10a**
	Women	2b	89b	9a	87b**	Women	12a**
	Both	13**	79**	8**	-66**	Women	10**
Weeding	Men	82a	12a	6a	70a**	Men	33a**
	Women	27b	62b	11a	-35b**	Women	26a**
	Both	73**	20**	7**	53**	Men	31**
Pest Control	Men	100a	0	0	100a**	Men	Oa
	Women	100a	0	0	100a**	Men	Oa
	Both	100**	0	0	100**	Men	O
Fertilizer Application	Men	68a	25a	7a	43a**	Men	Oa
	Women	36b	52b	12a	16b**	Women	Ca
	Both	65**	28**	7**	37**	Men	O
Harvesting	Men	31a	618	8a	-30a**	Women	Oa
	Women	25a	758	05	-50a	Women	Oa
	Both	31**	61**	8**	-30**	Women	O
Storage	Men	48a	46a	6a	2a	None	3a
	Women	42a	41a	17a	Ia	None	0a
	Both	46**	45**	9	I	None	2
All Activities	Men	63	30	7a	33a**	Men	16a*
	Women	34b	56b	10a	-22b**	Women	23**
	Both	59**	34**	7**	25**	Men	17**

Table 3: Mean Labour Contributions of Men, Women, Children, and Hired Labour For Major Agricultural Activities in Tago

Note: Marketing is excluded because activity was negligible. Means with different letters in each column cell are significantly different at the $\alpha = 0.01$ level managers **Statistically significant at the at the $\alpha = 0.01$ level in pair-wise comparisons between men and women *Percentage of labour contributions of men minus those of women

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Table 4:Aggregate Contribution of Women and Hired Labour for
Land Preparation, Planting, Weeding, and Storage by
Country and Gender of Plot Manager

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Country	Gender of Plot Manager	Labour Contribution of Women	Contribution of Hired Labour
		(ûwi)	(ûhi)
Togo	Women Men	56b 30c	23a 16b
Ghana	Women Men	55b 29c	23a 22a
Niger	Men Women	25c 67a	2c 1c
All	Women Men	59a 28b	16a 11b
Ghana	Both	43a	22a
Togo	Both	34b	175
Niger	Both	34b	lc
All	Both	36	12

Note: Means with the same letter are not significantly different at the $\alpha = 0.05$ level