*Ife Journal of Agric. Vol. 16 & 17; 1994, 1995*

# On-and off-Farm Labour Allocation among Cooperative men and women in Southern Nigeria

By
DR. REMI ADEYEMO
*Department of Agricultural Economics*
*Obafemi Awolowo University*
*Ile-Ife - Nigeria*

**Abstract**

This study is an analysis of the patterns of inter-dependence among on-farm and off-farm labour inputs of men and women cooperators. Structured questionnaires were applied by trained local enumerators to men and women cooperative farmers in Kajola, Ifedapo and Orelope local government areas. An effective sample of 400 households were available for evaluation.

Results from the analysis of data show that men's off-farm labour market participation and on-farm labour inputs are inversely and positively related respectively, to farm size. In addition, there is interdependency of the on-farm labour inputs of farm men and women. There is a tendency for part-time hired workers to be substituted for on-farm labour inputs of farm women in large farm households. Major commodity produced has substantial associations with men's and women's hours of on- and off-farm work per week.

## Introduction

Labour appears to be a most important and limiting factor in West Africa's primary producing activities. This arises from the fact that traditional primary production activities make heavy demands on human labour for about 90% of all chores in non-mechanised systems and about 50 to 60 per cent in mechanised system. (Ladipo and Adeyemo 1981).

Contrary to the thinking of western mainstream agricultural economists, a great deal of agricultural work and decision making is in women hands. These women labour individually for the specific return of maintaining their obligations to feed their families either through growing food for consumption or food for sale to purchase the means to meet household obligations. Out-migration of large numbers of males tends to augment female responsibilities as wives hold the farm and use the land until husbands retire from wage labour. This has long been documented in Lesotho, Botswana and Kenya, and is now becoming a clearer pattern in West Africa, where men's role in farming has traditionally been larger than in other parts of the region. Even among commercial farmers, women activities are often critical in farm operations, especially for absentee male owners, as women become adept at managerial responsibilities (Bokemeier J and Coughenour 1980).

Considerable progress has been made in the last decade in documenting the importance of female labour in agriculture in West Africa Kasfir (1986), Henn (1985) [illegible] and Ajobo (1988). However, there is a notable gap between knowledge

of the specifics of women roles and identification of the implications for this information for agricultural transformation and development. Past works have tended to ignore the relationships between use of hired labour on cooperative farms and women's and men's on-farm and off-farm work. Generally, previous studies have thus tended to give scant attention to the fact that farm households can both buy and sell labour. It is the aim of this study to fill these important gaps.

The objective of this study is to analyze the patterns of interdependence among on-farm and off-farm labour inputs of men and women.

While recognizing the importance of the flexibility of family farm households and their labour allocation patterns in the abstract, we argue that this flexibility is manifested quite differently on various types of farm. These considerations suggest our hypotheses.

Our hypotheses for this study are that:

1) Men's and women's on-farm labour inputs will be positively correlated.
2) Hired labour will substitute more for farm women's potential on-farm labour input than for farm men's potential on-farm labour input, and
3) Hired labour will substitute for farm men's and farm women's labour more on bigger farms than on smaller farms.

**Methodology**

Three local government areas in Oyo State were covered. The local governments are Kajola, Ifedapo and Orelope. The study area lies in Guinea Savanah zone - the broadest vegetational zone in Nigeria - separating the southern rainforest from northern semi-arid sudan zone. The annual rainfall ranges between 1,100mm and 1,200 mm. The main crops grown are tobacco, maize, yam, cassava, okro and these are produced for sale as well as for home consumption with the exception of tobacco which is grown for sale.

In the months of February, March and April of 1992 structured questionnaires were applied by trained local enumerators to men and women cooperative farmers in Kajola, Ifedapo and Orelope local government areas. Because of the focus of the study is the division of labour by sex in farm families, we included in the analysis only those households that had an adult male and adult female who could be considered to comprise a couple irrespective of their formal marital status. This yielded an effective sample of 400 households.

The labour data presented here were obtained through detailed interviewing on a field-specific activity-by activity basis. Each subsample household was visited twice a week during the data collection period and interviewing was frequently conducted in the fields. Women farmers were generally interviewed by female enumerators, and all responses were cross-checked at least twice.

Indicators of off-farm labour market participation were measured for both men and women by asking the respondents for the average number of hours per week they worked at paid off-farm jobs in 1991, the number of weeks worked off the farm in 1991, and their total off-farm earnings for 1991. The items were scored in terms of the exact numbers of hours, weeks and Naira respectively. For both men and women,

the average hours per week in off-farm work for the year was computed by multiplying the hours per week variable by the fraction of the total weeks of the year worked off the farm that is the number of weeks worked during the year divided by 52. Similarly, on-farm labour inputs for both men and women were measured by a direct question that asked for the average number of hours worked on the farm per week during 1991. Both variables were scored in terms of the exact number of hours. Two items were used to measure the use of hired labour in the respondents' farming operations. The first item asked for the exact number of part-time workers employed. The second item asked the respondents to estimate the number of days of work that part-time workers performed. Gross farm income, the indicator of farm size used in the analysis was measured by a direct question in which respondents were requested to indicate their gross farm sales. Men's and women's educational levels were measured by the number of years of school completed.

Because we expected that patterns of on-farm and off-farm labour allocation might differ by stage of family life circle and the major commodity produced, two sets of dummy variables were computed in which cases fitting a particular category were assigned a score of one and the residual a score of zero. For the technique of analysis, we will not group variables in terms of arbitrary categories of independent and dependent variables. We do not do so because of the fact that we believe that there are complex pattern of casuality and insufficient theoretical development in the relevant literature so as to make a confident assertion about the precise direction of relationships.

**Analysis of Results**

The casual relationships between farm size and on-farm family labour inputs and off-farm labour participation are complex and mutual. First, the modern agricultural technologies that have led to differentiation of family labour farms have also substantially undermined the direct link between labour inputs and farm size. Moreover, the on-farm labour inputs of farm family members cannot be unambiquously considered as either independent or dependent variables vis-a-vis farm size, output or value added. These labour inputs are variable factors of production, but the level of these labour inputs is conditional upon the level of farm capital resources with which to deploy productivity family labour on the farm and upon the off-farm employment opportunity structure.

Table 1 reports product - movement correlation coefficients for the relationships between men's hours of on-farm work per week and men's hours of off-farm work per week on one hand, and selected variables on the other. Table 2 narrates comparable data pertaining to women hours of on-farm and off-farm work per week.

It is posited that men's and women's on-farm labour inputs would be positively correlated. The relevant coefficients are as shown in tables 1 and 2. The relationship between men's and women's on-farm labour inputs is positive and statistically significant ($r = .187$).

**Table 1: PRODUCT-MOVEMENT CORRELATION COEFFICIENTS OF MEN'S HOURS OF ON-FARM AND OFF-FARM WORK PER WEEK**

| Variables | Men's hours of On-farm work | Men's hours of Off-farm work+ |
|---|---|---|
| Men's hours of off-farm work per week+ | .682* | -- |
| Men's total off-farm income+ | .522 | .921* |
| Men's hours of on-farm work per week | -- | -.632 |
| Women's hours of off-farm work per week+ | -.153* | .179 |
| Women's total off-farm income+ | -.175* | .222* |
| Women's hours of on-farm work per week+ | .187* | -.006 |
| Number of part-time hired workers+ | .167* | -.212* |
| Days of work by part-time workers+ | .068 | -.086 |
| Gross farm income | .537 | -.413* |
| Men education | -.070* | .150* |
| Women education | -.062 | .132* |
| Stage of family circle: | | |
| Young families without children | .053* | -.063 |
| Young families with young children | .017 | .019 |
| Families finished with child rearing | -.064 | .008 |
| Major commodity produced: | | |
| Tobacco | -.187* | .163* |
| Food crops | -.046 | .021 |

+ *Natural logarithm*

* *indicates that the coefficient is statistically significant at .05 level with a one-tailed test of significance.*

**Table 2: PRODUCT-MOVEMENT CORRELATION COEFFICIENTS OF WOMEN'S HOURS OF ON-FARM AND OFF-FARM WORK PER WEEK**

| Variables | Women's hours of On-farm work+ | Women's Hours of Off-farm work+ |
|---|---|---|
| Men's hours of off-farm work per week | -.006 | .189* |
| Men's total off-farm income+ | -.007 | .169* |
| Men's hours of on-farm work per week+ | .189* | -.156* |
| Women's hours of off-farm work per week+ | -.192* | -- |
| Women's total off-farm income+ | -.202* | .895* |
| Women's hours of on-farm work per week | -- | -.188* |
| Number of part-time hired workers | -.137* | -.040 |
| Days of work by part-time workers | -.019 | -.061 |
| Gross farm income | .035 | -.201* |
| Men's education | -.026 | .161* |
| Women's education | -.076* | .253* |

| | | |
|---|---|---|
| Stage of family circle: | | |
| Young families without children | .004 | .082* |
| Young families with young children | .088* | .056 |
| Families finished with child rearing | -.052 | -.069 |
| Major Commodity Produced: | | |
| Tobacco | -.056 | .115* |
| Foodcrops | -.021 | .092* |

\+ *Natural logarithm*

* *indicates that the coefficient is statistically significant at the .05 level with a one-tailed test of significance.*

The next stage of the analysis pertained to patterns of substitution between farm men's and women's labour on one hand and hired labour on the other. It is posited that hired labour will substitute more for farm women's potential on-farm labour input than the men's potential on-farm labour input. The data in tables 1 and 2 provide partial support for the hypotheses. The correlation between number of part-time hired workers and women's weekly hours of on-farm work is weak but in the predicted direction (r = .137). The correlations between men's on-farm labour input and the number of part-time hired workers on one hand and the days of work by part-time workers on the other are not in the predicted direction (r = .167 and .068 respectively). Part of the reason that hired labour appears to be a complete to rather than a substitute for men's on-farm labour is that the level of men's on-farm work input and the use of hired labourers are both highly related to gross farm sales.

It is also hypothesised that hired labour would substitute for farm men's and women's labour more on large farms than on small farms. It was anticipated that there would be inverse correlations between the indicators of hired labour use and men's women's hours of on-farm work per week and that these correlations would be larger among the larger farms. The results are generally of the predicted directions and magnitudes with respect to part-time hired labour. The data for men's hours of on-farm work per week in relation to number of part-time hired workers have roughly the same configuration, but neither of the coefficients is statistically significant. The same is true of the relationship between men's hours of on-farm work per week and days of work by part-time workers. There is, however, a divergent pattern with regard to women's hours of on-farm work per week and days of work by hired labourers, the correlation among the large farm is modest but statistically significant (r = -.101), while the coefficient for the small farms is positive and somewhat larger in magnitude (r = .138). These results while not fully in accord with the hypothesis do, however, suggest that there are modest substitution effects between the labour of hired workers and that of farm women scale of farms.

As to the other factors such as off-farm employment opportunity structure (especially education, stage of family life circle and major commodity produced). Not surprisingly, table 1 reveals that men's level of education is significantly related to hours of off-farm work per week (r = .253). As well, there is a consistent tendency for these relationship between education and off-farm labour market participation to

be stronger among the small farm than among the large individual farms.

Stage of the family life circle, however, had quite modest associations with men's and women's hours of on-and off-farm work per week. Concerning the major commodity produced, tables 1 and 2 show that major commodity produced has substantial associations with men's and women's hours of on-and off-farm per week. The relationships however are clearly stronger with respect to men's on and off-farm work, with households producing tobacco other than food crops. The relationships between major commodity and women's hours of off-farm work per week are somewhat larger and generally consistent with those for men, except that the major commodity produced has a much greater impact on men's off-farm work hours than it does on women's off-farm labour market participation.

**General Discussions**

The results from this analysis represent more novel additions to the literature on household labour allocation among cooperative farm households. Our data corroborate previous research indicating that men's off-farm labour market participation and on-farm labour inputs are inversely and positively related respectively, to farm size. The directions of the relationships for women's off and on-farm labour inputs are comparable, although the absolute sizes of the coefficients are smaller than those for men. Our data show that, there is interdependency of the on-farm labour inputs of farm men and women. In addition, our results indicate the conditions under which hired labour complements or substitutes for men's and women's on-farm work. There is a tendency for part-time hired workers to substitute for - that is, to be inversely related to - the on-farm labour input of farm women in large farm households.

Discussion with the women has shown that success at both child bearing and food production is essential. In the eyes of the women, child bearing is basic to their reason for living, the very essence of their femaleness, and raising food to feed the children is parts of their nurturing role. To fail in this realm would be to fail as a mother and as a person. As shown by the data, women contributed more to food crops while men concentrated on cash crops. This role of women enable many male farmers to earn cash in non farm jobs.

In support of this analysis Spencer (1976) found that men provided 70% of the labour input for cash crops, while women provided majority of the labour for food crops in Sierra-Leone. Also, Clark (1985) supported our position that 90% of food crop production depended on women because men concentrated on export and non food crops. Also, in another study conducted by Adeyemo (1984) where in a male headed households, women's share 62% of foodcrop labour and in a female headed households, it was 84%.

In conclusion, results from this study, which are by and large consistent with the existing literature suggest that size of the farm operation as measured by annual sales volume, is substantially related to the on-and off-farm labour allocations of farm men and women. The larger the farm the more likely that women, and especially men will devote a large number of hours to on-farm work and a small number of hours to off-farm work.

**Problems encountered by Men and Women**

The most crucial limiting factors identified by men and women include marketing, processing and transportation problems. Forty seven percent of the women said that male extension workers do not work with them.

When asked to suggest ways in which the constraints could be reduced to enhance productivity, 37% of the women wanted the government to send extension agents to them and that, cheap farm inputs, such as fertilizers and improved seeds should be given to them. About 45% of men and women said that difficult agricultural operations should be mechanized. Almost 52% of the respondents wanted marketing and storage facilities to be provided. Surprisingly, most of the women 61% urged government to provide off-farm employment for their children. They said that since they did not want their children to stay on the farm for the rest of their lives, government should provide more community schools. Respondents asked for basic literacy educational programmes for themselves.

**Implications for future development**

The current situation on men and women on- and off-farm labour in which both sexes have been able to maintain and improve their position has arisen largely because men specialized in other areas with greater income opportunities. If the women's position is to be protected development efforts showed concentrate on ensuring that the men continue to have sufficiently attractive options e.g. programmes which attempt to improve the activities of smallholder producers of cashcrops. Small-scale industrial development located in rural areas as opposed to concentration of production in large units in the cities is another example of helpful approach.

In designing of programmes to enhance the women productivity, it is suggested that the best approach would be to use female extension staff with the stated purpose of educating women on off-farm labour, improving the family's food supply, while making efforts to ensure that the women have ready access to markets in order to dispose of any surplus. In this regard, the benefits to be derived from improved food processing and storage should not be overlooked, as this would have the same effect as increased production of the basic product. Processing is in the women's sphere of responsibility and extension of improved techniques is within the competence of extension agents.

**References**

Adeyemo R. (1984) "Women in Rural Areas: A case study of South Western Nigeria". *Canadian Journal of African Studies, Canada Vol. 18 No. 3.*

Adeyemo R. and Ajobo O. (1988) "Working Women in the Food Processing Industry: A case study in Lagos Area of Nigeria. *Journal of the Institutes of African Studies.* Ibadan Nigeria No. 3.

Bokemeier J. and Coughnour C. (1980) "Men and Women in four types of farm families: Work and attitudes "Paper presented at the annual meeting of the Rural Sociologists Society. Cornell University Ithaca, New York.

Clark G. (1985) Fighting African Crises: "Women food farmers and food workers" *United Nations Development fund for women.* Amsterdam, Netherlands.

Dey J. (1984) "Women in Rice - Farming Systems: Focus Saharan Africa" *Human Resources Institutions and Agragrian Reform Division,* Rome.

Henn J. (1985) "Obstacles to the expansion of food production and Marketing: recent data from men and women farmers in Cameroon". Paper presented at the African Studies Association Annual Meetings New Orleans.

Kasfir N. (1986) "Are African Peasants Self-sufficient"? *Development and Change* vol. 17 No. 2.

Ladipo O. and Adeyemo R. (1981) "Demand for mechanization service in food crop production in Oyo State Nigeria". *Ife Journal of Agriculture* Vol. 3, No. 1 and 2.

Spencer D. (1976) "African women in Agricultural Development: A case study of Sierra-Leone". Overseas Liason Committee. *American Council of Education. OLD. Paper No. 9.*