GENDER ISSUES IN GAPS OF HOUSEHOLD LABOUR SUPPLIED TO FARMS AND LABOUR MARKET IN RURAL ABIA STATE, NIGERIA.

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ABSTRACT

Differentials between sexes in supply of labour to farms and to other employments in rural areas were examined along some key issues in own farm(s) of farm households using data collected over time from a panel of ninety-six (96) farm households in Abia State, Nigeria. Household labour was supplied to farms and to non-farm sectors within the rural labour market cutting across enterprises and sectors of employments with observable gaps in gender activities. Male members of the farm households supplied labour to their farms at a rate higher than they did to their off-farm activities. Across the domains of labour use, the females supplied labour at a relatively higher rate (0.87) to their farms than males (0.86) to their off-farms. The inequalities in labour supplies by the gender to the farms and off-farms were informed by some socioeconomic variables such as love of leisure, age of the farm operators, their experiences on the jobs, number of dependants and size of their own farms. Peculiar determinants of off-farm supplies of labour were off-farm monthly income from jobs, and level of educational attainment of persons in the workforce group. These are critical variables that need to be considered when fashioning policies intended to inspire farm operators and members of their households to devoting their time and energy to farming activities in Abia state Nigeria.

KEY WORDS: Labour Supply, Gender issues, Child labour, Full time labour equivalent.

INTRODUCTION

In recent years in Nigeria, very important evolving trend in labour market have been relative increases in participation of females, declining GDP per capita, real wages, male employment and increasing unemployment (World Bank, 2001; Aromolaran, 2004). Women are estimated to constitute half the population of work age adults in Nigeria. Literature of the labour market recognizes that in developing economies there is a predominantly rural sector, co-existing with informal urban and formal urban sectors with the rural sector having a large share of self-employed and unpaid family workers (Haughton, 1994; Huffman, 1991; FOS, 1999; Aromolaran, 2004). Presently in Abia state, one of the thirty-six states of the Federal Republic of Nigeria, changes in growth and development has brought transformations in labour market structure. The rural sector which earlier was completely agrarian is now sharing much of the urban characteristics by having small privately owned enterprises producing mainly services and other non-tradable goods and relying (in addition to their own input) on paid labour without formal wage and employment contract (Emerole *et. al.,* 2008). There are also in some of these communities formal employments for both skilled and unskilled according to formal contracts and such labour supplies are subject to various regulations even within the rural settings.

Farms are owned by men and women by virtue of their positions and roles in the households. In southeastern Nigeria land-man ratio have been declining (Okafor, 1991), such that household labour have gainfully been deployed to non-farm sectors of commerce, industry, crafts, and public service (Emerole *et. al.,* 2008). The supply of labour to these sectors and to the farms by men and women differ in many aspects and needs to be

investigated. Gregory (1991) agreed that men and women supply labour at different rates and these are driven by different forces, or at least differently affected by the same forces.

Men and Women supply labour either on part-time or full-time or both basis. A part-time job presents a different labour market outcome to no job condition and also differs from the full employment. A full-time equivalent employment rate is therefore an 'ideal' measure and is defined to occur when weekly hours are equal to or exceed 35 (*Black et. al.,* 2010). Factors such as increasing women education, love of leisure, maternity leave policies, number of dependants in a household, could affect supply of labour and justify gaps observed in gender in respect of labour supplies to own farms and off-farm employments. This study investigates relevance of these factors and account for observed gaps by addressing the following objectives: (i) describing socioeconomic characteristics of males and females within farm households; (ii) determining factors that influence annual labour supplies to farms and off-farms by males and females in farm households; (iii) estimating gender-based differences in full-time employment equivalent rates for males and female workers in farms and off-farm jobs within farm households in Abia state, Nigeria.

METHODOLOGY

This study was conducted in rural communities of Abia State, Nigeria. The State is geographically located within Latitudes 5° $6^/$N and 5° $24^/$N and Longitudes 7° $18^/$E and 7° $25^/$E of the Greenwich Meridian. It occupies an area of 6,420 km^2 and has a population of 2,833,999 persons made up of 1,445,167 females and 1,388,660 males (NPC, 2006). A large proportion of these inhabitants lives and works in the rural communities. They are predominantly Christians whose faith permits freedom of the males and females working equally in farms and other sectors of the economy unhindered. Farm household-based primary data were collected from a panel of selected smallholder farmers in predominantly agrarian communities of Ikwuano, Bende, and Ukwa west Local Government Areas (LGAs), of Abia State, Nigeria. Members of these households had opportunities for off-farm employments in their communities and urban towns of Umuahia and Aba. Farming in all the communities is rain-fed with farmers' resident close to river banks cultivating the banks of over-flown rivers during the dry seasons.

Forty-eight (48) farm households were selected following a multi-stage random sampling from Oboro and Ibere communities in Ikwuano local government area. Another forty-eight (48) farm households chosen from randomly selected Obokwe community in Ukwa west and Ugwueke in Bende local Government area. This provided a sample of ninety-six (96) rural households used for this study. Information was collected over time with a structured questionnaire administered to each household on first visit to it and thereafter fortnightly within the months of March 2008 to April 2009. Information gathered included gender of household head, gender of other members, age, years of farming experience, number and age distribution of members, relationship to household head, highest level of education of each member, current off-farm employment(s) of male and female members, status of farm and/or off-farm employment(s), years of experience in sale of off-farm labour by male and female members. Others, included type of employment (full-time; part-time) for farm work and off-farm work, total time spent working daily, weekly, or yearly by work age males and females on farm(s), traditional roles assigned to men and women, and perceived reasons for not working equal hours in own farms and off-farm paid works.

The off-farm employment was defined to include all non-farm employments plus labour sales to others farms by members of a household. Two models were developed in line with Haughton (1994) but estimated following Maximum Likelihood Estimate (MLE) method as follows:

$SL_{off-farm} = f(X_1, X_2, X_3, X_4, X_6, X_8, X_{10}, ei)\ldots(1)$
$SL_{on-farm} = f(X_1, X_2, X_3, X_4, X_5, X_7, X_9, ei)\ldots(2)$
Where:
$SL_{off-farm}$ = Hours worked off-farm by household male/female members in a year;
$SL_{on-farm}$ = Hours worked in own farms by household male/female members in a year;
X_1 = Total hours of leisure by males/females of the household in a year;
X_2 = Average number of years of education of male/female (children and adult workers) members of a household;
X_3 = Average daily wage rate for male/female (children and adult workers) members of a household;
X_4 = Number of dependants (Infants 1-3 years, very aged- > 65 years, disabled or invalids);
X_5 = Average age (in years) of male/female members working on-farm in the household;
X_6 = Average age (in years) of male/female members working off-farm in the household;
X_7 = Average number of years male/female members have worked on-farm;
X_8 = Average number of years male/female members have worked off-farm;
X_9 = Farm size (Hectares);
X_{10} = Monthly income from off-farm employment by male/female;
ei = Error term.

In estimating Full-time equivalent employment of labour for the gender in farm households, the model used by *Black et. al.,* 2010 was adapted as follows:

$$FTE = \frac{FT + PT\,[\check{H}_{PT}]}{35}$$
$$\text{Population}$$

Where:
FTE = Full-time equivalent employment;
FT = Number of male/female employed full-time;
PT = Number of male/female employed part-time;
$\check{H}_{PT}$ = Average weekly hours of male or female part-time workers;
Population= Total of work-age workforce (males/females) in sampled households.

RESULTS AND DISCUSSIONS
Socio-Economic Characteristics of Farm Households:
The socio-economic characteristics of the studied households are shown in Table 1.0.
Table 1.0 showed that more than half of the males (55.6%) and females (66.7%) in the predominantly arable crop farmers were within the active workforce age of between 25years and 60 years. This was a gender gap of 11.1% in favour of women. More women than men are involved in arable crop farming (Rahman, 2010), justifying a claim of gender division of labour in farming and the difficulty of perfectly substituting male and female labour (Jacoby, 1992).

Table 1.0 also revealed a household size distribution that was characteristic of a growing population with broad base for both males (30.9%) and females (30.2%) and tapering apex of 16.5% for males and 18.2% for females. The narrow gap between the gender in the households and the broad base structure suggest that there are relatively many young

mouths to be fed and a strong pool of youths below work age for family labour used in farming. The literacy level of heads of the households was high for both males and females as only 6.7% males and 11.8% females had no formal education. The gender gap (5.1%) with respect to level of education skewed against the female household heads. Female education has a significant influence on improving decision making and technical efficiency, as with the case of male education (Rahman, 2010). Rahman (2000) noted that one of the major vehicles for creating awareness of gender discrimination is investment in human capital through gender sensitive literacy programmes, as there is a positive relationship between the highest level of education of the household members and their demand for hired labour (both male and female). Balanced development implies that both men and women are provided with equal opportunities in all spheres of life.

Table 1.0 Socioeconomic Characteristics of Farm Households in Abia State, 2009

Variable	Male	Number Percentage (%)	Female	Percentage (%)
		Households: N=96		
Age (Years):	**Male**	(%)	**Female**	(%)
< 25	12	26.7	11	21.6
25 - 60	25	55.6	34	66.7
> 60	8	17.8	6	11.8
Total	**45**		**51**	
Household Size (Number):				
	Male	(%)	**Female**	(%)
1 – 6	60	30.9	58	30.2
7 – 13	55	28.4	54	28.1
14 – 18	47	24.2	45	23.4
> 18	32	16.5	35	18.2
Total	**194**		**192**	
Education Level of Household Heads :				
	Male	(%)	**Female**	(%)
No formal Education	3	6.7	6	11.8
Primary Education	7	15.6	14	27.5
Secondary Education	19	42.1	17	33.2
Tertiary Education	16	35.6	14	27.5
Total	**45**		**51**	

Annual Labour Used in Farms/Off-farms:

	Farms				Off-Farms			
	Male	Man days	**Female**	Mandays	**Male**	Mandays	**Female**	Mandays
Household only (Full-time)	12	2,880	27	2,130	14	3,120	9	1,129
Hired (Full-Time)	10	2,228	9	1,738	11	2,519	7	989
Exchange (Part-time)	31	2,120	22	1,986	24	1,154	9	1,112
Household/Exchange (Part-time)	20	2,112	12	1,974	10	1,730	4	108
Household/Rented (Part-time)	7	160	1	110	9	230	5	114
Total	**80**	**9,500**	**71**	**7,912**	**68**	**8,753**	**34**	**3,452**

Man-Hour Equivalent:	76,000		44,861	70,024	19,573
Arable crop Farm Size (Hectares):					
	Male	**(%)**	**Female**	**(%)**	
< 1.0	19	42.2	31	60.8	
1.0 – 3.0	15	33.3	11	21.6	
> 3.0	11	24.4	9	17.6	
Total	**45**		**51**		
Mean		2.3Ha			1.9 Ha

Source: Field Survey, 2009. ; 1 man-day= 8.0 hours; 1 woman-day = 2/3 Man-day (5.67 hours).

True annual labour supplies by farm households in Nigeria should not lose sight of the fact inmates aged at least 7 years contribute labour to execute farm activities (UNICEF, 2006) as culturally accepted child labour is manifest in rural Nigeria. However, the labour market recognizes workforce as individuals aged 15 to 64 years. The man-days shown in Table 1.0 recognized the labour supplied by the workforce, short of all the child labour (works that are mentally, physically, socially, or morally dangerous and harmful to children depriving them opportunities for schooling and development) supplied to the farms. A total of 148 men supplied 76,000 man-hours to the farms and 70,024 man-hours to their off-farm works in a year while a total of 105 women supplied 44,861 man-hours to the farms and 19,573 man-hours equivalent to the off-farms during the survey period. This statistics showed that men shared their work times equally between their farms and off-farm employments while the women spent far more of their work time in their farms than they did to their off-farm engagements. These labour sourced from the households were supplied on part-time, full time, exchange, or hired basis to the farms and off-farms.

The farmers cultivated land that was hardly up to 4.0 Hectares, with the women cultivating an average of 1.9 hectares and the men 2.3 hectares. Land which was acquired mainly by inheritance and others by purchase or lease was in short supply with many of them being marginal and fragile to the humid tropical ecosystem. Part of the labour supplied by the farmers was spent controlling wind and water erosion and floods.

Full-time Equivalent Employment Rate of Supplied labour:
To understand observed variations in own labour, hired labour, exchange labour, working age, non-working age, part-time and/or full-time labour, and streamline supply of labour to farms and off-farms this study computed full-time equivalent employment rate by excluding labour provided by household members who are outside the working age (Black *et al,*.2010). Thus a comparable measure or measures of full-time equivalent employment rate is shown (Table 2.0).

Table 2.0 Distribution of Full-Time Equivalence of Labour Supplied to Farms and Off-Farms by Gender in Abia State.

Work-age Measures	Farm Employment		Off-Farm Employment	
	Male	**Female**	**Male**	**Female**
Number on Part-time	27	18	16	6
Number on Full-time	35	42	27	18
Average weekly Hours	18	20	22	20
Population (Number*)	62	60	43	24
Full-time Equivalent rate	**0.78**	**0.87**	**0.86**	**0.89**

*Multiple responses observed
Source: Field Survey, 2009.

Table 2.0 showed that male members of the farm households supplied labour to their farms at a rate higher than they did to their off-farm activities. Across the domains of labour use, a full time equivalent rate of female supply of labour was relatively higher (0.87) to the farms than that of males (0.86) to the off-farms. Further, the female members of the households supplied labour to off-farms at a higher full time equivalent rate (0.89) than did the males (0.86) to the off-farms.

Annual Household Labour Supply to Farm By Male and Females:
Labour supply is a measure of the number of hours of work offered by a labour unit over some given period of time. The household is one such unit that owns and supplies labour to the farms and to some off-farm employments. As owners of labour (an active factor of production), households allocate labour to alternative uses until there is no further advantage, monetary or otherwise. The estimates of factors influencing labour supplies by members of households to farm works in a year are shown in Table 3.0.

Table 3.0 Maximum Likelihood Estimates of Determinants of Household Labour Supplies to Farms by Gender in Abia State, 2009.

Variable	Coefficients of Independent Variables	
	Male (t-ratio)	Female (t-ratio)
Hours of Leisure (X_1)	-97.7*** (-11.41)	-110.3*** (-9.77)
Years of formal Education (X_2)	2.44 (0.09)	3.42 (0.07)
Av. Daily wage rate (X_3)	5.54 (0.27)	5.33 (0.31)
Number of dependants (X_4)	11.21 (0.47)	8.91** (2.54)
Av. Age working on-farm (X_5)	0.06*** (9.83)	0.16** (2.36)
Yrs. of on-farm Experience(X_7)	-40.8** (-2.42)	-30.8*** (-5.30)
Farm size (X_9)	60.4*** (10.48)	39.7** (2.56)
Intercept	-41 (-5.14)	-21.1 (-3.41)
Likelihood ratio test	79.2	72.3
R-Squared	0.761	0.698

Dependent Variable = Annual Hours of farm work by male/female household members
Source: Field Survey, 2009.

Table 3.0 showed that four factors determined men supply of labour to the farms. They are farm size, age of male inmates working on the farms both of which exerted positive influences at 0.01 alpha probabilities. Men who were above mean youthful age but within the workforce devoted more of their time to farm work than the younger men. The younger men were yet to decide to fully embrace farming but shuttle between one job and another and farm only on part-time. To the men, the larger the sizes of their farms the more time they spent working on their crops. At the same level of probability (p= 0.01), the hours spent on leisure significantly and negatively influenced labour supply to the farms amongst the men. This was plausible since leisure times offer recreation and entertainment attractions to men outside their farm activities. Experience in farm work, in years was another factor that gave a negative and significant influence on labour supply to the farms by men, but at alpha probability of 0.05. More experienced male farmers' planned and time farm operations better and were engaged in their farms only when it was appropriate.

The Table 3.0 showed further that five factors influenced the supply of labour by women to their farms. All the four factors that determined male supply of labour to the farms, in addition to number of dependents in a household influenced female supply of labour to the farms. The factors that exerted most critical (p=0.01) effect (hours of leisure, and years of on-farm experience) exerted negative influences on supply of labour to farm work. Other factors

(number of dependants, age of working women, and farm size) exerted quite reasonable (p=0.05) and positive influences on labour supply to the household farms.

Table 4.0 Maximum Likelihood Estimates of Determinants of Household Labour Supplies to Off-Farms Employments by Gender in Abia State, 2009.

Variable	Coefficients of Independent Variables	
	Male (t-ratio)	Female (t-ratio)
Hours of Leisure (X_1)	-24.67*** (-6.51)	-32.23*** (-7.11)
Years of formal Education (X_2)	0.43*** (4.09)	0.24*** (3.173)
Av. Daily wage rate (X_3)	5.54 (0.27)	5.33 (0.31)
Number of dependants (X_4)	11.21** (2.74)	6.91** (2.41)
Av. Age working off-farm (X_6)	-0.08*** (-8.73)	-0.37** (-2.45)
Yrs. of off-farm Experience(X_8)	-70.9** (-2.52)	-50.7*** (-7.30)
Monthly off-farm income (X_{10})	-36.4*** (-8.48)	-45.7** (-2.44)
Intercept	-50.84 (-0.29)	-20.1 (-0.41)
Likelihood ratio test	73.4	70.1
R-Squared	0.887	0.78

Dependent Variable = Annual Hours of off-farm work by male/female household members
Source: Field Survey, 2009.

Table 4.0 showed that six factors determined men supply of labour to the off-farms. They are years of formal education, and number of dependants both of which exerted positive influences at 0.01 and 0.05 alpha probabilities respectively. The number of years of formal education significantly and positively influenced labour supply to the farms amongst the men. This was plausible since formal education offer knowledge, skill and opportunities for jobs outside the farm work. To the men who are bread winners, the larger the number of their dependants the more time they spent working for money off-farms to complement farm income. Other factors that significantly but negatively influenced supply of labour by men to off-farm jobs were age of male inmates working off the farms, monthly off-farm income, and hours of leisure. These factors very highly (p=0.01) influenced labour supply to off-farm jobs by men from farm households. Men who were below mean youthful age but within the workforce devoted more of their time to off-farm work than the older men. The younger men were yet to decide to embrace farming fully but shuttled between outside jobs and their farm work with less emphasis on the farm work. Another factor that had a moderate (p=0.05) negative significant influence on male supply of labour to off-farms was years of off-farm work experience. More experienced male off-farm workers earn more income and sale their labour only at schedules and regulated time giving less of their labour with more years they have worked off-farm.

The Table 4.0 further showed that six factors influenced the supply of labour by women to off-farms. All the six factors that determined male supply of labour to the off-farms influenced female supply of labour to the off-farms with swaps of severity seen in age, experience and monthly income variables. The factors that exerted most critical (p=0.01) effect (hours of leisure, and years of off-farm experience) exerted negative influences on supply of labour to off-farm work. The number of years of formal education, by the women was another most critical and positively influencing factor. Formal education helps to bridge the gender gap between men and women especially in off-farm job opportunities. The other factor (number of dependants) exerted quite reasonable (p=0.05) and positive influence on labour supply to off-farm jobs. Women work off-farms just like men to supplement farm incomes and alleviate household poverty.

CONCLUSIONS AND POLICY IMPLICATIONS

This study concluded as follows:

- There was a narrow gap between the gender in the households many of which were characterized by broad base structure that suggested there were relatively many young males and females to be fed with a strong pool of youths below work age (15 years) for family labour used in farming;
- True annual labour supplies by farm households in Nigeria included labour supplied by male and female inmates aged at least 7 years who culturally contributed labour to execute farm activities; this showed a manifestation of child labour (aged 7-14 years) used in farms in rural Abia state of Nigeria;
- The literacy level of heads of the households was high for both males and females
- A full time equivalent rate of female supply of labour was relatively higher to the farms than that of males to the off-farms. Further, the female members of the households supplied labour to off-farms at a higher full time equivalent rate than did the males to the off-farms.
- Four factors namely, farm size, age of male inmates working on the farms, the hours spent on leisure, and experience in farm work determined men supply of labour to the farms.
- Five factors namely all four factors that influenced the males and the number of dependents in a household influenced women supply of labour to their farms.
- Six factors determined men supply of labour to the off-farms. They are years of formal education, number of dependants, hours of leisure, average age of men working off-farm, number of years of off-farm work experience, and average monthly income earned off-farm by men.
- All the six factors that determined male supply of labour to the off-farms influenced female supply of labour to the off-farms with swaps of severity seen in age, experience and monthly income variables.
- Women work off-farms just like men to supplement farm incomes and alleviate household poverty.
- Peculiar determinants of off-farm supplies of labour were monthly income from jobs, and level of educational attainment by both males and females. These are critical variables that need to be specially considered when fashioning policies intended to inspire farm operators and members of their households to devoting theirs time and energy to farming activities in Abia state Nigeria.

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