Gender, Migration and Agricultural Productivity

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Abstract: This study investigated the impact of gender and migration on agricultural productivity. The result of the study reveals that the most productive age bracket and the more educated ones form the bulk of the migrants. Age, farming experience, education, farm size and labour were important variables influencing the output of the men farmers while age, farming experience, household size and labour were most important factors influencing output of their women counterparts. Migrants' remittances have an insignificant impact on the productivity of the men and women farmers. The test of equality of coefficients of the sample of men and women farmers shows that gender status of the farmers has no significant impact on their productivity.

Key words: Gender, migration and productivity, agricultural, education, men and women farmer

INTRODUCTION

There has been gradual dismantling of the biased assumptions and underlying misconceptions in agrarian economics of developing world about gender and agriculture as a result of increasing gender sensitivity in research. World Bank/Widline (1992), Nwaru (2003), noted that the African rural household is changing its orientation in response to liberalization policies and traditional gender patterns of farming are breaking down. According to Morna (1990), women control over resources of their own is leading to importation in some households and these socioeconomic changes are leading to a breakdown of existing traditional ties and values, growing family conflicts and problems of childcare (Chukwuma, 1986). Mamman (1994) therefore, posited that effective and sustainable agriculture agricultural transformation in Nigeria could require the recognition and understanding of the intricate phenomenon of gender issues to determine and enhance the role, status and participation of women in this process. Women are increasingly growing cash crops, doing tasks traditionally performed by men and making decisions on management of farms and households. Akanji (1999) noted that many women like their men counterpart engage in both subsistence and cash crop farming interchangeably.

In a Nigerian case study, William, 1988 found that women are found to participate in all aspects of farm work often to the same extent as men but decision-making concerning economic activities is mostly the preserve of men. FAO (2005) and Durno and Stuart (2005) noted that women produce the bulk of basic foodstuff both for household consumption and for sale. Although, it is widely documented that women are more involved in trading and farm food processing, several studies have shown a clear departure and a distinctive place of women in all categories of farm operations. Berry (1975) and Akanji (1999) noted that the presence of independent women farmers but usually on a relatively lower scale than men arising from the problem of short-term accessibility of land to women. It has also been shown in certain cases that more women are involved in farming than men and because female headed households (FHHs) are a common factor in most African agricultural settings, in cash-crop-dependent households, women are increasingly in management and control (Saito et al., 1994; Ongile, 1997).

In the final analysis, the basic factors reinforcing gender dichotomy remain that of inequitable access to resources in the face of increasing population pressure because women farmers are competing with men farmers for the same basic resources in a mostly patriarchal entitlement system (Malena, 1994; World Bank, 1998; Akanji 1999). The World Bank (2005) reported that gender inequality tends to slow economic growth and make the rise from poverty more difficult. It therefore, view the Third millennium Development Goals of promoting gender equality and empowering women as a major and central component to its overall mission to reducing poverty and stimulating economic growth. Both men and women play critical roles in agriculture throughout the world, producing, processing and providing the food we eat. FAO studies (2005) pointed out that while women in developing countries are the main stay of agricultural sectors, the farm labour force and food systems (and day to day family sustenance), they have been the last to benefit from-or in some cases have been negatively affected by-prevailing economic growth and development processes. Gender bias and gender blindness persists:

policy makers, development planners and agricultural service deliverers still generally perceive farmers as male (Durno and Stuart, 2005). For this reason, women find it difficult than men to gain access to valuable resources such as land, credit and agricultural inputs, technology, extension training and services that will enhance their production capacity. This has resulted to increased migration of women which was previously male dominated.

Temporary migration and commuting are now a routine part of the livelihood strategies of the rural poor across a wide range of developing country contexts. While past determinants of migration such as drought are still valid and important, there are new driving forces underlying the increase in population mobility. These forces are location specific and include improved communications and roads, new economic opportunities arising from urbanization as well as the changing market context as economies become more globalized and liberalized (Deshingkar, 2004).

The relative importance of migration is highly context specific as are its effects on the local agricultural economy and poverty reduction. In many parts of South Asia and Africa, remittances from Rural-Urban (RU) migration are overtaking the income from agriculture as persistent drought and structural problems keep rural wages and work availability low (Deshingkar, 2004). Remittances are also becoming more important than agriculture in China but in this case, the main driver appears to be the expansion of the manufacturing industry and rising urban wages. Urban and rural areas all over the developing world are becoming more closely linked socially, economically and politically. An important manifestation of this is the increasing mobility of rural populations through temporary migration and commuting. Consequent to increases in rural mobility are increases in remittances as a proportion of total household income. The available evidence suggests that remittances from urban, mainly non-farm sources of employment, are gaining in importance and in some locations have overtaken even agriculture as the main source of income although the household continues to reside in a rural area.

Apart from smoothing income flows by providing employment during the agricultural lean season, temporary migration and commuting to urban centres are undertaken for increasing disposable income which is then invested in a variety of production and consumption uses. However, the relative importance of migration is highly context specific as are its effects on the local agricultural economy and poverty reduction.

While, international remittance flows have been estimated for a number of countries there is not much information on internal remittance flows although they are likely to be much larger because of the larger numbers of people involved, especially in countries like India and China. In China a recent Ministry of Agriculture sample survey of 20, 089 rural households estimated that in 2004, the remittance contribution by migrant workers to rural household incomes was about to overtake earnings from agriculture (Harris, 2004).

The evidence on internal migration in Africa is more patchy although there too the increases in mobility and the growing importance of non-farm incomes become apparent (Deshingkar, 2004). Western African studies reviewed in de Haan (1999) emphasise high rates of population mobility. On the importance of non-farm incomes, Reardon's (1997) review of 25 case studies in Africa showed that non-farm income contributed 22-93% of total rural incomes. Migration earnings were as low as 20% of the total non-farm income in villages that were away from major cities but as high as 75% of the total non-farm earnings in villages near major cities. Coulibaly's (1984) work on the rural impact of migration in Sierra Leone suggests that remittances made up most of the total income for poorer households. Earlier studies have identified economic stagnation and structural adjustment as important drivers. But the latest research (Harris, 2004) is showing how the impacts of macroeconomic reforms on the labour market are increasing mobility.

Historically, migration was dominated by single men. Early studies of migration found males aged between 15-30 years with more education than the average rural worker and with contacts or capital required for the initial transport and establishment costs had the highest propensity to migrate (Deshingkar, 2004). But recent studies have shown that more and more women are migrating for work. Women are migrating independently and not just as accompanying spouses. This so-called autonomous female migration has increased and has become more socially acceptable in South Asia.

From the foregoing, it has then become necessary to access the effect of gender and migration on agricultural productivity.

MATERIALS AND METHODS

This study was carried out in Abia state of Nigeria. The State lies between latitude 5°25' North and Longitude 7°30' East. Abia State is divided into 3 agricultural zones namely: Ohafia, Umuahia and Aba Agricultural Zones. A high proportion of the population lives in the rural areas. Migration is a common feature and a high number of both males and females are steadily moving to the urban centres. A multi stage sampling technique was adopted in selecting the sample. The first stage consisted

of selecting 3 Local Government Areas out of the 17 in the state using simple random sampling technique. In the second stage, 2 communities in each local government were chosen randomly. Again, 6 male and 6 female farmers were randomly selected making a total of 42 male and 42 female farmers. The farmers selected were from households whose member (s) have migrated from the rural to the urban areas. Data collected were those of age, sex, farming experience, educational level of the migrants, household size, volume of remittances received and farm production data.

Data analysis were by means of charts, simple statistical tools as well as ordinary linear regression. Four functional forms of the model-linear, exponential, semi-log and double log forms were tried out and the best fit chosen as the lead equation. The model is expressed in the logarithmic form as:

$$\ln Y = b_0 + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + b_5 \ln X_5 + b_6 \ln X_6 + b_7 \ln X_7 + b_8 \ln X_8 + e_i$$

where,

In	=	Is the natural logarithm.
Y:	=	Is the sum of the converted value of farm output (yam, maize, cassava, melon seed and vegetables) in kg.
X_1	=	Is age.
X_2	=	Is farming experience.
X_3	=	Is educational level.
X_4	=	Is household size.
X_5	=	Is land.
X_6	=	Is labour.
X_7	=	Is volume of remittance received.
X_8	=	Capital.

The test of equality of coefficients obtained from the sample of men and women farmers was realized by the chow's test. The test was given by:

$$F^* = (\{\Sigma e^2_p - (\Sigma e^2_1 + \Sigma e^2_1)\}/k)/ (\Sigma e^2_1 + e^2_2)/(n_1 + n_2 - 2k)\} \qquad (7)$$

where,

Σe^2_p	=	Error sum of squares of the polled sample.
Σe^2_1	=	Error sum of squares of sample of men farmers.
Σe^2_1	=	Error sum of square of the sample of women farmers.
n_1	=	No of respondents in samples one.
n_2	=	No of respondents in sample two and k = no of estimated parameters.

RESULTS AND DISCUSSION

The age distributions of the migrants as reported by their families are shown in Fig. 1. It shows that a high proportion of the migrants were in the age range of between 21-40 years of age. This represent the most productive work force and has a serious consequence on agricultural productive as their labour input is lost.

The education level of the migrants is shown in Fig. 2. It reveals that the more educated members of the rural populace migrant more. This could be for search for white collar jobs in the urban areas, since their educational attainment qualifies them for such jobs. Thus, farming is left in the hands of the aged and less educated people. This is harmful to agricultural production because as noted by Obasi (1991), the level of education of a farmer not only increases his farm productivity but also enhances his ability to understand and evaluate new production techniques. members of the rural populace migrant more. This could be for search for white collar jobs in the urban areas, since their educational attainment qualifies them for such jobs. Thus, farming is left in the hands of the aged and less educated people. This is harmful to agricultural production because as noted by Obasi (1991), the level of education of a farmer not only increases his farm productivity but also enhances his ability to understand and evaluate new production techniques.

The household size distribution of the farmers is shown in Fig. 3. The majority of the farm household has a household size of between 5-8 individuals. This is consistent, desirable and of great importance in farm production as rural households rely more on members of their households than hired workers for labour on their farms. According to Nwaru (2004), this is so if members are not made up of the aged and very young people, otherwise scarce capital resource that should have been employed for farm production would be channeled for the upkeep of these dependent household members. Also, if the household members are all available and have not migrated to the urban centres.

The estimated production function of the farmers is shown in Table 1. The linear function was the lead equation for the men while the exponential function was the lead equation for the female farmers and were thus, presented. This was based on the value of the coefficient of multiple determination, number of significant variables and the conformity of the signs borne by the variables to a priori expectations. The coefficient of multiple determinations (R^2) for the men and women farmers were 0.946 and 0.985, respectively. This shows that 94.6 and 98.8% of the variations in the output of the men and women farmers, respectively were explained by the included variables. The F-ratios were equally statistically significant which implies the data fits the model. Age, farming experience, education, farm size and labour were all statistically significant for the men farmers while age, farming experience, household size and labour were
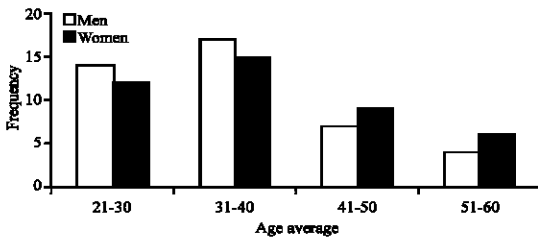
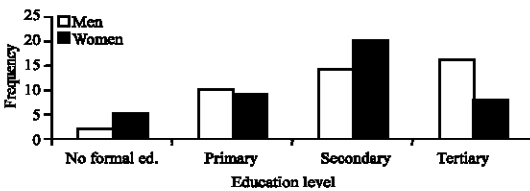Fig. 1: Age distribution of the migrants

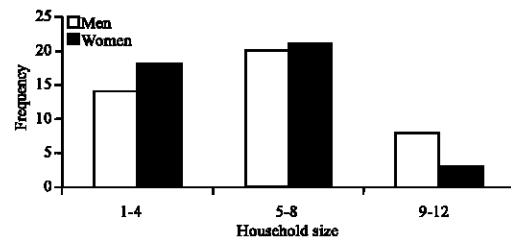Fig. 2: Education level of the migrants

Fig. 3: Household size distribution of the farmers

Table 1: Estimated production function of the farmers

Variable	Linear (Men)	Exponential (Women)
Intercept	131.129(0.180)	2.645***(66.375)
X_1 Age	-37.393**(-2.790)	2.520E-02***(24.661)
X_2 Farming experience	48.843***(3.746)	2.400E-03*(1.972)
X_3 Education	75.286**(2.220)	2.188E-04(0.121)
X_4 Household size	13.564 (0.265)	5.889E-03**(2.550)
X_5 Farm size	1862.218***(19.542)	-8.754E-03(-1.582)
X_6 Labour	8.375**(2.357)	2.943E-04**((2.190)
X_7 Remittance	1.794E-03(0.930)	1.086E-07(0.822)
X_8 Capital	-2.849E-02(-1.568)	7.908E-07(0.507)
R2	0.946	0.985
R-2	0.933	0.981
F-ratio	72.480***	265.944***

Source: Survey data (2006); *** Significant at 1%, **Significant at 5%, *Significant at 10%

significant for the women farmers. These show the variables to be the most important factors influencing output of the farmers.

Age is negatively related to output for the men and negatively related to output for the women. The negative relationship implies the with advance in age, output decreases due to decline in the ability to do manual work and may equally have resulted from more men migrating to the urban centres. The positive relationship for the women may have resulted due to their lower rate of

migration for the older women and hence, bringing their experience to bear on the farming activities.

Farming experience was positively related to output of the farmers. This conforms to a priori expectations.It has been noted that farmers would count a lot more on their farming experience for increased productivity (Obasi, 1991; Nwaru, 2003). The result has some positive implications for increased rice productivity because according to Nwaru (2004), as the number of years a farmer has spent in the farming business may give an indication of the practical knowledge he has acquired on how he can overcome certain inherent farm production problems.

Education and farm size has appositive relationship with output for the men farmers. This conforms to a priori expectations. Education is key to the adoption of new agricultural innovations and hence, it is expected that increase in educational attainment will increase agricultural productivity.

Labour is positively related to output for the men farmers. This conforms to a priori expectations. Household size and labour were positively related to output for the women farmers. Increase in the household size implies more labour for farm work and should lead to increased productivity. This conforms to a priori expectations.

For test for equality of coefficients of the two samples, the theoretical value of F at the 95% level of significance with $v_1 = 7$ and $v_2 = 76$ degrees of freedom is 2.10 and the F computed (F*) is 0.21. Thus $F^* < F_{0.05}$ and hence we reject the null hypothesis. This implies that the two samples do not differ and that gender status of the farmers has no significant impact on their productivity.

CONCLUSION

The study revealed that people in the most productive age bracket and the more educated ones form the bulk of the migrants. Age, farming experience, education, farm size and labour were all statistically significant for the men farmers while age, farming experience, household size and labour were significant for the women farmers. These show the variables to be the most important factors influencing output of the farmers. Migrants' remittances were insignificant. A major conclusion from this work is that rural-urban migration should be discouraged since it impacts negatively to agriculture through loss of labour and technical man power. This could be achieved through policies that will enhance the provision of social amenities in the rural areas.

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