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Analysis of gender time allocation to farm work in Abuja, Nigeria

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Abstract

The study examined gender time allocation to farm work in Abuja, Nigeria. The main objective of the study is to determine if significant difference exists in gender time allocation to farm work. A multi-stage technique was adopted for sampling while semi-structured questionnaires were used for data collection. A total of 168 farmers were randomly interviewed in four agricultural zones (84 males and 84 females). Data were analyzed using two-way factorial analysis of variance and mean separation was done at 5% probability level. Results revealed that there was no significant difference ($P > 0.05$) in gender time allocation to farm work. The mean time allocations to farm work were approximately 6 and 5 hours per day for male and female farmers respectively. The results also showed that there was no significant difference ($P > 0.05$) in the zonal mean time allocation to farm work. Farmers in Abuja Central Agricultural zone spent an average of 5.07 hours per day while farmers in the Eastern, Northern and Western Agricultural Zones spent an average of 5.31, 5.21 and 5.76 hours per day respectively. Generally, the grand mean time allocation to farm work was 5.34 per day. Based on the findings, the paper concluded that there was no significant difference in gender time allocation to farm work in the study area. The paper recommended that the study should be replicated in other states in Nigeria to see if similar conditions exist.

Keywords: Agricultural zones, Farm work, Gender, Time allocation

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1. Introduction

Gender refers to the socially and culturally determined roles, rights, duties, resources, and interests of men and women. Gender is not biologically determined but refers to a system of socially defined roles, privileges, attributes and relationships between the male and female members of any given society. Gender roles shape our identity, determining how we are perceived, how we are expected to think and act as women and men. It plays a critical role in determining who does what within a society with regard to the production of goods and services (Nnimmo, 2007). Gender deals with the social relationships between men and women and how these relationships are negotiated in the production of goods and services (Ironkwe *et al.*, 2011). It is a cultural constraint in which society attributes certain ideas, values, behaviours and beliefs to men and women. Specific roles are assigned to the sexes and these become embedded in gender roles (Strobel, 1984). According to FAO (2011c), gender refers to the social roles, responsibilities and identities associated with being a male or a female. It varies widely from one culture to another and can change dramatically over time. Every society, whether urban or rural, is marked by gender differences and its analysis focuses on the different roles and responsibilities of women and men and how these affect society, culture, the economy and politics (Olubunmi, 2008). Since the 1990s policymakers and development practitioners have highlighted the critical importance of gender in the implementation, evaluation, and effectiveness of programmes across a range of social and economic sectors and this has attracted a lot of gender studies nationally and internationally.

One of the most important issues in the study of gender relations in agriculture is gender time allocation to farm work. It is important because Ilahi (2000) stated that time is a resource and that there is potential connection of the study of time use with the study of poverty. Apart from this, there is a global perception that women allocate more time to farm work and domestic activities more than their male counterparts. This perception about gender time allocation to farm work has provoked a lot of argument and debate among scholars resulting in several studies. One of such studies by World Bank (2006) showed that women's average daily hours in agricultural work in Burkina Faso, Kenya, Nigeria, Zambia was almost 467 minutes a day, compared with about 371 minutes a day for men. A study by FAO (2011b) indicated that the time contribution of women to agricultural activities ranged from about 30 percent in the Gambia to 60–80 percent in different parts of Cameroon, 32 percent in India and up to over 50 percent in China. A similar study by Ilahi (2000), Kes and Swaminathan (2006) and Budlender (2008) also attest to the fact that women allocate more time to farm work compared to their male counterparts especially if care-giving is included in the calculations. Earlier studies also revealed that women work longer hours than men. Jacobson (1992), for example, stated that rural women worked an average of 12-18 hours per day, compared to 8-12 hours for men. Reach (1995) also added that women are over worked because they spent 13-16 hours daily doing both reproductive and productive work while men spent an average of only six hours. When men secure jobs elsewhere, MacMillan (1995) reported that they worked for longer periods at paid employment leaving women to work an average of 14-16 hours daily receiving little or nothing. In Ghana, Dorm-Adzobu and Ampadu-Agyei (1995), observed that women spent an average of 6 hours fetching water, cooking, washing children and clearing the house while men spent similar number of hours or more solely in the farm.

Focusing on Nigeria, research has shown that women provided over 60 per cent of the agricultural labour force. They engage on a continuous basis in home – related and income generating activities and often spend between 10-16 hours of their time in a day engaging in both productive and reproductive activities (Azubuike, 2005). In Mangu Local Government Area of Plateau State of Nigeria, research conducted by Dikwal and Jirgi (2001) showed that majority (75%) of women farmers spent 6 - 8 hours on the farm each day. About 71 per cent of the women farmers spent 4 - 6 hours in the domestic front. On average, according to the report, the women used to spend 12 hours daily on both farm and domestic activities.

Despite the contributions of women in agriculture, the Gender Development Index (GDI) Value for 2007/2008, for example, was 0.470 indicating gender disparity with women on the disadvantage. Out of 156 countries with both HDI and GDI values, 139 countries had better ratios than Nigeria. The value of Nigeria's GDI was 97.0 percent of its HDI value while some countries like Maldives and India had 100.4 percent and 97.0 percent respectively (UNDP, 2008). Motivated by the available evidence on gender differences in time allocation to farm work and other related issues, in other parts of the world, there is need to know if gender differences exist in time allocation to farm work in Abuja, Nigeria.

2. Objectives of the study

The broad objective of the study is to determine gender time allocation to farm work in Abuja, Nigeria . Specific objectives are to determine:

- 1) Gender mean time allocation to farm work,
- 2) If significant difference exists in gender time allocation to farm work, and
- 3) If there are locational (agricultural zones) differences in gender time allocation to farm work in the study area.

2.1. Hypotheses

Ho: there is no significant difference in gender time allocation to farm work

Ho: there is no locational difference in gender time allocation to farm work

Ho: there is no significant interaction effect of gender and location in time allocation to farm work.

The study is very important in different ways. First, some studies have indicated that women in poor households face serious time constraints because of their various livelihood activities and childcare responsibilities compared to men (Quisumbing and Pandolfelli, 2009). But outside childcare, the question is who is more involved in farm work? Second, FAO (2011a) stated that generalizations about time use from one region to another are not appropriate because of the variability in gender roles in agriculture. In addition, the report stated that time use studies is vital in understanding what men and women do in agriculture and how gender roles differ by crop, location, management structure, age and ethnic groups. Gender studies provide policy-makers relevant information about where, when and how to target intervention programmes

aimed at women and how to bring men into the process for mutual understanding (FAO, 2011a). Third, the study is vital because World Bank, FAO and IFAD (2009), warned that the “failure to recognize the roles, differences and inequities between men and women, poses a serious threat to the effectiveness of the agricultural development agenda”. This paper, therefore, brings a substantial contribution to the literature on gender time allocation to farm work in Abuja, Nigeria.

3. Research methodology

The study was carried out in Abuja, Nigeria located between latitudes 8° 25` and 9° 25` North of the equator and longitudes 6° 45` and 7° 45` East of Greenwich. The study population comprised all the small-scale farmers in the rural communities in Abuja. For effective coverage of the study area, a multi-stage technique was adopted for sample selection while semi-structured questionnaires were used for data collection. Abuja has been delineated down to cells by Agricultural Development Programme (ADP). Presently, there are four (4) agricultural zones – central, eastern, northern and western zones – with twelve (12) agricultural blocks and ninety three (93) cells. In the first stage, all the four (4) agricultural zones were chosen. In the second stage, all the twelve (12) agricultural blocks were chosen. In the third stage seven (7) cells from each of the twelve (12) agricultural blocks were randomly chosen given a total of 84 cells. In each of the cells (fourth stage), two (2) farmers (male and female) were randomly selected and interviewed. Generally, a total of forty two (42) respondents were interviewed in each of the four agricultural zones hence a total of 168 respondents were used for the analysis. Equal number was used because of the factorial analysis and to minimize the biases that may be introduced by unequal data. By implication, the forty two (42) served as replications per agricultural zone. The model is mathematically expressed as:

$$Y_{ij} = \mu + GD_i + LT_j + GDLT_{ij} + e_{ij}$$

where:

Y_{ij} = individual farmer's response regarding his/her time allocation to farm work

μ = general mean

GD_i = main effects of gender

LT_j = main effects of location (agricultural zone)

$GDLT_{ij}$ = interaction effects of gender and location

e_{ij} = error term

In this model, the two independent factors considered are gender with two levels (male and female) and location with four levels (central, eastern, northern and western zones). The dependent variable is time allocation to farm work. By interpretation, the model states that a farmer's time allocation to farm work (Y_{ij})

depends on gender, that is, whether the person is a male or female farmer (GD_{ij}); the farmer's location in Abuja (this is related to cultural differences) (LT_{ij}); and the interaction effect of gender and farmer's location ($GDLT_{ij}$). The μ is the population mean and does not contribute to any variation in the model because it is a constant (Aggarwal, 2002) while e_{ij} represents the error term. This method of data analysis is similar to the one applied by Andy (2005), David (2004), Fredrick and Wallnau (2004), Shah and Madden (2004), Harry and Steven (1995) and Gray and Kinnear (2011). In the questionnaires, the farmers were asked to state the average number of hours they used to spend in the farm any day they go to work. SPSS 15.0 package was used to run the analysis and it was tested at 5 percent probability level.

4. Results and discussion

The results of the analysis are presented in tables 1- 3 below.

Table 1. ANOVA Results of gender time (hrs) allocation to farm work

| Source of Variation | Df | SS | MS | F-cal | P-value | Sig |
|---------------------|------------|---------------|------|-------|---------|-----|
| Gender | 1 | 8.15 | 8.15 | 2.66 | 0.11 | NS |
| Gender*locations | 3 | 11.21 | 3.74 | 1.22 | 0.30 | NS |
| Locations | 3 | 4.78 | 1.59 | 0.52 | 0.67 | NS |
| Error | 160 | 489.52 | 3.06 | | | |
| Total | 167 | 513.66 | | | | |

Source: Survey data, 2010

Farmers in the rural communities in Abuja were asked to state the average number of hours spent working in the farm each day they go to work (time allocation to farm work). Table 1 shows the analysis of variance (ANOVA) results of their responses. The "Gender" row of the ANOVA table shows the main effect of gender. The result, $F(1, 160) = 2.66$, $p = 0.11$, indicated that there was no significant ($p > 0.05$) difference in gender time allocation to farm work. In other words, irrespective of the farmer's location (agricultural zone) in Abuja, there was no significant difference ($p > 0.05$) in the daily mean time allocation to farm work between men and women in the area. Again, the "Gender*locations" row of the ANOVA table shows the interaction effects of gender and location. The result, $F(3, 160) = 1.22$, $p = 0.30$, also revealed that there is no significant ($p > 0.05$) interaction effect of gender and location. This implies that for each of the locations (agricultural zones), the mean time allocation to farm work by male and female farmers did not significantly differ. Furthermore, the "location" row of the ANOVA table shows the main effect of location (agricultural

zones). The result, $F(3, 160) = 0.52, p = 0.67$, revealed that there was no significant difference ($p > 0.05$) in the zonal mean time allocation to farm work. In other words irrespective of gender, the mean time allocation to farm work in the four agricultural zones were statistically the same. Based on the ANOVA results, mean separation was not done.

Table 2. Gender mean time (hrs) allocation to farm work in Abuja

| Gender | Abuja Agricultural Zones | | | | Total |
|--------------|--------------------------|-------------|-------------|-------------|-------------|
| | Central | Eastern | Northern | Western | |
| Male | 5.29 | 5.29 | 5.67 | 6.00 | 5.56 |
| Female | 4.86 | 5.33 | 4.76 | 5.52 | 5.12 |
| Total | 5.07 | 5.31 | 5.21 | 5.76 | 5.34 |

Source: Survey data, 2010

Table 2 and 3 show the mean time allocations to farm work by the male and female farmers. The results showed that, irrespective of locations (agricultural zones), male farmers spent an average of 5.56 hours while female farmers spent 5.12 hours per day in farm work. That is, on approximation, men spent 6 (360 minutes) per day while women spent 5 (300 minutes). This agreed with the result obtained by Yin Dara *et al.* (2012) which indicated that there was no significant difference between male and female engagement in farming activities in the Phlong village, Kompong Chhnang province of Cambodia. It is equally similar to the result reported in Nepal by Paolisso *et al.* (2002) which indicated that men and women spent roughly the same average time in cereal and livestock production. However, according to the report, women spent more time caring for children younger than five, while men spent more time in fruit and vegetable production. The result varied with an earlier work reported by Saito and Weidemann (1990) which revealed that women in Burkina Faso, Kenya, Nigeria and Zambia spent an average of 8.3 (498 minutes), 6.2 (372 minutes), 9 (540 minutes) and 7.6 (456 minutes) hours per day respectively while men in the same countries spent 7 (420 minutes), 4.3 (258 minutes), 7 (420 minutes) and 6.4 (384 minutes) hours per day respectively.

Although there was no significant differences in the locational (agricultural zones) mean time allocation to farm work, the result indicated that farmers in Abuja Western Agricultural Zone spent more time working in the farm more than farmers in other agricultural zones. The zonal mean time allocation to farm work for Abuja Western Agricultural Zone was 5.76 hours per day (345.6 minutes/day) while farmers in Abuja Central Zone spent the least (5.07 hours/day = 304.2. minutes/day). The mean values are not the same in each of the agricultural zones. This indicates that there exist slight differences in gender mean time allocation to farm work in each of the agricultural zones. The observed differences agree with the report by FAO (2011b) which revealed that gender time use in agriculture varies widely depending on the crop and the phase of the

production cycle, the age and ethnic group of the farmer in question, the type of activity and a number of other factors. This is very clear when, for example, you compare the mean time allocation to farm work by male and female farmers in Abuja Central Agricultural zone. Men in that zone spent an average of 5.29 hours while female spent an average of 4.86 hours. Similarly, in Abuja Western Agricultural Zone, men spent an average of 6 hours while female spent an average of 5.52 hours. Of importance also is the value of the grand mean time allocation to farm work which showed that the farmers (male and female) in the study area spent an average of 5.34 hours working in the farm. The grand mean is a measure of the time allocation to farm work in Abuja irrespective of gender and agricultural zones (locations).

Table 3. Gender mean time (minutes/day) allocation to farm work in Abuja

| Abuja Agricultural Zones | | | | | |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|
| Gender | Central | Eastern | Northern | Western | Total |
| Male | 317.4 | 317.4 | 340.2 | 360 | 333.6 |
| Female | 291.6 | 319.8 | 285.6 | 331.2 | 307.2 |
| Total | 304.2 | 318.6 | 312.6 | 345.6 | 320.4 |

Source: Survey data, 2010

5. Conclusion

One of the major sources of controversy in agriculture especially in a developing country like Nigeria is gender time allocation to farm work. Some scholars believe that women spend more time working in the farm and in the house while men spend less time with higher wage rate. Based on this perceived marginalization and available evidence on gender issues in other parts of the world, a study was conducted to determine if significant difference exists in gender time allocation to farm work in Abuja, Nigeria. This is very important because the war against gender marginalization has been globally seen as an approach to restore gender equity and recognize the contribution of both men and women in agriculture and rural development. From data analysis, results revealed that there was no significant difference in gender time allocation to farm work. The mean time allocations to farm work were approximately 6 (360 minutes) and 5 (300 minutes) for male and female farmers respectively. Again, there was no significant difference in the zonal mean time allocation to farm work. Similarly, the interaction effects of gender and locations was not significant, implying that for each of the agricultural zones, the mean time allocation to farm work by male and female farmers did not significantly differ. Based on the findings, the paper concluded that there was no significant difference in gender time allocation to farm work in the study area. It was recommended that more research should be conducted in other areas to find out if similar conditions exist.

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