

## CONTRIBUTION OF RURAL WOMEN IN THE FARM PRODUCTIVITY

M. Ashfaq, H. Ashiq, I. A. Baig and A. Saghir

University of Agriculture, Faisalabad.

### ABSTRACT

Women's role as farmers as well as wage laborers has often been ignored. The main reason is the non-availability of reliable statistics on the actual size and sex composition of the agricultural work force. Women participation in day-to-day farm and off farm activities is very extensive. The main objective of this paper was to study and quantify the share of women in household's farm income and productivity of wheat crop in Faisalabad district. Multiple linear regression model was used to analyze the data. The results of the study showed that area under wheat crop, quantity of seed, quantity of fertilizer and female working hours were significant variables that contributed towards the productivity of wheat. Female working hours were also having positive impact on the overall income of the farm households.

**Key words:** Farm productivity, women's contribution, analysis.

### INTRODUCTION

Rural women constitute the invisible work force which keeps the family and the rural economy alive, but their labor often goes under rewarded. Women represent half of the world's population and one third of the official labor force, but they receive only one percent of the world income and own less than one percent of the world property while 49.1 percent of the women population in the world is included in the labour force (ILO 2008; Jose and Shanmujaratnam 1994; United Nations, 1980).

Women generate income through various non-farm activities. Cottage industry was one of the major area of involvement of rural Pakistani women. Weaving cloth and rugs, and sewing constitute important components of rural women non-routine tasks. Rural women in Sindh were skillful in producing Rilee (hand-made sheets) and Sindhi Topees (caps), etc. of export quality (Baluch, 1988). Women as wage earners provide cash income to purchase food for the families. In the poorest families such earnings were critical to the subsistence of the households and considerable number of the working women was the principal income earners in low-income families (ESCAP, 1997). Women unpaid home and farm activities were very time consuming. These activities made vital contributions to the economy of rural households. The poorer the villagers, the more hours women worked and the greater were their contribution to the economy and family welfare (Ministry of Macro Economics and Statistics, 1998).

Livestock is one of the important sectors in agriculture. It accounts 52.2 percent of agriculture value added and 11 percent of GDP (GOP, 2008). Poultry production at home level particularly assigned to women, which contributes a lot for family nutrition and subsequently for family health. About 45 percent of

poultry production came from villages, which were exclusively produced by women as a side business (Qureshi, 1988). The main objective of study was to analyze the share of women in household's farm income and productivity of wheat crop.

### MATERIALS AND METHODS

The study was mainly confined to the primary data. For the purpose of primary data, village 26 J.B of Faisalabad Tehsil was selected randomly. Out of total farm household population, 100 farm households were randomly selected. It constituted about 20 percent of total population. The information was collected from both male and female respondents. Respondents were interviewed through a well structured pre-tested interviewing schedule. Questions were asked from the respondents in a face-to-face situation.

Multiple Linear Regression Model (MLRM) using ordinary least squares (OLS) was used to determine the impact of women working hours on the farm productivity. Information regarding the wheat crop were collected from the respondents. Wheat crop the single largest crop almost sown by each respondent in the study area. A restricted version of the model, involving respondents having actually utilized the female work force, was estimated to avoid the inconsistencies in results of the model. A log-log type functional form of the model was used to estimate the model. This form of the model has an added advantage of estimation of elasticities. Econometric expressions of the model are as follow

$$\text{LnYp} = \beta_0 + \beta_1 \text{LnCA} + \beta_2 \text{LnSed\_Qt} + \beta_3 \text{LnFer\_Qt} + \beta_4 \text{LnIrri} + \beta_5 \text{LnLand\_prep} + \beta_6 \text{LnEdu} + \beta_7 \text{LnFemhrs} + \beta_8 \text{LnMalehrs} + \varepsilon_i$$

## Description of variables

LnY =	Natural log of average yield of wheat (mds / acre)
Ln CA =	Natural log of total cropped area in acres
Ln Sed_Qt =	Natural log of wheat seed quantity used per acre in (Kgs)
Ln Fer_Qt =	Natural log of fertilizer quantity used in nutrient kgs / acre
Ln irri =	Natural log of number of irrigations per acre
Ln Land_prep =	Natural log of Land preparation hours of tractor per acre
Ln Edu =	Natural log of schooling years of the respondent
Ln Femhrs =	Natural log of female working hours
Ln Malehrs =	Natural log of male working hours
$\beta_0$ to $\beta_8$ =	Coefficients to be estimated
$\varepsilon_i$ =	Error term of the model

## RESULTS AND DISCUSSION

Results of the Multivariate Linear Regression Model (MLRM) estimated using OLS procedures in Log-Log form have been reported in the Table 1. In this model wheat average yield (mds/acre) has been taken as the dependent variable. The table showed that value of  $R^2$  is 0.71 and that of Adjusted  $R^2$  is 0.67, which showed the variation in dependent variable, due to independent variable. The standard error of estimate is 0.46. The F calculated value (19) was significant ( $P < 0.01$ ). Thus model was found over all significant and fit to the data.

The results show that all the signs of coefficients were positive for wheat yield and it was according to expectations. The results indicated that one percent change of cropped area brings 0.354 percent positive change in wheat yield. Cropped area was statistically significant ( $P < 0.01$ ). Whereas one percent changes of seed quantity brings 0.158 percent more wheat yield. Whereas one percent change in fertilizer applications brings 0.274 percent change in wheat yield and was significant ( $P < 0.05$ ). One percent change of number of irrigation brings 0.242 percent change of wheat yield. It was non-significant value having positive sign. Villolobos *et al.* (1993) reported similar type of results with same variables.

One percent change of number of land preparations bring non-significant (0.0231) percent changes in wheat yield having positive sign as per *a priori* expectation. Similarly, one percent change of education brings a negligible (0.011 percent) change in wheat yield. However, one percent change of female working hours brings 0.220 percent more wheat yield which it was significant ( $P < 0.01$ ). Uwagbute and Okezi (2000) took the same variable and concluded that women were significantly contributing in agricultural productivity, especially in wheat production. The one

percent change of male hours brings 0.064 percent changes in wheat yield. Which was non-significant with positive sign. The results showed the significant female contribution in the production of wheat yield.

**Table 1: Estimated Coefficients for Wheat Yield Model using Average Yield as Dependent Variable**

	Coefficients	T Calculated
(Constant)	1.658	0.471
Ln CA	0.354	4.357
Ln Sed_Qt	0.158	2.162
Ln Fer_Qt	0.274	2.992
Ln Irri	0.242	0.513
Ln Land prep	0.020	1.465
Ln Edu	0.011	0.193
Ln Femhrs	0.220	3.165
Ln Malehrs	0.064	0.651

$$R^2 = 0.71 \quad \text{Adjusted } R^2 = 0.67 \quad F \text{ Calculated} = 19.00$$

**Conclusions:** Econometric analysis carried out to capture the impacts of female farm labour on the wheat productivity had clearly indicated that cropped area, seed quantity, fertilizer quantity and female working hours were significant variables, and number of irrigations, number of land preparation, education and male working hours were non-significant but positive. Thus contribution of the female workers in wheat production is positive and significant

Thus women in the study area were clearly having significant effect on the farm productivity and ultimately on the farm income.

**Recommendations:** Facilities for female education should be increased, because it is an important variable to increase the productivity and income. There is a need of upgrading the women's skills and knowledge to increase the production of livestock sector on scientific basis. Increases in farm size increases, wheat yield, therefore there is a need to stop fragmentation of landholding, so that an economically viable unit could be retained. The farmers should be provided information regarding the use of recommended doses of nutrients and number of irrigations, to avoid over-exploitation of resources.

## REFERENCES

- Baluch, A. (1988). Rural Women in Pakistan. Proceeding of the Workshop on Role of rural women in Farming Systems Research, Pakistan Agricultural Research Council, Islamabad.
- ESCAP (1997). Rural Poverty Alleviation and Sustainable Development in Asia and the Pacific. United Nations, New York, USA.

- GOP (2008). Economic Survey of Pakistan. Govt. of Pakistan Finance Division, Economic Advisors Wing, Islamabad.
- Jose, D. and N. Shanmujaratnam (1994). The Invisible Workforce: Women in Traditional Farming System of Karala. Southern India.
- ILO (2008). Global Employment Trends. International Labour Organization, Geneva.
- Ministry of Macro Economics and Statistics, (1998). Basic Indicators of Social and Economic Development of the Republic of Uzbekistan in 1997.
- Qureshi, Z.A. (1988). Rural Women in Pakistan. Proceeding of workshop on Role of Rural Women in Farming System Research, Pakistan Agricultural Research Council, Islamabad.
- United Nations (1980). Women and Environment in the 3rd World. Alliance for the Future. Earth Scan Publications Ltd. London.
- Uwagbute A. C. and C. Okezi (2000). Exploring Women's abilities to Further Commercialize Nigerian Agriculture Policy Issues. Michael Okpara University of Agriculture, Umudike PMB 7267, Umuahia, Abia State, Nigeria.
- Villalobos, M. C., E. Llerena, R. M. Dela and M. Condori (1993). Rol de la mujer en sistemas do riego. Institute de Investigaciones para el Desarrollo Social del Antiplano, Puno, Peru: Universidad Nacional del Antiplano (UNA).