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Factors Affecting Gross Income of Small Farmers in District Jhang-Pakistan

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Abstract

The notable feature of the agrarian scenario in Pakistan is the predominance of small holdings. The prosperity of small farmers is very necessary for the well being of our society. Therefore, the study in hand examined the factors affecting gross income of small farmers. Primary data were collected for determining the impact of various factors on income of small farmers. The results of the regression analysis showed that the gross income of small farmers was significantly and positively affected by family, casual and permanent hired labour, plant protection cost, seed, fertilizer and irrigation costs respectively whereas livestock cost and cropping intensity affected the gross income positively but non-significantly.

Keywords: Gross income, Small farms, Regression analysis.

Introduction

Pakistan's economy has undergone considerable diversification over the years, yet the agricultural sector is the largest sector of the economy. With its present contribution to GDP at 23.3 percent, it accounts for 42.1 percent of the total employed labour force and is the largest source of foreign exchange earnings by serving as the base sector for the country's major industries like textile and sugar (Govt. of Pakistan, 2004). A major part of the economy depends on farming through production, processing and distribution of major agricultural commodities. Almost 67.5 percent of the Pakistani population lives in villages and is directly or indirectly dependent on agriculture (Govt. of Pakistan, 2003).

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Small farmers are generally characterized by a high proportion of land devoted to food crops, a low proportion of marketable output, a more diverse crop portfolio, greater aversion to risk, a greater scarcity of cash and capital resources and more abundant family labour than the large farmers (Khan, 1990).

Small farmers and small farms are the main features of the agriculture sector in Pakistan. The prosperity of small farmers is very necessary for the well being of our society. A small farmer always thinks that the only way to survive and prosper is to find ways to get more out of what he already has and to learn to live better while using less land and less capital (Ikerd, 1997).

Out of the total 47.58 million acre farm area of Pakistan, 30.5 million acre area is occupied by the farms not exceeding 12.5 acres in size. Small farmers ($\leq$12.5 acres) constitute 93.12 percent of the total farms and account for 61.4 percent of total farm area (Govt. of Pakistan, 2002). Similarly in the Punjab province, small farmers constitute 85 percent of the total farms and account for 47 percent of the total farm area (Govt. of Pakistan, 2001).

Since small farms and the small farmers occupy a focal position not only in terms of their numbers but also from the view point of area, a sustained and broad-based economic development of Pakistan thus necessarily calls for improvement in their operational performance and income. Therefore, the present study was conducted with the objective to identify the factors which affect the income of the small farmers.

Methodology

The study was based on primary data and was confined to district Jhang that has three tehsils namely; Jhang, Shorkot and Chiniot. A multistage random sampling procedure was adopted for sample selection. At first stage, a random sample of three villages from each tehsil of district Jhang was selected. As the study was based on small farms i.e. $\leq$ 12.5 acres only, thirty farmers from each tehsil and ten farmers from each village ware randomly selected. As a whole, a sample of ninety farmers was drawn for data collection. Data collection was accomplished by employing a comprehensively designed and pre-tested questionnaire. Information regarding farm income both from crops and livestock

and cost of production of the farm was collected. Data thus collected were tabulated, analyzed and finally interpreted to identify the factors affecting the net farm income on small farms.

For estimating the impact of various factors on net farm income, regression analysis was carried out. Various inputs and agricultural practices were considered as independent variables and the farm income as dependent variable. Although the original proforma provided detailed information on costs associated with artisans, plant protections, tractor hiring, agricultural implements, labour utilization, seed, water, fertilizer, cropping intensity and farm size etc., it was not possible to include each of the independent variables in the regression equation. It was therefore, decided to choose a limited number of independent variables based on their expected affect on the dependent variable.

The grouping of the independent variables was accomplished on the basis of preconceived ideas. For example, costs associated with land rent, interest, depreciation of machinery and implements, interest, depreciation of sheds etc were grouped as one variable. Similarly farm labour including family labour, permanent hired labour, casual hired labour and payment to artisans was defined as a separate variable because of its special significance in economic development in terms of employment, productivity and income distribution. A third variable was defined as comprising of the expenditure plant protection measures, seed, FYM, water purchase, tractor hiring and chemical fertilizer. A fourth variable comprised the expenditure on livestock including the costs associated with the green and dry fodder, concentrates and miscellaneous expenses such as nailing, chain and ropes and medical treatment etc. In addition, farm size and cropping intensity were treated as separate variables in the regression analysis.

For studying the relationship between farm income and the independent variables, following regression equation was applied.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6$$

Where:

Y = Gross income of the farm (Rupees)

β_0 = Intercept

X_1 = Farm size in terms of operational farm area (acres)

X_2 = Sum total of fixed cost components (land rent, interest, depreciation of machinery and implements, interest, depreciation of livestock, interest and depreciation of sheds) measured in rupees.

X_3 = Sum total of labour cost (paid to artisans, family, casual and permanent hired labour) measured in rupees.

X_4 = Sum total of variable cost components (plant protection, seed, FYM, fertilizer, water purchase, tractor hired) measured in rupees.

X_5 = Cost of livestock feeding & miscellaneous measured in rupees.

X_6 = Cropping Intensity (C.I.) where

C.I. = (Total cropped area in a year/Total cultivated farm area)*100

Results and Discussion

Regression analysis is one of the most commonly used measures of assigning the variability of one factor (dependent variable) to the variability of a number of factors (independent or explanatory variables). The use of multiple regression model specified and the input and income data for the ninety small farmers from nine selected villages resulted in the estimates presented in Table 1.

Table 1: Regression Coefficients & "t" values of estimated equation

Explanatory variables	Gross Income			
	β	S.E.(β)	T	Sig.
Intercept	-23681.73	36148.15	-.6	.51
X_1	-1076.7$^{N.s}$	4482.2	-0.24	0.8
X_2	2.2*	0.9	2.4	0.01
X_3	1.2*	0.6	2.2	0.03
X_4	0.6*	0.3	1.8	0.07
X_5	0.2$^{N.s}$	0.5	0.5	0.6
X_6	222.7$^{N.s}$	205.9	1.1	0.3

R-Square = 0.752; Adjusted R^2= 0.734; F-Ratio = 41.984

Explanation of the model

The R-Squared statistics indicates that the model as fitted explains 75.2 percent of the variability in Y variable and the value of F-Ratio indicate that the model was significantly explaining the phenomenon under consideration. As it is evident from table 1, most of the estimated coefficients have signs and magnitude in line with a priori theoretical expectations.

The coefficient of land variable amounted to –1076.7, but was non-significant. It shows that each additional acre depressed the gross income by Rs. 1076.7. This was because those small farmers kept their operational holding fallow. Due to this reason, this variable could not significantly contribute to the income variation among the small farms.

The regression coefficient of X_2 (land rent, interest and depreciation on farm implements and tools and interest and depreciation on farm sheds) amounted to 2.2, and was highly significant. In this case each additional rupee contributed Rs. 2.2 to the gross

income. The coefficient with its sign was in line with the a priori expectations of the economic theory.

The estimated regression coefficient for X_3 (costs associated with family labour, permanent hired labour and casual hired labour) amounted to 1.2, and was significant. In this case each additional rupee contributed Rs. 1.2 to the gross income when all other factors are kept constant.

Regression coefficient of the variable X_4 (costs associated with seed, fertilizer, spray and FYM) was 0.6, and was significant. In this case, each additional rupee contributed Rs. 0.6 to the gross income.

It is evident from the Table 1 that one unit increase in X_5 (costs associated with livestock) raised the gross income by Rs 0.2. The coefficient however was non significant. Similarly the coefficient of variable X_6 (cropping intensity) was 222.7 but was non-significant. It showed that unit increase in this variable contributed Rs 222.7 to the gross income.

These results were in consonance with Abbas (1993) who concluded that gross income of small farmers was positively and significantly affected by family, casual and permanent hired labour, seed cost, fertilizer application cost, plant protection measures and farm yard manure cost.

Conclusion and suggestions

According to the findings of the study, gross income of small farmers was significantly and positively affected by family, casual and permanent hired labour. Seed, fertilizer and irrigation cost respectively were also found significantly and positively contributing to the income of small farmers. Livestock on the farm affected the gross income positively but non-significantly. Gross income of small farmers was influenced positively and significantly by the plant protection cost. The small farmers were negatively affected by farm size.

Keeping in view the results of the study, the following suggestions are extended for the consideration of planners and policy makers.

- Cropping intensity of small farmers can be reasonably increased. It can be raised through the installation of tube wells, using tractors, better cultivation practices, more use of fertilizer, improved seed and skillful management of the available farm resources.
- Productivity level of the small farms can be enhanced by adopting better cultural practices, using improved seeds, applying recommended doses of fertilizer and manure, etc.
- Surplus family labour from each farm should be removed and employed in a more productive enterprise. This can be done with greater success by the establishment of agro-based industries in the area.
- There should be an easy and enhanced access of small farmers to institutional credit facility.
- The yield can be maximized by sowing and harvesting at proper time. The necessary information should be provided to the small farmers about the sowing and harvesting of different crops. Therefore there is a strong need to make the extension wing of Agriculture Department efficient and effective. It should be effectively linked with research wing as well.

References

Abbas, S. A study of net income differentials on small farms. A case study of Tehsil Shahpur, District Sargodha. M.Sc. (Hons). Thesis. Deptt. of Agricultural Economics. University of Agriculture Faisalabad.1993.

Govt. of Pakistan. Agricultural Census, (2000-2001). Province Report Punjab, Govt. of Pakistan, Statistics Division, Agricultural Census Organization, Lahore.2001. Vol. II Part-2.

Govt. of Pakistan. Agricultural Statistics of Pakistan (2000-01). Ministry of Food, Agriculture and Livestock, (Economic Wing), Islamabad, Pakistan. 2002.

Govt. of Pakistan. Economic Survey (2002-03). Finance Division, Economic Adviser's Wing, Islamabad, Pakistan. 2003.

Govt. of Pakistan. Economic Survey (2003-04). Finance Division, Economic Adviser's Wing, Islamabad, Pakistan. 2004.

Ikerd, J. Small Farms: Their role in our farming future. University of Missouri, Columbia, USA. 1997.

Khan, R.A.R. Institutional constraints in lending credit to small farmers The ADBP Case. A seminar report. organized by Faculty of Agri. Economics and Rural Sociology, Univ. of Agri. Faisalabad and Punjab Agri. Research Coordination Board. 1990.