

## RECIPROCATION OF SOCIO-ECONOMIC ATTRIBUTES OF THE RESOURCE-POOR RICE GROWERS: IMPLICATIONS FOR OUTREACH ORGANIZATIONS IN PAKISTAN

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### Abstract

*Pakistan is blessed with different seasons making it favorable for production of variety of crops, fruits and vegetables. Globally, it has a considerable share in crop production especially in quality rice and cotton production. It has been many years that country is experiencing decline in rice and cotton production due to natural and farmers associated factors. Therefore, the present study has been designed to identify damages caused by environmental degradation and what strategies have been used by farmers to cope these damages. Two well known districts having maximum rice and cotton growers were selected as a study population. The respondents of the research were limited to 120 (60 from each district) due to unavailability of sufficient funds. Interview and Focus Group Discussion were used for data collection from the selected respondents. The collected data were then analyzed using Statistical Package for Social Sciences (SPSS). Findings indicate that majority of the farmers were lacking information in appropriate seed selection followed by maintenance of plant populations of selected crops. Meanwhile, a positive relationship was found among farming experience and annual income of the respondents.*

**Key words:** reciprocation, socio-economic attributes, resource-poor, rice growers, implications,

### INTRODUCTION

Rice is the largest staple food as well as the most cultivated cereal after wheat in the world. Two-thirds of global impoverished population lives in Asia and intakes 80% of the daily calories from rice [6]. It provides 21 and 15% of global human per capita energy and protein, respectively. In addition to dietary energy (1,527 KJ/100g) and protein (7.9 g/100g), it is a rich source of minerals (K, Ca, P, Fe, Zn), amino acids and vitamins (thiamine, riboflavin, niacin) which protect the human being against neural sickness and ensures healthy growth during pregnancy and childhood. It is very useful against anemic diseases due to its iron contents (1.5mg/100g) [15, 16].

Pakistan is the 4<sup>th</sup> largest rice producer followed by China, India and Indonesia. Rice is the country's 2<sup>nd</sup> agricultural export commodity after cotton. The country earns

about 13% annual foreign exchange. Pakistan's share in world rice trade is 10 and 25% in trade of the Basmati rice. Rice is grown over 10% of the total agricultural land in Kharif (summer) season while Basmati rice covers almost 52% of rice cultivated area in Pakistan. It adds 6.7% value in agricultural commodities and contributes 1.3-1.6% in economy of Pakistan. The rice industry absorbs 9% of the national labor force. It also shares on an average 2 billion national foreign exchange annually along-with bilateral trade with other countries [7]. According to Trade Development Authority of Pakistan (2016) [13] rice trade is the most significant bond among cultural, democratic, Islamic and continental ties behind the close relation of Saudi Arabia, United Arab Emirates, Iran and Sri Lanka with Pakistan.

Pakistan produces almost 6 million tons of rice annually. It adds two million tons in national food requirements. There was 2.3

million hectare (1.05 Basmati, 0.58 IRRI, 0.66 others) area under rice cultivation and 5.5 million tons production (1.86 Basmati, 1.82 IRRI, 1.85 others) with 1.7 tons per hectare during 2013 which is 10% less than previous year [11]. The Punjab is the leading province in rice cultivation with 0.99 million hectare under rice crop and 3.4 million tons production annually. It is 58% of total national rice cultivation followed by 29, 13 and 10% by Sindh, Baluchistan and KPK respectively in the country. The contribution of the Punjab in production of Basmati rice is also very significant. Gujranwala is the predominant district out of Lahore, Sargodha, Multan, Bahawalpur districts of the province regarding rice cultivation and production. The crop is cultivated on an area of about 0.25 million hectares with a production of 0.55 million tons, which is the highest in the Punjab province [7, 3].

In the comity of developed nations outreach services like farmers' education reciprocate the demographic characteristics i.e. crop production, income etc. of smallholder farmers [10]. Ironically, in developing countries, like, Pakistan the farmers' education doesn't reciprocate like developed world [8]. The research question arises here is why the outreach services don't reciprocate in developing countries like Pakistan? Therefore, the study was planned to investigate reciprocation among socio-economic attributes of resource-poor rice growers and propose implications for outreach organizations. This study will explore the theoretical relationships of demographic attributes of smallholder rice growers. Practically this study will be very helpful for policy makers in designing a policy for outreach organizations.

### **Research objectives**

Reciprocation of socio-economic attributes of the resource-poor rice growers: implications for outreach organizations.

The specific objectives were to:

- (i) To find the correlation between Age and Education of resource-poor rice growers;
- (ii) To examine the correlation between Education and Annual Income from Rice;

(iii) To determine the correlation between Age and Annual Income from Rice;

(iv) To explore the correlation between Farming Experience and Annual Income from Rice;

(v) To propose implications for outreach organizations.

## **MATERIALS AND METHODS**

### **The model and research methodology**

The aim of outreach services is to improve the socio-economic attributes of resource-poor farmers. Ultimately, the characteristics of farming community reciprocate by improving education and farming experience. Pakistan is an agrarian country with almost 80% smallholder farmers [1]. These are small landholders with farm sizes averaging 2 hectares (5 acres) or less [14]. Therefore, Pakistan can't develop without strengthening the community. So, after independence of Pakistan since 1947, various programs i.e. Village-AID (1952-1958), Basic Democracy System (1960-1970), Integrated Rural Development Program (1970-1978), T&V System (1978-1998) etc. have been launched under public sector to update the resource-poor farming community with advance agricultural practices [12, 2]. The government included private organizations since 1980s to enhance the effectiveness of outreach services in the country. Unfortunately, the socio-economic condition of smallholder farmers has not been reciprocating to all of these public and private outreach services [9]. Therefore, it is urgent need to study why not socio-economic attributes are reciprocating?

### **Research Methodology**

A survey research methodology was applied to conduct the study. The study was conducted in Gujranwala, Pakistan, the largest rice-producing district in the country. The population or sampling frame was made up of rice growers registered with the Department of Agriculture (Extension Unit) and the largest private extension unit, a pesticide company. The largest private unit in the district was Syngenta Agrochemicals. A sample size of 342 farmers was drawn out of 2,365 rice growers from the four tehsils of the

district: Gujranwala, Wazirabad, Kamoky and Noshehra Virkan [4]. The respondents from each tehsil were selected on the basis of number of farmers in the tehsil. There was: 103 respondents selected from tehsil Gujranwala; 97 respondents from tehsil Kamoky; 83 respondents from tehsil Wazirabad; and 59 respondents from tehsil Noshehra Virkan. An interview schedule was prepared in English but ad-libbed in vernacular (Punjabi) to facilitate the respondents [5]. Its validity and reliability was checked through pre-testing. Data collection was carried out by the lead author through face-to-face interviews. Of 342,289 respondents were interviewed on their farms locally known as Deras while rest of them was at their homes or shops. Data analysis was done using the SPSS 24 (Statistical Package for Social Sciences).

This study was limited to responses of 342 smallholder rice growers of district Gujranwala. Although it cannot be generalized to whole country and even to whole province but it will help the agricultural policy makers in situation analysis to designing the farmers' education policy for outreach organizations.

## RESULTS AND DISCUSSIONS

Correlation studies portray the association among variables by cross-tabulation and correlation coefficient. It was performed to find strength and direction of association between various socio-economic variables.

### Correlation between Age and Education

To determine strength and direction of association between age and education of the respondents, Pearson correlation coefficient (R) test was performed. Age (independent variable) was taken on X axis and education (dependent variable) on Y axis. According to the results, (Correlation Coefficient (R) = -0.131; Coefficient of Determination (R<sup>2</sup>) = 0.017) with increase in age the education level decreased.

This scattered diagram (Fig. 1) indicates that initially, with increase in age the education level was also increasing, and then education level decreases with increase in age. It was

concluded there was moderate negative association between age and education of the respondents. A young farmer was more educated than old ones.

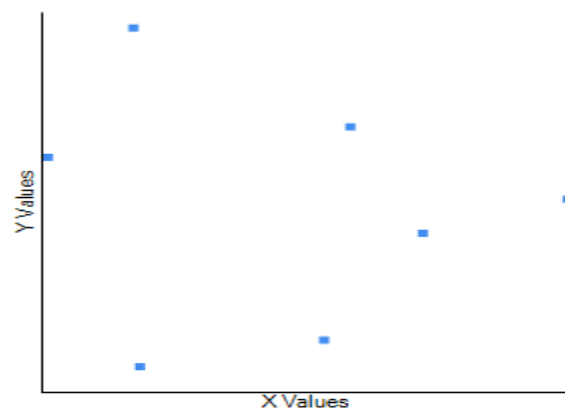


Fig 1. Correlation between Age and Education  
 Source: Primary Data.

### Education and Annual Income from Rice

To find strength and direction of education effect on rice production in terms of annual income, a bivariate correlation test was performed between education and annual income from rice of the respondents. Education (independent variable) was taken on X axis and annual income from rice (dependent variable) on Y axis. The values (Correlation Coefficient (R) = 0.8079;

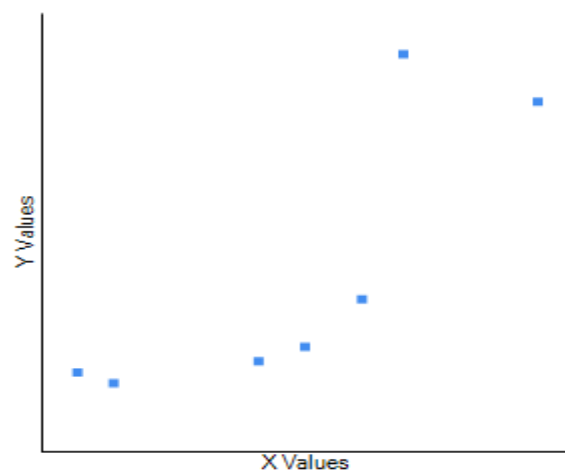


Fig 2. Correlation between Education and Annual Income from Rice  
 Source: Primary Data.

Coefficient of Determination (R<sup>2</sup>) = 0.6527) indicate that there was strong positive relationship between education and annual income from rice. These values showed that

with increase in education the annual income from rice also increased.

This scattered diagram (Fig. 2) portrayed that with increase in schooling years, the annual income was also ascended. It was concluded that education had strong positive effect on rice production. An educated farmer was more rich than uneducated.

#### Age and Annual Income from Rice

To measure strength and direction of age impact on rice production in terms of annual income, a bivariate Pearson correlation test was performed between age and annual income from rice. Age (independent variable) was taken on X axis and annual income from rice (dependent variable) on Y axis. The values (Correlation Coefficient (R) = 0.3567; Coefficient of Determination (R<sup>2</sup>) = 0.1272) show that there was a weak positive relationship between age and annual income from rice. These values showed that initially with increase in age, the annual income from rice appeared to be increasing.

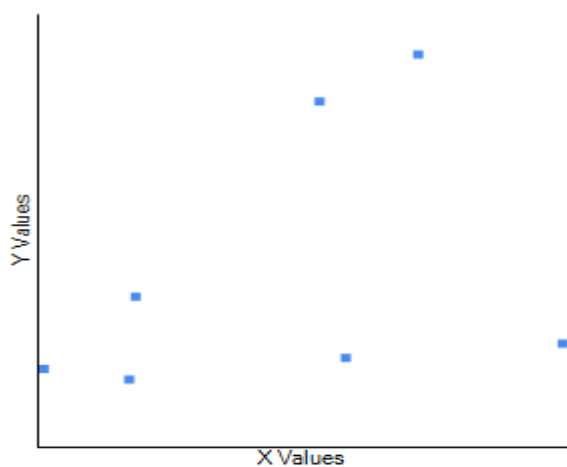


Fig 3. Correlation between Age and Annual Income from Rice  
 Source: Primary Data.

This scattered diagram (Fig. 3) described that initially with increase age, the annual income was also increasing but later on with increase in age, the income was decreasing. It was concluded that age had very weak impact on rice production. For example, an educated farmer could get more production (more income) than uneducated.

#### Farming Experience and Annual Income from Rice

To measure strength and direction of farming experience effect on rice production in terms of annual income, a bivariate Pearson correlation test was performed between age and annual income from rice of the respondents. Farming experience was taken on X axis and annual income from rice on Y axis. The results (Correlation Coefficient (R) = 0.4987; Coefficient of Determination (R<sup>2</sup>) = 0.2784) reveal that there was a weak positive relationship between farming experience and annual income. These values showed that with increase in farming experience, there was very little increase in annual income from rice.

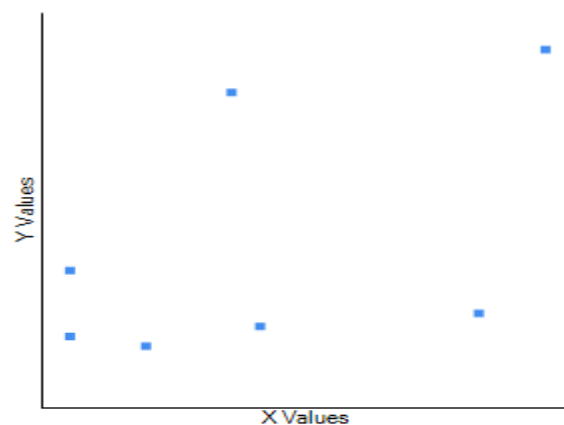


Fig 4. Correlation between Farming Experience and Annual Income from Rice  
 Source: Primary Data.

This scattered diagram (Fig. 4) described that initially with increase farming experience, there was no increase in annual income but later on with increase in farming experience, there was little increase in the income. It was concluded that farming experience had weak impact on rice production. For example, an experienced grower could get a little more production (more money) than un-experienced grower.

#### CONCLUSIONS

It is evident from the present study that there was moderate negative association between age and education of the respondents i.e. a young farmer was more educated than old ones. The education also had strong positive effect on rice production i.e. an educated farmer was more rich than uneducated. It was

concluded that age had very weak impact on rice production. For example, an educated farmer could get more production (more income) than uneducated. It was concluded that farming experience had weak impact on rice production. For example, an experienced grower could get a little more production (more money) than un-experienced grower.

### **Implications for Outreach Organizations**

On the basis of results, it is proposed that: Outreach organizations should non-formally educate the young resource-poor farmers instead of just disseminating the information. As shown by the results of study, the young farmer were cultivating their ideas rather the information disseminated by the outreach organizations about rice production.

Outreach organization focuses education not only to enhance the knowledge level of growers but also improve the crop production in the country. It was also found that education has strong positive correlation with crop production.

Outreach organization should work hard with old farmers to encounter food-insecurity in Pakistan because study revealed that age has no impact on crop production.

Outreach organizations should equally treat resource-poor growers to improve agricultural contribution in gross domestic production (GDP) of the country because results revealed that farming experience have very weak impact on crop production.

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