Socio-economic Factors Affecting Farm Yield in Tando Allahyar District

Abdul Jaleel Mirjat, Bahadur Ali Soomro, Naimatullah Shah

Abstract

Agriculture is recognized as a critical sector in the world economy and contributing 24 percent GDP input and provision of employment to 1.3 billion people. Considering such the importance; the current study proposes to investigate the socio-economic factors that affect farm yield in Tando Allahyar District. To asses this problem, the conceptual model as developed for such research work. On the basis of the prevalent literature; some hypotheses formulated for such the study. A survey questionnaire employed as the central tool for data collection. In total, 190 farmers contacted individually and got filled the questionnaire. The reliability of the questionnaire noticed as 0.789 that is stated as good reliability. By employing the path model, the findings resulted as a positive and significant impact of farmers' income; education; experience and farmers' family labor to farm yield. This study may be beneficial for local and national policymakers to develop policies to alleviate food security insufficiencies and boost up better agriculture approaches based on the social-economic characteristics of the regions as farmers increase the production of food.

Keywords: Socio-economic factors; family; experience; education; income; farmers; productivity; Tando Allahyar

Introduction

Agriculture is recognized as a critical sector in the world economy and contributing 24% of Global Gross Domestic Product (GDP) and the provision of employment to 1.3 billion people or 22% of the World's population (Hosseini *et al.,* 2011). Thus, social, economic components influence upon the growth of society including the strategy for land and incomes. Further, fertilizers and seeds, labor and diseases affect age, labor, earnings and educational approach (Kilonzi, 2011). Socio-economic elements are vital signs to judge the ratio of poverty. According to Suri *et al.* (2009), poverty is a social issue and can be measured through fiscal welfare strategy like consumption or income. Thus, the human figure falls below the present stage of economic well-being perceived as a plausible less in some full stages or through ethics of the particular civilization (as quoted in Lipton and Ravallion, 1995).

A study by Kilonzi (2011) stated that affecting components in the field of agriculture as divided into three forms including social, economic components, natural components and technical components. Further, natural or environmental elements as submerged into atmospheric matters such as rainfall amount. According to Mutimba *et al.* (2010), atmospheric alternations bring the costs of the changes within non-market and market sectors in the future economy.

Bearing in mind that the primary purpose of the current study is to examine the role of socio-economic components of farm yield in District Tando Allahyar. Thus, the present study may be beneficial for agricultural field experts and agricultural service providers. Thus, it would shed considerable light on prevailing social-economic problems and bring out the solution to these problems so that farmers' social issues can easily be tackled in an agrarian society.

Literature Review and Conceptualization

Broadly, farmer's income as submerged into the entire monthly household incomes and explaining to the whole amount of the revenues of the household within a month from farm and off-farm means (Babatunde *et al.,* 2007). Waithaka, Thornton, Shepherd and Ndiwa (2007) stated as the more earnings connected with the element of satisfaction for fulfilling the dire needs and showing the satisfactory outcomes to purchase fertilizer and develop other productive strategies. Thus, revenues may even permit the household to involve domestic task; then, it becomes free from household task to engage in other attempts including the role of management in the farm or obtaining a more significant income from off-farm employment. According to Argwings-Kodhek *et al.* (2000), as providing the more productive agrarian region impart many earnings as compared to the less cultivated areas. Thus, it presents the association between agricultural society and exurban earnings. Besides to this, the different forms of household returns based on the classified revenues and less availability of fields due to the presence of substituted means of production imparts farmers with their farms to bear the expenditure of farm tasks (Djauhari *et al.,* 1987). According to Suri *et al.* (2009), the whole household earnings as acquired from the four means comprising of net livestock income, net crop income, non-farm business income and salary /remittances. Hence, livestock income and crop income classified as farm income whereas non-farm business income and salary/remittances cover off-farm income. As salaried earnings have the entire esteem among the overall paid (Permanent) jobs; further it focuses on the pensions and payments (Argwings-Kodhek *et al.,* 2000). According to Briggeman (2011), the farm income is exclusively inadequate for the various peasants instead of debts of their respective services. Additionally, off-farm incomes numbered as a vital source of earnings. In addition to enhancing earnings strategies; the peasant families have progressively improved their faith in off-farm service.

Education is an essential component of the development of the characteristics of farmers. Further, it affects the family's head for farm yield. Education develops actual ability among the families of peasants for the sake of the suitable incomes and sound

decision of nutritive fields (Babatunde *et al.,* 2007). Wiebe and Gollehon (2007) stated that education imparts the human figures natural abilities to settle social issues and invest in development in farms. Djauhari *et al*. (1987) explained as attitude and verdicts of the peasants relatively rely on the formal education strategy. Education enhances the peasants to obtain knowledge including listening and reading (Kilonzi, 2011). Education supports the peasants to judge social issues and settle with the assistance of information and skills in practicing in farms. Education develops ideas and values for more production of farms. Further, it motivates and enhances the reasonable approach to design a useful strategy for production in a huge amount in an agrarian society. A study of Fatmawati *et al.* (2018), educational information develops friendly attitudes towards agricultural society.

Simply, farmer's experience can mostly be judged with age level factor indicating the production which gained through experience of field tasks (Wiredu *et al.,* 2010). In other words, the experienced farmers stated as the older peasants. (Coughlin, 2012) found as the experienced farmer aged between 40-60 years.(Khan *et al.,* 2008) as counted the experienced age of 42 years. The age factor supports the more farm yield among the families. Thamaga-Chitja *et al.* (2004) revealed that the experienced head of the families who considerably obtain the incomes as compared to young figures of the families.

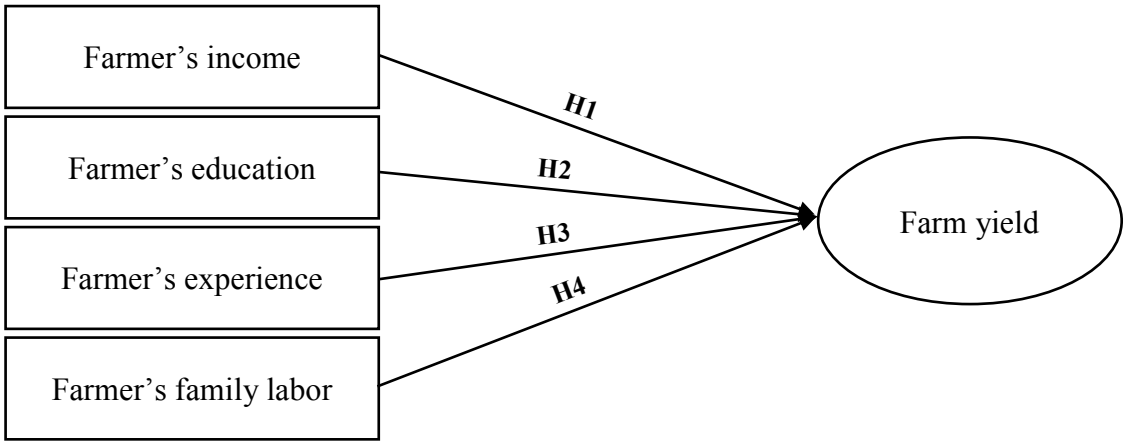
Additionally, old heads along with descendants they work in the different sectors of agrarian portions for economic development and financial assistance in the sense of production in agricultural setups. In a sequel, these heads irrigate agrarian fields with the support of these such children and other family members. Musemwa and Mushunje (2012) narrated as aged peasants they cultivate the whole available fields with the support of their children and respective family members. Thus, they quickly reach for tasks in the areas concerning family members. In addition to explaining that inexperienced (young) peasants remain less interested in agrarian fieldwork and that is a challenging situation to boost up for agricultural tasks (Coster and Adekoya, 2010).

Further, the production can be obtained from the observations, experiences and systematic knowledge (Bonabana-Wabbi, 2002). A study by Thamaga-Chitja *et al.* (2004) an older pleasant employs the tanks for storing maize as compared to modern technology. Thus, older family heads preferred the ancient strategy in a better way. Further, old peasants intend to indicate a suitable approach for possible resources in comparison to young individuals in fieldwork. Henceforth, the age factor as dominated the peasant in place of farm yield (Bonabana-Wabbi, 2002). Thus, older peasants spend many spans of lives in field tasks in the specific practice the then, carrying out the old patterns of doing things in this manner. In this way, a peasant's age can develop or erode confidence for such a field task (Makokha *et al.,* 2001). In a sequel, the age and experience reasoned as farm yield. The outcomes of the study enunciated that income acquisition relied on annual farm income and experience of peasants (Wordofa and Sassi, 2018). Further, the study indicated that family size, experience and income of peasants depend on the different locations and regions on account of farm yield (Mustapha *et al.,* 2018).

Explicitly, the family individuals participate in farm yield in exurban regions (Bagamba *et al.,* 2008). Thus, the entire families including children, married and unmarried couples, older members of families as they work together for farm yield. Hence, they employ to the different strategies including land cultivation and preparation, harvesting and weeding and other reasonable tasks (Oluwasola *et al.,* 2008) as explained that family members positively connected with income production. Babatunde *et al.* (2007) stressed on family extension role in farm yield. According to Kilonzi (2011) emphasized on large family comprised of relative and non-relative as well as own family members assist in farm yield. Further, family labor yields productivity of the farm with the assistance of workload as taken by the family members for farm yield (Diiro *et al*., 2018).

As a result, the above relevant literature ostensibly demonstrated that the income, education, experience, and family labor factor are positively and significantly contributing towards the farm yield. Thus, such the relationships, we proposed the following conceptual model (figure 1) and hypotheses for investigation impacts of these factors on farm yield among the farmers of District Tando Allahyar discussed as:

Figure 1. *The conceptual model developed by the researchers*



H1: *Farmer's income has a positive and significant impact on farm yield.*
H2: *Farmer's education has a positive and significant impact on farm yield.*
H3: *Farmer's experience has a positive and significant impact on farm yield.*
H3: *Farmer's family labor has a positive and significant impact on farm yield.*

Aim and Objectives of the Study

The aim of the current study as set out to examine out the socio-economic factors affecting farm yield in District Tando Allahyar of Hyderabad division. On the basis of such as aim, we proposed the following objectives:

Objective 1- *To investigate the impact of farmer's income on farm yield.*
Objective 2- *To explore the effect of farmer's education on farm yield.*

Objective 3- *To study the impact of farmer's experience on farm yield.*
Objective 4- *To examine the impact of family labor on farm yield.*

Research Methodology

Targeted Population and Sampling Procedure

The present study is based on the quantitative method. The target population selected as the farmers who were household heads and making decisions related to their farms. The stratified sampling as employed for such the study. The stratified sampling technique employed to obtain the representative sample (Kothari, 2004). The population size divided into each stratum as they would have similar samples. We conducted the sampling taluka wise to give equal opportunities to the farmers (Table 1). In total, 190 farmers were contacted personally and got filled the questionnaire.

Table 1. *Area Wise Samples*

S.No.	Taluka	Samples collected	Percentage (%)
1	Chambar	52	27.36
2	Nasirpur	72	37.90
3	Jhando Mari	38	20.00
4	Tando Allahyar city	28	14.74
	Total	190	100.0

Data Collection Instrument and Measures

A questionnaire was used to collect data from the household heads through a survey questionnaire. We targeted those farmers who had knowledge about the areas and well – experienced people in farming in such fields. The questionnaire was translated from English to the Sindhi language to provide comfortable and cohesive information to the respondents. The items for such the survey were developed from the prevalent literature. Besides to this; the socio-economic factors are the effects of population increase, access to land, access to inputs such as seeds and fertilizers, labor and diseases affecting labor, age, income, education (Kilonzi, 2011). Access to inputs like fertilizers and certified seeds may be affected by economic issues. Communal rules on land ownership may dictate access to land for cultivation. These can be sated to be factors that have to do with features of the individual and population, social problems and economic issues. Thus, the researchers selected the following (Table 2) indicators for the remaining of the factors.

Table 2. *Socio-Economic Variables and Their Indicators*

Variables	Indicators/sub-domain	No. of items
Farmer's income	Average monthly expenses	4
Farmer's education	Last level in formal school	4
Farmer's experience	Age of household Head	3
Farmer's family labor	Members in a household	4
Farmer's yield	The last season wheat/corn harvest	19

Ethical Considerations

For the present study, the participants made aware of information regarding farm yield. Further, the shared ken kept as confidential and secure. In this way, general attitudes of social researchers remained as polite and friendly satiation as developed for obtaining data from the participants. Thus, the overall participants have interestingly shown gentle response during the data acquisition process.

Data Analysis and Results Presentation

Thus, analysis of data as covered through the application of mean and frequencies and the percentage tables. Besides this, other statistical techniques including Pearson product-moment correlation coefficient employed to find out relationships between socioeconomic components of respondents and farm yield. Further, Package for Social Sciences (SPSS) and Analysis of Moment Structures (AMOS) version 24.0 for windows employed for confirming the quantitative figure of data in the shape of specific patterns.

Respondents' Background

The respondents' background illustrated that the majority of participants 94.74 percent (n=180) were males as compared to females (5.26 percent or n=10). Concerning age, 37.90 percent (n=72) respondents were in between 31-40 years of age. The minimum number (10.52 percent or n=20) of respondents were less than 20 as well as 51 years and the above. 43.16 percent (n=82) respondents who passed the primary education; 31.58 percent (n=60) respondents did not attend the school. Lastly, only 7.90 percent (n=15) respondents who passed the post-secondary education whereas 05 respondents have other degrees, including diploma and so forth. (Table 3).

Table 3. *Respondents' Background*

	Category	Frequency	Percent
Gender	Male	180	94.74
	Female	10	5.26
	Total	190	100.0
Age	Less than 20	20	10.52
	21-30	42	22.11
	31-40	72	37.90
	41-50	36	18.95
	51 and above	20	10.52
	Total	190	100.0
Education level	Did not attend the school	60	31.58
	Primary	82	43.16
	Secondary	28	14.73
	Post-secondary	15	7.90
	Others	05	2.63
	Total	190	100.0

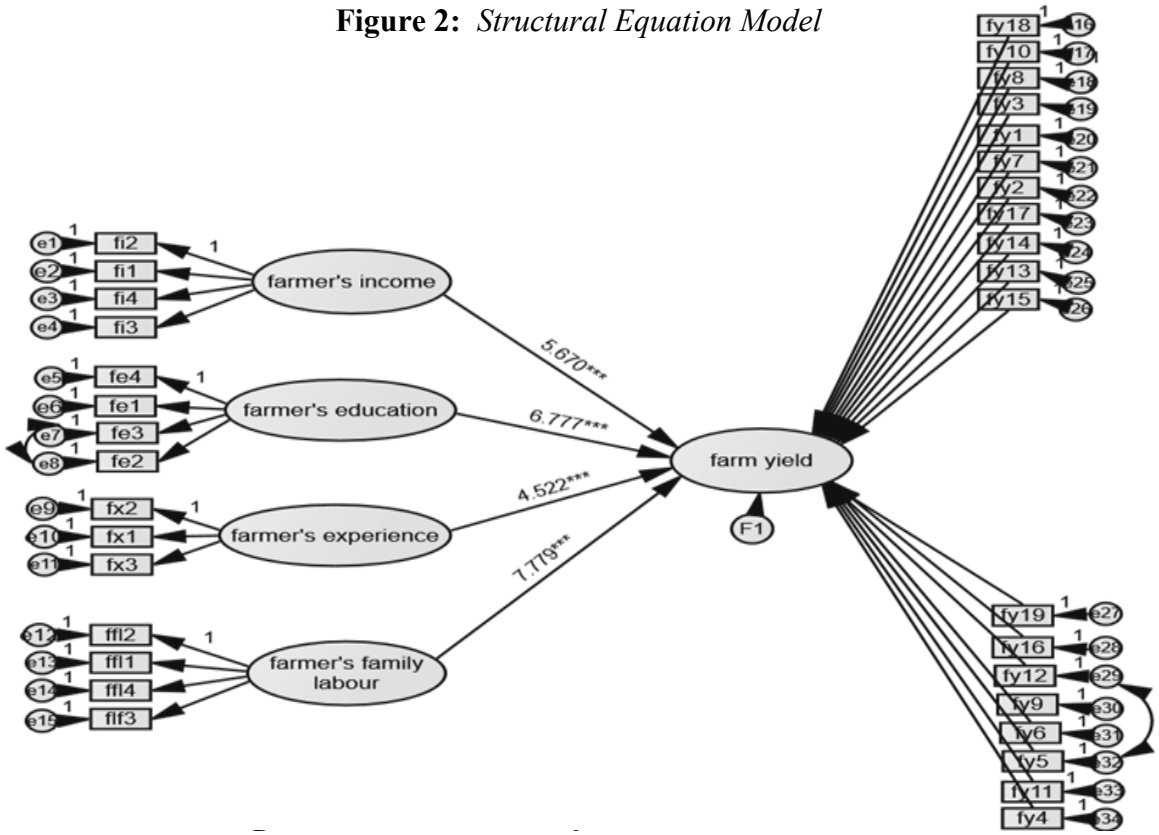
We employed the Structural Equation Modeling to confirm the relationship between dependent and independent variables. The scores of SEM resulted as a positive and significant impact of farmer's income on farm yield (S.E=0.038; C.R=5.670;< 0.01) (Figure 2 and Table 4). Therefore, H1 was accepted. Similarly, The weights of H2, H3 and H4 (H2=S.E=0.067; C.R=6.6777;< 0.01; H3= S.E=0.031; C.R=4.522;< 0.01; H4= S.E=0.048; C.R=7.779;< 0.01) (Figure 2 and Table 4). Thus, H2, H3 and H4 as supported and shown a positive and significant impact of farmer's education; farmer's experience and farmer's family labor with farm yield.

Table 4. *Structural Equation Model Estimations*

H. No.	Dependent variables	Path	Independent variables	Esti-mate	S.E.	C.R.	P	Decision
1	Farm yield	<—	Farmer's income	0.449	0.038	5.670	***	Accepted
2	Farm yield	<—	Farmer's education	0.342	0.067	6.777	***	Accepted
3	Farm yield	<—	Farmer's experience	0.421	0.031	4.522	***	Accepted
4	Farm yield	<—	Farmer's family labor	0.380	0.048	7.779	***	Accepted

Note: S.E=standard error; C.R=critical ratio; p=significance level at < 0.05

Figure 2: *Structural Equation Model*



Discussion and Conclusion

The study aimed to investigate the role of socio-economic components of farm yield in District Tando Allahyar. To explore such the task; we developed the conceptual framework from dependent and independent variables. We applied farm yield as a dependent and farmer's income, experience, education as well as family's labor work in the field as independent predictors. A survey questionnaire employed to gain the exact responses and avoiding the biases of the research task. The results of SEM illustrated as a positive and significant impact of farmer's income, experience, education as well as family's labor on farm yield. These results have concurred with prior studies including Babatunde *et al.* (2007); Oluwasola *et al.* (2008); Kilonzi (2011); Diiro *et al.* (2018); Wordofa and Sassi (2018); Mustapha *et al.* (2018); Fatmawati *et al.* (2018) who investigated the same findings in the different contexts. These results may demonstrate that the farm yield is an outcome of the farm's income; experience; education as well as the family collaboration assisting in the field.

The study has some limitations. The study is only based on quantitative data and covered through the researchers. This method may not offer a clear-cut picture of the farmers' inner feelings. The farm data collected that were from the last growing season experiencing the shortage of water and farmers who may not cultivate larger farm areas as opposed to the long water/rains when farmers cultivate larger farm areas and plant

more crops. In a sequel, the entire consequence of the results shown as a positive and significant effect on farmers' education, income, experience, and further, farmer's family labor towards farm yield. Thus, such the study may be fruitful for regional as well as national policymakers to work out on the policies to alleviate food security insufficiencies and enhance the suitable agriculture strategies as submerged into the social-economic characteristics of the regions for the development of food production.

References

- **Babatunde, R. O., Omotesho, O. A., & Sholotan, O. S. (2007).** Factors influencing food security status of rural farming households in north central Nigeria. *Agricultural Journal,* 2(3), 351-357.
- **Bagamba, F., Burger, K., & Kuyvenhoven, A. (2008).** Determinant of smallholder farmer labor allocation decisions in Uganda. *International Food Policy Research Institute Discussion Paper 00887.*
- **Diiro, G. M., Seymour, G., Kassie, M., Muricho, G., & Muriithi, B. W. (2018).** Women's empowerment in agriculture and agricultural productivity: Evidence from rural maize farmer households in western Kenya. *PLOS ONE* | https:// doi.org/10.1371/journal.pone.0197995.
- **Fatmawati, Lahming, Asrib, A. R., Pertiwi, N., Dirawan, G. D. (2018**). The effect of education level on farmer's behavior eco- friendly to application in Gowa, Indonesia. *Journal of Physics: Conference Series*, 2nd International Conference on Statistics, Mathematics, Teaching, and Research, 1028.
- **Hosseini, S. J. F., Mohammadi, F., & Mirdamadi, S. M. (2011).** Factors influencing the economic aspects of sustainable agriculture in Iran. *World Applied Sciences Journal,* 13(2),1-10.
- **Kilonzi, S. M. (2011).** Maize production and its implication on food security for small scale farmers in Bukhayo West-Busia Kenya. *Van Hall Larenstein University of Applied Sciences, Wageningen.*
- **Lipton, M., & Ravallion, M. (1995).** Poverty and Policy. *In Handbook of Development Economics, Vol. III, edited by J. Behrman and T. N. Srinivasan*, Elsevier Science B.V.
- **Mustapha, M. B., Yusuf, B. I., & Ibrahim, K. (2018).** Determinants of yield among rice farmers: Evidence from Fadama III AF project intervention in Sokoto State. *Journal of Economics and Sustainable Development*, 9(6), 81-87.

- **Mutimba, S., Mayieko, S., Olum, P., & Wanyatma, K. (2010).** Climate change vulnerability and adaptation preparedness in Kenya. *Heinrich Boll Stiftung,* East and Horn of Africa.
- **Oluwasola, O., Idowu, E. O., & Osuntogun, D. A. (2008).** Increasing agricultural household incomes through rural-urban linkages in Nigeria. *African Journal of Agricultural Research*, 3(8), 566-573.
- **Suri, T., Tschirley, D., Irungu, C., Gitau, R., & Kariuki, D. (2009).** Rural incomes, inequality and poverty dynamics in Kenya. *Tegemeo Institute of Agricultural Policy and Development,* Egerton University.
- **Wordofa, M.G., & Sassi, M. (2018).** Impact of farmers' training centers on household income: Evidence from propensity score matching in Eastern Ethiopia. *Social Sciences,* 7(4), 1-12.