



Impact of Non-Farm Activities on Income: A Case of Rural Areas of District Bahawalpur

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ABSTRACT

Over 68% of Pakistan's population lives in rural areas, and they primarily rely on agriculture to make a living. Pakistan's rural non-farm economy is diverse, encompassing a wide range of activities. The objective of the current study is to quantify the effect of rural non-farm activities on rural household's income in Punjab, Pakistan's district of Bahawalpur. For households with lower incomes, the non-farm market is one of their main sources of income. The study's respondents were chosen using a multistage sampling process. A standardized questionnaire was used to collect data throughout five stages. The findings demonstrate that non-farm activities increase the rural household's income and employment. The income of the household is positively and significantly influenced by education and experience. The results also shows that non-farm activities as well as non-farm participants augments rural income. From the policy prospective, it is recommended that in rural areas non-farm activities should be promoted.



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1. Introduction

In order to achieve financial growth and faster industrialization, it has long been understood that there is a structural shift of workers from agriculture into non-agricultural industries (Lewis, 1954). The majority of developing countries' rural non-farm industries are dominated by displaced agricultural workers with no formal education or technical skills. Due to poor educational infrastructure, the bulk of these have high rates of youth and adult illiteracy. These data show that most developing nations have low capital stocks. With such a low level of human capital, rural businesses with minimal skill and education requirements cannot function productively. The non-farm sector significantly contributes to rising income and employment since it employs a sizeable portion of the rural labour force in a variety of occupations including industry, trade, the arts, and services. According to Rola-Rubzen and Hardaker (2003), most Asian countries routinely perform these activities. Since numerous non-farm activities differ

greatly from one another in terms of the yields they produce as well as the entrance requirements, rural non-farm activities cannot be viewed as one set of tasks.

Rural Pakistan has greater rates of poverty, lower literacy, poorer health, restricted access to essential utilities and services, and significant underemployment than metropolitan areas. Over 68% live in rural areas. 39% of people cannot afford basic needs. Pakistan's significant agricultural expansion and rising poverty rates contradict the idea that agricultural growth equals rural development. Growth must assist the less fortunate through increased earnings and jobs or better social services.

Rural landless persons and small farmers can obtain non-farm jobs. Sen (1996) showed that landless people require non-farm activities more. The author found that non-farmers had a lower poverty rate than farmers. Non-farm activities can be split into "high-labor-productivity" tasks that generate high revenue and "low-labor-productivity" actions that generate just supplemental income (Lanjouw, 1999). The poor perform the latter duties more often due to their inferior human capital and lack of material and financial resources.

Table 1
Gender Wise Disaggregated Rural Non-Farm Activities

Non-Farm Activities	Total	%age	Male	%age	Female	%
Food Processing	593	28.5	559	94.26	34	5.73
Sale of food items	425	20.4	380	89.41	45	10.58
Marketing	229	11	192	83.84	37	16.15
Brick lying	139	6.7	132	94.96	7	5.03
Carpentry	70	3.4	68	97.14	2	2.85
Iron work	34	1.6	33	97.05	1	2.94
Private work	101	4.8	98	97.02	3	2.97
Sanitary work	9	0.4	8	88.88	1	11.11
Lumbering	24	1.2	22	91.66	2	8.33
Transportation	30	1.4	30	100	0	0
Storage of farm production	52	2.5	48	92.30	4	7.69
Salon work/ beauty parlor	32	1.5	30	93.75	2	6.25
Electrical Work	51	2.4	51	100	0	0
Commission from sale of land etc.	42	2	42	100	0	0
Others	16	0.8	16	100	0	0

Source: Author's Calculation from Questionnaire

Although the rural non-farm sector has mostly gone unreported in the developing world, it has recently attracted considerable attention due to increased risks of vulnerability and poverty. The developing world is learning how important rural non-farm businesses are to financial development because of their size and ability to respond to rising agricultural output (Idachaba, 1995). There is broad agreement that rural households' anxious conditions cannot be resolved by agriculture advances alone. The agriculture sector's capacity to absorb resources has been depleted, making it unable to provide rural Pakistan's expanding labour force with sustainable livelihood opportunities. Pakistan's rural areas lack opportunities and access to basic utilities like roads, water, sanitary facilities, energy, and communication.

2. Literature Review

According to Mishra (1997) the off-farm work was inversely correlated with farming experience. Farm families with small children were a little more likely to try out off-farm activities. Ellis and Freeman (2004) discovered that reasons for working off-farm were revolutionary falling farm revenue, the need to protect against agricultural manufacturing, and market risk. Farm households are forced into off-farm employment as farming becomes progressively less lucrative and secure due to public pressure, in addition to harvest and economic failures. Similar to this, farm households are dragged into the off-farm employment

when yields to such jobs finally grow bigger and less unstable than an on-farm job. Most researchers have identified both demand-pull and distress-push components. It was shown that off-farm income slightly increased total household income. These results revealed that there were causal links between farm and non-farm revenue sources.

Akram, Naz, and Ali (2011) identified that Pakistani income disparities was explored in relation to plantation labour and other non-farm revenue-generating activities by This research is based on data from Pakistan's Punjab Province's Tehsil Samundri, District Faisalabad. The stratified random sampling technique was used to compile the sample of 104 homeowners. The study found that only farm jobs were negatively related to income level, whereas property owners and livestock proved to be positively and significantly related to income. Most of the three regressions showed that instruction was a significant factor. Education has helped households earn more money. In their study, Olugbire, Falusi, Adeoti, Oyekale, and Adeniran (2011) examined the diversification of non-farm sources of income and how it specifically affected family welfare in rural Nigeria. The 36 states of Nigeria were the sites of the study. It has been done using a two-stage stratified sampling method. A probit model was used to project the propensity score initially. Non-farm income increased household income and welfare.

Fatima (2012) examined rural Pakistani wages and non-farm work. Non-farm tasks affected agriculture, income, and counterfactual income using the Heckman process. All non-farm activity's factors were tested using probit regression. Education, land, and employees associated favourably and substantially with non-farm industry activity. Non-farm activities also boost rural income by offering residents more options. Aloba (2012) examined the factors that affect the income of Senegalese and Kenyan rural farm owners. The study's foundation was a 2008 qualitative cross-sectional survey conducted in Kenya and Senegal. The Tobit regression design has even been used to analyse the factors affecting income. The findings revealed that the most important factors affecting cash flow would be transportation, education, farm size, and irrigation use. Self-employment was the main non-farm income source. In Senegal and Kenya, non-farm resources contributed 48.8% and 58.8% to household cash flow, respectively.

Chawanote and Barrett (2013) conducted research on the dynamics of rural non-farm employment and income in rural Thailand. To evaluate the variations in wages related to agricultural and non-farm jobs, a multivariate regression analysis was carried out. The results showed that self-employment produced lower average yields than compensated non-farm employment. It had been discovered that the amount of non-farm work in rural areas had a significant impact on wages growth. Zheng, Ma, Guo, and Zhou (2022) showed joint effect of mechanized service spending and non-farm employment. Non-farm employment raises mechanized service expenses. Dichotomous mechanization service utilization estimations support the findings. Family size and gender effect mechanization service spending and non-farm employment. Additional study suggests that mechanized service spending grows with non-farm working time, local non-farm employment has a higher influence than provincial, and household size does not alter it.

Pakistan's rural non-farm economy is vast and varied, like other developing nations. Exploring all non-farm activities helps diversify. Pakistan's non-farm economy is well-documented. Adams (1994) examined income disparity and non-farm work. Rural non-farm activities boost employment and reduce poverty. The non-farm sector's impact on Pakistan's revenue generation has been overlooked. This study is crucial to linking income and non-farm activities and providing policy recommendations for rural income production by improving the deeper drivers of non-farm sectors. Because non-farm activities are growing in rural economies. This study measures the impact of non-farm activities on rural household income while taking into account the non-farm sector's role in agricultural expansion. This study has three purposes. Non-farm work characteristics will be examined first. Finally, we'll calculate household income from non-farm activities. Estimate non-farm household income first.

3. Data and Methodology

Bahawalpur is one of the districts of Punjab, Pakistan with a total population of 3668091 of which more than 72 % live in rural areas. It consists of five tehsils, Ahmedpur Sharqia with 31 union councils, Bahawalpur with 36 union councils, Hasilpur with 14 union councils, Khairpur Tamewali with 8 union councils and Yazman with 18 union councils. A multistage sampling technique was used to select respondents for the study. Data were collected in five stages with the help of a structured questionnaire. In stage one, Bahawalpur tehsil was selected. In stage two, Ahmedpur East, in stage three Khairpur Tamewali, in stage four Hasilpur, and in stage five Yazman tehsil were selected for data collection. The total sample size is 2084.

To measure the impact non-farm activities on the income of the rural household we have formulated the following functional relationship.

$$Y_i = \alpha_0 + \beta_i X_i + \delta_i Z_i \quad (1)$$

Where Y_i is household income taken as the dependent variable, X_i is the vector of non-farm characteristics and Z_i is the vector of socioeconomic characteristics. To quantify the impact of non-farm activities on the income of the rural household we have formulated the following econometric specification.

$$HOUSEINC = \alpha_0 + \beta_1 NFA + \beta_2 NFPART + \beta_3 NATNF + \beta_4 EXP + \beta_5 AGE + \beta_6 SEX + \beta_7 EDU + \varepsilon_i \quad (2)$$

In the above equation 2, HOUSEINC is Household Income, NFA is a non-farm activity, NFPART is non-farm participation, NATNF is nature of non-farm work, EXPNF is an experience of non-farm work, AGE is the age of the household, SEX is the gender of household, EDU is the education status of the household. It is hypothesized that non-farm activities, education, and experience have a positive impact on household income. It is also speculated that the age and sex of the household have a positive association with household income.

Table 2
Definitions of the Variables

Names of Variables	Measurement	Survey Question
Household Income (HOUSEINC)	Continuous In Log	Total Income of the Household including Farm and Non-Farm
Non-Farm Activity (NFA)	Dichotomous Yes=1, Otherwise=0	Do you participate in off-farm work?
Non-Farm Participants (NFPART)	Trichotomous Reference: Husband=0 Husband and Wife=1 Husband, Wife and Child=2	Who in your household participates in off-farm work?
Non-Farm Work Nature (NATNF)	Trichotomous Reference: Work only on Farm=0 Part Time Non-Farm=1 Full Time Non-Farm=2	Off-farm work pattern.
Experience (EXP)	Continuous In Years	Number of years of off-farm work
Age of Respondent (AGE)	Continuous In Years	Age of Household Head
Sex of Respondent (SEX)	Dichotomous Male=1, Female=0	Sex of Household Head
Education of Respondent (EDU)	Dichotomous Educated=1 Otherwise=0	Education of Household Head

4. Empirical Results and Discussion

The table 3 reveals a positive and significant relationship between non-farm activities and household income. According to Kwon, Orazem, and Otto (2006), households experienced significant swings in agricultural income as a result of price and weather fluctuations. Farm households frequently used non-farm operations as futures forward contracts in order to reduce sensitivity to these kinds of problems or to minimize the effects of those developments. The share of nonfarm income to total household income is determined by the amount of household income. When compared to higher income earners, low-income earners are thought to have a lower share of nonfarm activities.

Table 3
Impact of Non-Farm Activities on Household Income

DV: Household Income	Coefficient	Standard Errors	T Statistics	Probability
Non-Farm Characteristics				
Non-Farm Activity	0.0848525	.0239802	3.54	0.000
Non-Farm Participants				
Husband and Wife	0.0445487	.0167493	2.66	0.008
Husband, Wife and Child	0.0446683	.020974	2.13	0.033
Non-Farm Work Nature				
Part Time	0.023976	.0280357	0.86	0.393
Full Tim	0.044123	.0242289	1.82	0.069
Socioeconomic Characteristics				
Experience	0.0040938	.0009117	4.49	0.000
Age of Respondent	0.0068414	.0010127	6.76	0.000
Sex of Respondent	0.0188024	.0318647	0.59	0.555
Education of Respondent	0.0923593	.0157273	5.87	0.000
Constant	5.128625	.0502234	102.12	0.000
Observation	2077			
R-squared	0.0887			
F-Stat	21.57			
Prob-F	0.000			

Notes: * denotes significant at 5%.

During the survey, it was discovered that the nonfarm income share of the household participating in nonfarm activities is determined by the household's income status. The rate of farm household diversification into non-farm activities to increase farm income and capital has increased as farm revenue has become more insecure (De Janvry & Sadoulet, 2001). Off-farm income reduced the absolute unpredictability of income (Mishra & Sandretto, 2002). Furthermore, relative to the inclination to spend from farm revenue, the marginal propensity to non-farm cash flow is significantly higher (Carriker, Langemeier, Schroeder, & Featherstone, 1993). The majority of developing countries' rural non-farm industries are dominated by displaced agricultural workers with no formal education or technical skills. Due to poor educational infrastructure, the bulk of these have high rates of youth and adult illiteracy. These data show that most developing nations have low capital stocks.

With such a low level of human capital, rural businesses with minimal skill and education requirements cannot function productively. Farm households are forced into off-farm employment as farming becomes progressively less lucrative and secure due to public pressure, in addition to harvest and economic failures. Similar to this, farm households are dragged into the off-farm employment when yields to such jobs finally grow bigger and less unstable than an on-farm job. The non-farm sector significantly contributes to rising income and employment since it employs a sizeable portion of the rural labour force in a variety of occupations including industry, trade, the arts, and services. The reasons for working off-farm were revolutionary falling farm revenue, the need to protect against agricultural manufacturing, and market risk.

Farm households are forced into off-farm employment as farming becomes progressively less lucrative and secure due to public pressure, in addition to harvest and economic failures.

Similar to this, farm households are dragged into the off-farm employment when yields to such jobs finally grow bigger and less unstable than an on-farm job. Most researchers have identified both demand-pull and distress-push components. It was shown that off-farm income slightly increased total household income. These results revealed that there were causal links between farm and non-farm revenue sources. The number of non-farm members is likewise more significant for generating household income.

According to the findings, the household's income will grow greatly if the entire family participates in non-farm activities as opposed to either just the husband or both the husband and wife working. Our findings also suggest that non-farm activities' characteristics have a considerable impact on household income. It is evident that households with either part-time or full-time employment in nonfarm activities make more money than those whose only source of income is from farming. A guy and a younger member of the family make more money than a female does. Similar to this, other socioeconomic factors including household education and experience are positively and significantly correlated with household income.

5. Conclusion and Policy Implications

In this study, we examine how rural non-farm activities affect a rural household's income in the district of Bahawalpur in Punjab, Pakistan. Empirical research has been done to determine how much non-farm income farm households depend on. The results of the current study showed that engaging in non-farm activities increases household income (Li, Song, & Sun, 2022). This showed that off-farm income significantly contributed to lowering the variability in agricultural revenue. With this as a base, government officials might craft intentional rural development programmes that would encourage small farmers to pursue self-employment opportunities and non-agricultural wage jobs in order to enhance their off-farm income (Zheng et al., 2022). Because the reinvestment of that non-farm money would help increase agricultural output and size (Ebaidalla, 2022). In order to improve management ability, reduce stiffness in labour mobility, and ensure effective labour allocation between the agricultural and non-agricultural sectors, the government should also concentrate on and invest in the rural education sector.

Authors Contribution

Syed Mumtaz Ali Kazmi: introduction, literature search, data collection, data analysis

Syed Muhammad Imran: data collection, data interpretation

Ismat Nasim: study design and concept, writing-original draft

Muhammad Ayub: proofreading, critical revision

Conflict of Interests/Disclosures

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References

- Adams, R. H. J. (1994). Non-farm income and inequality in rural Pakistan: A decomposition analysis. *The Journal of Development Studies*, 31(1), 110-133. doi:<https://doi.org/10.1080/00220389408422350>
- Akram, W., Naz, I., & Ali, S. (2011). An empirical analysis of household income in rural Pakistan: evidences from tehsil Samundri. *Pakistan Economic and Social Review*, 49(2), 231-249.
- Alobo, S. (2012). *Determinants of rural household income diversification in Senegal and Kenya*. (PhD Dissertation), Lund University, Sweden.

- Carriker, G. L., Langemeier, M. R., Schroeder, T. C., & Featherstone, A. M. (1993). Propensity to consume farm family disposable income from separate sources. *American Journal of Agricultural Economics*, 75(3), 739-744. doi:<https://doi.org/10.2307/1243581>
- Chawanote, C., & Barrett, C. B. (2013). Non-farm occupational and earnings dynamics in Rural Thailand. In (Vol. 2025). Ithaca, New York: Cornell University Charles H. Dyson School of Applied Economics and Management.
- De Janvry, A., & Sadoulet, E. (2001). Income strategies among rural households in Mexico: The role of off-farm activities. *World development*, 29(3), 467-480. doi:[https://doi.org/10.1016/S0305-750X\(00\)00113-3](https://doi.org/10.1016/S0305-750X(00)00113-3)
- Ebaidalla, E. M. (2022). Understanding participation in non-farm activities in rural Sudan: across-sector study of irrigated and rainfed agricultural systems. *International Journal of Social Economics*, 49(11), 1589-1606. doi:<https://doi.org/10.1108/IJSE-02-2022-0092>
- Ellis, F., & Freeman, H. A. (2004). Rural livelihoods and poverty reduction strategies in four African countries. *Journal of development studies*, 40(4), 1-30. doi:<https://doi.org/10.1080/00220380410001673175>
- Fatima, A. (2012). Exploring the linkages between rural incomes and non-farm activities. *Journal of Agriculture and social sciences*, 8(3), 81-86.
- Idachaba, F. S. (1995). *Human capital and African agricultural development*. Retrieved from Kwon, C. W., Orazem, P. F., & Otto, D. M. (2006). Off-farm labor supply responses to permanent and transitory farm income. *Agricultural Economics*, 34(1), 59-67. doi:<https://doi.org/10.1111/j.1574-0862.2006.00103.x>
- Lanjouw, P. (1999). Rural nonagricultural employment and poverty in Ecuador. *Economic development and cultural change*, 48(1), 91-122. doi:<https://doi.org/10.1086/452448>
- Lewis, W. A. (1954). Economic development with unlimited supplies of labour.
- Li, J., Song, S., & Sun, G. (2022). Non-Farm Employment, Farmland Renting and Farming Ability: Evidence from China. *International Journal of Environmental Research and Public Health*, 19(9), 5476. doi:<https://doi.org/10.3390/ijerph19095476>
- Mishra, A. K. (1997). Farm income variability and the off-farm labor supply of farm operators and their spouses. *American Journal of Agricultural Economics*, 79(3), 880-887.
- Mishra, A. K., & Sandretto, C. L. (2002). Stability of farm income and the role of nonfarm income in US agriculture. *Applied Economic Perspectives and Policy*, 24(1), 208-221. doi:<https://doi.org/10.1111/1058-7195.00014>
- Olugbire, O., Falusi, A., Adeoti, A., Oyekale, A., & Adeniran, O. (2011). Non-farm income diversification and poverty reduction in Nigeria: A propensity-score matching analysis. *Continental Journal of Agricultural Science*, 5(3), 21-28.
- Rola-Rubzen, M. F., & Hardaker, J. B. (2003). Ag econ angst crisis revisited: a rejoinder. *Australian Journal of Agricultural and Resource Economics*, 47(2), 275-279. doi:<https://doi.org/10.1111/1467-8489.00213>
- Sen, B. (1996). Rural Non-farm Sector in Bangladesh: Stagnating and Residual, or Dynamic and Potential? *The Bangladesh Development Studies*, 24(3/4), 143-180.
- Zheng, H., Ma, W., Guo, Y., & Zhou, X. (2022). Interactive relationship between non-farm employment and mechanization service expenditure in rural China. *China Agricultural Economic Review*, 14(1), 84-105. doi:<https://doi.org/10.1108/CAER-10-2020-0251>