

Research Article



Comparison of Off-farm Employment among Developed and Underdeveloped Villages in Peshawar Valley of Khyber Pakhtunkhwa-Pakistan

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Abstract | This paper examines the comparison of off-farm employment among developed and under developed villages in Peshawar Valley of Khyber Pakhtunkhwa-Pakistan during February 15 to July 27, 2018 by using research tools such as interview schedule. A sample of 298 small farm households were selected using random sampling technique for this study. Analysis showed that small farmers of developed villages perform more off-farm employment than small farmers of underdeveloped villages. This could be associated to the developed means of transport and communications, better education facilities, market facilities as well as availability of off-farm jobs locally. Furthermore, in developed villages average per month income of small farm households from farm output was higher than the underdeveloped villages due to the high sale price of vegetables grown on large area and more milk production. Similarly, in developed villages income from off-farm employment was more than underdeveloped villages. Because large number of family labors of small farmers were working on high paid jobs or employed else or self-employed and thus contributed a good amount to their family's income. Firstly, for removing the barriers to the entry of the small farmers into the rural off-farm sector efforts should be made. It demands better educational level in rural areas. Secondly, there should expansion in agricultural wages in rural area.

Received | March 29, 2019; **Accepted** | January 30, 2020; **Published** | March 03, 2020

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Citation | Ali, H., M.M. Shafi, H. Khan and H. Haidar. 2020. Comparison of off-farm employment among developed and underdeveloped villages in Peshawar valley of Khyber Pakhtunkhwa, Pakistan. *Sarhad Journal of Agriculture*, 36(1): 342-347.

DOI | <http://dx.doi.org/10.17582/journal.sja/2020/36.1.342.347>

Keywords | Developed and underdeveloped villages, Dummy variable, Farm and off-farm income, Regression model, Peshawar valley

Introduction

Rural off-farm sector playing a vital role in rural development. Traditionally, though in developing countries many rural households were engaged in agriculture sector. But there is a lot of evidence that rural small farmers can have often multiple source of income i.e. self -employment in commerce, manufacturing and service sector and wage employment (non-farm sector). Such non-farm

incomes can contribute significantly to total incomes of farming households in developing countries (Ali et al., 2014).

The agriculture sector is the backbone of underdeveloped economies, providing the food supply and labor force for emerging manufacturing and service industries. But agricultural productivity is generally low in underdeveloped economies due to inefficiencies in production and exchange. The most

notable hindrance to agriculture productivity growth is the imperfection of labor and capital markets. While employment opportunities are few in rural areas, labor shortages may arise in the peak season as an increasing number of rural residents are withdrawn to cities for better-paid jobs (Ali et al., 2014). Farmers in developing countries are frequently facing financial constraints to productive investments. Off-farm activities in rural areas of Pakistan seem to offer a promising solution to these problems by creating local employment opportunities and generating new sources of income for investment (Babatunda, 2017). Evidence is abundant that off-farm activities have made significant contribution to the growth of rural economies and to rural poverty reduction.

In Pakistan, large population relying on agriculture still living below poverty line the main reason behind this scenario seems to be the low level of their income due to unequal distribution of landholdings, disguised unemployment, traditional methods of production, low productivity. Farm size is shrinking due to land fragmentation and law of inheritance in rural areas of Khyber Pakhtunkhwa small farm holders find it difficult to make both ends meet exclusively from agriculture. Farmers work hard throughout the years but when they sell their product, they do not get the reward for all this hardship. Stagnant agricultural productivity and low returns in farming have led rural residents in rural areas of Khyber Pakhtunkhwa to look elsewhere for alternative or supplemental income opportunities, primarily through off-farm employment (Khan, 2007).

In this respect, the present research is an effort; with the goal to identify the comparison among developed and underdeveloped villages in Peshawar Valley of Khyber Pakhtunkhwa.

Materials and Methods

The area selected for intensive research consists of six villages namely Dawood Zai, Rajjar, Mado, Garhi Baghbanan, Mufti Abad and Mian Khan. Selection of villages were based on the backwardness and development factors i.e. road infrastructure, health facilities, education facilities etc. From the above perspective Mado, Rajjar and Dawood Zai were comparatively developed villages while Mian Khan, Mufti Abad and Garhi Baghbanan were comparatively underdeveloped villages. Almost all

type of infrastructural facilities including transport, communication, education, health and markets were available in above named developed villages. On other hand, all the aforementioned facilities were lacking in above named underdeveloped villages. The prevailing wellspring of livelihood is farming in these villages.

Census is difficult in view of restriction enforced by limited time and financial constraints. Therefore, 20% sample size was settled and were properly divided into above mentioned villages through proportional allocation method. Furthermore, unit of analysis for the present research was household. Data were collected from the head of small farmers at household level. Primary data were collected from 298 households out of 1491 small farm households by interviewing the head of the sample household in person.

Multiple regression model OLS (ordinary least square model) with dummy variables for comparison of off-farm employment among developed and underdeveloped villages was used. A similar model was also used by Khan (2007) and Mecharla (2002).

For the above purpose the following multiple regression model with dummy variables was used.

$$Y_i = \beta_0 + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \beta_4 D_4 + \beta_5 D_5 + \varepsilon_i \dots (1)$$

Whereas;

β_0 = Intercept or constant term; β_1 to β_5 = Regression coefficients; Y_i Off-farm employment of household i (Hours/Week); D_{1i} 0 Otherwise, 1 If household i belong to Dawood Zai village; D_{2i} 0 Otherwise, 1 If household i belong to Garhi Baghbanan village; D_{3i} 0 Otherwise, 1 If household i belong to Mado village; D_{4i} 0 Otherwise, 1 If household i belong to Mian village; D_{5i} 0 Otherwise, 1 If household i belong to Rajjar village; ε_i Error term.

Results and Discussion

Average time spent by small farm households on off-farm employment according to farm size in the research area is shown in Table 1. According to which highest (39.79 hours) average working hours used up per week on off-farm employment was noted on farm size up to 1 acre followed by from 1.1 to 2 acre (34.95 hours), from 2.1 to 3 acre (26.23 hours), from 3.1 to 4 acre (19.26 hours) and above 4 acre (12.98 hours) in overall developed and underdeveloped villages.

Table 1: Time Spent by Sample Households on Off-Farm Employment per Week (Hour).

Farm Size (acre)	Time Spent of Small Farm Households in (Hours)						Overall
	Peshawar		Charsadda		Mardan		
	Dawood Zai	Garhi Baghbanan	Rajjar	Mufti Abad	Mado	Mian Khan	
Up to 1	49.75	36.50	42.50	30.50	44.50	35.00	39.79
1.1-2	43.25	33.50	39.00	23.65	41.75	28.55	34.95
2.1-3	33.65	21.90	29.80	16.00	33.50	22.50	26.23
3.1-4	24.40	17.65	22.75	13.30	23.60	13.85	19.26
Above 4	18.20	11.40	17.00	5.95	17.50	7.85	12.98
All Farms	39.52	30.65	34.07	22.36	36.59	24.66	31.94

Source: Field Survey, 2018.

Table 2: Small farm households income from farm output.

Particulars	Household Income from Farm Output per Month (PKR)						Overall
	Peshawar		Charsadda		Mardan		
	Dawood Zai	Garhi Baghbanan	Rajjar	Mufti Abad	Mado	Mian Khan	
Maximum	6050	4950	6740	5170	6450	5020	34380
Minimum	2750	2450	3620	2950	3250	2870	17890
Average	4400	3700	5180	4060	4850	3945	26135

Source: Field Survey, 2018.

With the increase in farm size working hours spent per week on off-farm employment was decreased and vice versa. Which show the presence of negative relationship between farm size and off-farm employment. Sampled respondents belonging to farm size up to 1 acre spent per week average working hours on off-farm employment were more in the research area as compared to small farmers belonging to different categories of farm sizes i.e. (from 1.1 to 2 acre, from 2.1 to 3 acre, from 3.1 to 4 acre and above 4 acre). The reasons were the involvement of more family labors in farming activities. Furthermore, in developed villages sample farm households spent more average working hours on off-farm employment as compared to underdeveloped villages of three districts. Which means that opportunity and accessibility to off-farm jobs (govt. jobs, part time employment and small business activities) and local markets are more as compared to underdeveloped villages. The aforementioned findings are identical with the results (i.e. off-farm activities were more in developed villages as compared to underdeveloped villages) found by Babatunda (2017), Monica (2003) and Vijay (2017) in their study area.

Detail explanation regarding income from farm output of small farm households are given in Table 2. In the research area small farmers' average per month

income from farm output was 26135 PKR ranging from 34380 to 17890 PKR.

Income from farm output of small farmers belonging to underdeveloped villages was lower than the sample small farmers of developed villages. In developed villages the possible reason may be high sale price of vegetables grown on large area and more milk production. While in underdeveloped villages the price of vegetables was low it may be due to the remoteness, lack of awareness among sample households and backwardness of infrastructure. The above results showed similarity with the findings of Kuhn (1989) and Babatunda (2017).

Self-employment i.e. retailers, wholesalers, transport operators and private entrepreneurs as well as remittances of the family members of small farmers are also part of off-farm employment. Furthermore, seasonal skilled and semi-skilled jobs like carpentry, brick lying, blacksmith, and employment in public and private sectors are also including in off-farm employment.

Table 3 illustrates average per month income of sample households from off-farm employment in developed and underdeveloped villages which was 38950 PKR ranging from 26450 to 51450 PKR.

Table 3: *Sample Respondents income from off-farm employment per month (PKR).*

Particulars	Household Income from Off-farm Employment per Month in (PKR)						
	Peshawar		Charsadda		Mardan		Overall
	Dawood Zai	Garhi Baghbanan	Rajjar	Mufti Abad	Mado	Mian Khan	
Maximum	10000	8250	8950	7350	9050	7850	51450
Minimum	5000	3950	4550	3450	4950	4550	26450
Average	7500	6100	6750	5400	7000	6200	38950

Source: Field Survey, 2018.

Table 4: *Off-farm occupational status among sample households.*

Types	Percentage Off-farm Occupational Pattern in						
	Peshawar		Charsadda		Mardan		Overall
	Dawood Zai	Garhi Baghbanan	Rajjar	Mufti Abad	Mado	Mian Khan	
Permanent Employees	8 (19.51)	4 (11.43)	12 (25)	5 (15.15)	10 (22.22)	3 (10)	42(18.10)
Trade and Commerce	14 (34.15)	10 (28.57)	16 (33.33)	13 (39.39)	17 (37.78)	12 (40)	86 (37.07)
Daily Paid Labors	19 (46.34)	21 (60)	20 (41.67)	15 (45.46)	18 (40)	15 (50)	104 (44.83)
All	41 (100)	35 (100)	48 (100)	33 (100)	45 (100)	30 (100)	232 (100)

Source: Field Survey, 2018.

For small farmers belonging to underdeveloped villages average per month income was lower than the small farmers belonging to developed villages. It means sample small farm households from developed villages were donating a good amount to their family's income because large number of their family labor were self-employed i.e. wholesalers, retailers, or private entrepreneurs or working on high income paid jobs. It indicating that small farmers from developed villages were having more education than sample farm households of underdeveloped villages. The findings of Den and Kumbi (2006), Giorgi (2001) and Zahid (2006) are supporting the results. They founded that average per month income of small farmers belonging to developed villages from off-farm employment were more than small farmer from underdeveloped villages.

For comparison purpose classification of the sampled respondents were made into three main occupational groups such as trade and commerce (business activities), daily paid labor and permanent employee.

Results in Table 4 clarify that in developed and underdeveloped villages almost (77.85%) small farmers were serving in various type of off-farm employment. Furthermore, in the research area majority (44.83%) was found to be daily paid labors followed by (37.07%) trade and commerce and (18.10%) permanent employee (government). The aforementioned results and facts had given a clear view that majority small farmers were performing off-farm

employment for expanding their income sources. The above findings are supported by the results of Kuhnen (1989), Siphambe (2003), Bojnee and Dries (2005) and Zahid (2006). According to them the majority of daily paid among small farmers were more in the research area because of low level of education.

Table 5: *Comparison of off-farm employment on the basis of developed and underdeveloped villages (Hours/Week).*

Name of Villages	Coefficients	Std. Error	t-ratio	P-value
D ₁ (Dawood Zai)	23.05	1.96	11.76	.000***
D ₂ (Garhi Baghbanan)	6.35	1.28	4.96	.000***
D ₃ (Mado)	19.58	1.89	10.36	.000***
D ₄ (Mian Khan)	2.53	.62	4.08	.000***
D ₅ (Rajjar)	13.87	1.84	7.54	.000***
Constant	47.30	1.90	24.89	.000***

NS: Non Significant; ***Highly Significant R-squared: 0.453; Adjusted R-squared: 0.442; F-statistic: 64.766; P-value (F):.000; Note: Village Mufti Abad is a base category.

Results regarding developed and underdeveloped villages of sample farm households are presented in Table 5. As the F-statistic is highly significant so the model is overall significant. The value of t-ratio indicating that individually the results of each variable is significant and can be accepted at 95% confidence level. As p-values of the coefficients D₁, D₂, D₃, D₄, and D₅ are quite low so the slop coefficients of the respective variables are statistically significant. Constant is the base category and show

the overall off-farm employment (47.30 hours/week) of underdeveloped village Mufti Abad. Therefore, the comparison of developed and underdeveloped villages are made in relation to this category. Compared with this, the off-farm employment for those who are in developed village (Dawood Zai) of district Peshawar is higher by 23.05 hours/week, for an actual off farm employment 70.35 hours/week ($= 47.30+23.05$). While, the off-farm employment for those who are in underdeveloped village (Garhi Baghbanan) of district Peshawar is higher by 6.35 hours/week, for an actual off-farm employment of 53.65 hours/week ($=47.30+6.35$). Similarly, the off-farm employment for those who are in developed village (Mado) of district Mardan is higher by 19.58 hours/week, for an actual off-farm employment 66.88 hours/week ($=47.30+19.58$). On other hand, the off-farm employment for those who are in underdeveloped village (Mian Khan) of district Mardan is higher by 2.53 hours/week, for actual off-farm employment 49.83 hours/week ($=47.30+2.53$). In a similar manner, the off-farm employment for those who are in developed village (Rajjar) of district Charsadda is higher by 13.87 hours/week, for an actual off-farm employment of 61.17 hours/week ($=47.30+13.87$). Sampled respondents belonging to developed villages are performing more off-farm jobs as compared to underdeveloped villages. It may be because of easy accessibility to local markets and possibility of more off-farm jobs in developed villages as compared to underdeveloped villages such as govt.jobs, part time employment and small business activities. These results are consistent with the findings conducted by Vijay (2017), Babatunda (2017), Tahir (2008), Zahid (2006), and Monica (2003).

Conclusions and Recommendations

In Peshawar Valley agriculture is the major source of employment for farmers. Major portion of general population occupied with farming were illiterate or with level of education. As the holding size in Khyber Pakhtunkhwa is small so the off-farm employment is a common phenomenon in the agriculture sector. Furthermore, it was also observed that sample small farmers belonging to developed villages performed more off-farm employment than underdeveloped villages. It may be because of easy accessibility to local markets and possibility of more off-farm jobs in developed villages as compared to underdeveloped villages such as govt. jobs, part time employment and small business activities.

On the basis of the research study, following recommendations are suggested.

1. To increase and diversify small farm households' income governments should create more off-farm employment opportunities (i.e. training for unskilled labor, cottage industries, credit facilities for starting small businesses etc.) in underdeveloped villages as well as in developed villages. It will not only help in reducing income inequality and poverty but also will work as an engine for economic growth.
2. Fragmented farmland and limited profitable investment opportunities has held back agriculture productivity growth of Pakistan for farmers. Therefore, land reform and increased research and extension efforts are needed for stimulating agricultural productivity growth in Pakistan.

Novelty Statement

Novel of this study is stagnant agricultural productivity and low returns to the farming in rural areas of Khyber Pakhtunkhwa have led them to look for alternative or supplemental income opportunities, primarily through off-farm employment.

Author's Contribution

HA conceived the idea and wrote the manuscript as well as he also worked in modeling and analysis. This research work was supervised by MMS and co. supervised by HK. HH helped in data collection and manipulation of data.

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