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Research Article

Socioeconomic Factors Influencing Choice of Livelihoods in Rural Areas

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Abstract

This study investigated the socioeconomic determinants of livelihood choice among farmers in Pakistan. Using a multistage sample technique, 160 rural inhabitants were selected for this study. Using an organized interview schedule, a focused group discussion, and personal observation, data were gathered and then analyzed using descriptive statistical techniques, such as the mean, frequency counts, and percentages. Using a multivariate regression analysis using ordinary least squares, socioeconomic factors influencing the choice of livelihood in the region were found. The majority of participants were male (57 percent), married (95 percent), older than 40 years (87.5%), and older than 40 years on average (54 years). The average number of years respondents spent in school was 10, their average household size was seven, and their average monthly income was 21,000 rupees. With corresponding means of 3,7 and 2,9, agriculture and commerce were assessed to be the principal means of sustenance for rural dwellers in the region. Age, years of education, and monthly income were most significant socioeconomic factors influencing livelihood activities in the region.

Keywords: Socio-economic, factors, rural dwellers, livelihood activities, rural areas.

Introduction

The structure of rural Pakistan's means of subsistence has changed dramatically during the past few decades. A substantial portion of rural Pakistan is marked by poverty and suffering. As in many other developing nations, rural poverty in Pakistan is multifaceted, including economic and social vulnerability, growing levels of physical and financial poverty, gender inequality, a poor governance structure, and inadequate human capital (Munawar et al., 2021). The ever-increasing population and diminishing capacity of the agriculture sector to absorb new workers have led to a significant increase in the need for non-farm jobs (Mozumdar, 2012). The majority of landowners manage their land using capital-intensive technology as opposed to labor-intensive methods.

Institutional impediments and a lack of or limited access to essential physical and human resources impede the rural Pakistani population's ability to accomplish the necessary outcomes for their livelihood (Sajid et al., 2017). However, there is scant evidence of rural residents engaging in various income-generating activities. Which tactics do they employ, and why? What are their priorities and the rate and course of their accomplishments? In

addition, it is necessary to identify the dynamics that impact an individual's decision to select a certain income-generating activity. Changes in the structure of rural economies are a continual process, and a comprehensive understanding of these changes is essential for the creation and implementation of successful policies.

A common perception of Pakistan's rural economy is that it relies only on agriculture and related sectors. However, there is emerging evidence that the rural economic sector encompasses much more than farming since it includes individuals from all vocations, social and economic activities, physical and social infrastructure, and diverse natural resources(Azam & Shafique, 2017). Therefore, rural livelihoods consider both the revenue received from economic activity and a comprehensive approach to policies for rural livelihoods. Different researchers identify three fundamental rural livelihood strategies: agricultural intensification, livelihood diversification, and rural-urban migration. Similarly, the likelihood of sustaining a living improves when rural households embrace a variety of activities and assets for their survival and quality of living enhancement(Giuliani, 2012). This diversity is, however, in many cases subsistence-based. In situations where agricultural revenue is insufficient to fulfill the needs of the farmers, rural residents also utilize the technique of multiple employment in addition to their farming operations(Hufnagel et al., 2020).

Studies have presented empirical evidence that a growing proportion of individuals in the developing world are engaged in non-agricultural activities. However, the off-farm employment arrangements are complex and varied, ranging from roadside "vendors" to those requiring assets and capital(Mmasa et al., 2012). The tactics for generating a rural household's means of subsistence often differ between the poorest and richest rural families. Historically, rural households in developing nations have had little control over and access to resources. However, effective exploitation of resources and control over time has led to an improvement in their socioeconomic condition(Cook & Frank, 2008).

A comprehensive literature analysis reveals that the selection of diverse informal economic activities by rural households is contingent on a variety of criteria. The family size and number of working household members (household composition) play a crucial effect in informal employment (Sajid et al., 2017). Increased participation in non-agricultural economic activities is a consequence of Pakistan's growing population, particularly in rural regions, and rising dependence ratio. Due to the rising population and urbanization rates in Pakistan over the past few decades, both the agricultural and non-agricultural employment sectors must absorb more workers (Anila Sultana, 2011).

In research on income diversification techniques in rural China, (Amaral et al., 2013) discovered that participation in both on-farm and off-farm activities contributes significantly to the income growth of rural households. This article examines the factors that influence the income diversification strategies of rural families. At the household level, income diversification occurs through within-farm (non-grain producing) activities, such as commercialized farming, local off-farm work (based on household assets), and migration (depends on household size). The study reveals a gender and age skew in the adoption of off-farm activities. The majority of off-farm income-generating activities are performed by males and younger family members. Similarly, village networks have a substantial impact on participation in non-agricultural activities.

Participation in non-farm employment contributes to the diversification of income and alleviation of poverty. (Alinovi et al., 2010) discovered that education, age, ethnicity, region, and gender play significant roles in a family's access to non-farm work. Adults of non-indigenous ethnic origin had greater access to non-agricultural jobs off-farm than adults of indigenous ethnic origin. Regional availability of off-farm work possibilities and gender disparities also influence access to non-farm employment. Women and those living far from metropolitan areas have less opportunity to participate in non-agricultural occupations.

Around sixty percent of rural families' revenues in the Himalayan area of India are generated by non-agricultural activities. Their empirical research demonstrates that education household assets and qualities such as land, social standing, and geographic location have a significant influence on gaining access to higher-paying nonfarm jobs (I C et al., 2014). Higher returns from agricultural industries, notably cotton and cattle, have contributed to a decline in the diversification of non-agricultural enterprises. As a coping mechanism for droughts and other adversities, poor households frequently sell their sole asset, animals.

The main objective of the study was to analyze the factors that determine the choice of employment activities within a household in rural Punjab Pakistan.

Methodology

The research area consists of two villages in the district of Faisalabad, Punjab, Pakistan. The survey was designed using a list of houses received from the office of the local Union Council (UC). From selected villages, 80 households each were selected randomly. The questionnaire was pre-tested and necessary changes were made to make sure validity the questionnaire. A team of 5 researchers carries out this survey. Data were collected through the use of an arranged interview schedule, a focused group discussion, and personal observation. This information was then evaluated through the application of descriptive statistical methods, such as the mean, frequency counts, and percentages. The choice of means of subsistence in the region was discovered to be influenced by several socio-economic factors through the use of multivariate regression analysis using ordinary least squares. Utilizing STATA, the multinomial logit model was estimated.

Empirical Model

To determine the factors that influence the decision of rural households in northwest Pakistan to participate in various activities, we assume that in a given period, a rational household head will select the most advantageous of six mutually incompatible jobs. We assume that random utility error terms are independently and identically distributed as Log-Weibull Distributions. In addition, since we have data on various aspects of the employment decision-makers - the household heads we may utilize the multinomial logit model (Kennedy, 2003; Greene, 2003). In addition to its computational simplicity (Long, 2001; Kennedy, 2003), multinomial logit analysis demonstrates a higher capacity to forecast occupational distribution. Theoretically, probit versions of these models are feasible but computational and identification concerns restrict their use.

The multinomial logit model permits the estimation of a set of coefficients j for each occupational group as follows:

$$\Pr(y = j|x) = \frac{e^{\beta_j x_i}}{\sum_{j=1}^{j=6} e^{\beta_k x_i}} \quad (1)$$

Whereas

I represent the individuals,

j represents the six nominal, unordered occupational categories, and

xi represents the exogenous variables that influence the job decision of the household head. To create the model, the parameter vector associated with informal non-farm employment is set to zero (1 = 0) to normalize it. Consequently, the remaining coefficients j measure the change relative to the informal nonfarm employment base group. The probability, consequently

$$\Pr(y = j|x) = 1 + \frac{e^{\beta_j x_i}}{\sum_{j=1}^{j=6} e^{\beta_k x_i}} \quad (2)$$

$$\Pr(y - 1) = \frac{e^{\beta_j x_i}}{\sum_{j=1}^{j=6} e^{\beta_k x_i}} \quad (3)$$

The model is estimated using maximum likelihood (the maximum likelihood principle of estimation is based on the idea that the sample data at hand is more likely to have originated from a "real-world" characterized by a particular set of parameter values than from "a real-world" characterized by any other set of parameter values (Kennedy, 2003), wherein the above probabilities are incorporated into the likelihood function (Long and Freese, 2001; Greene, 2003; Gujrati, 2004). The variables' descriptive statistics are shown in Table 1.

Table 1. Description of variables.

Explanatory variables	Description	Mean	Min.	Max.	Std. Dev.
Age	Age of the household head (years)	44.2	17	85	12.59
Age squared	Age of the household head squared	2110	289	7225	1197.96
Education	Education of household head (years)	4.2	0	16	5.09
Job experience	Job experience of the Head of HH (years)	17.4	1	48	15.22
Household size	Number of household members	7.8	2	34	4.12
Working members	Number of household members working	1.9	0	8	1.30
Tropical livestock	livestock holding	0.9	0	100	4.40
Household Per capita income	Total annual Per capita income in Pakistani Rupees	12641	1067	120000	11.32
Credit sources	dummy 1 if the household received Pakistani Rs. 5000 or more credit from formal or informal, 0 otherwise	0.4	0	1	0.48

Results and Discussion

Using a multinomial logit model, this study examines the determinants that influence family participation in the rural labor market in northwest Pakistan. The model's findings are reported both as logit coefficients (Table II) and odd ratios (Table III). Due to the difficulty in a direct interpretation of coefficient estimates from the multinomial logit model, the odd ratio (risk ratio) is used to illustrate the effect of factors on employment decisions.

The findings of the logit model suggest that the model's chi-square is significant at the 1% level, and more crucially, pseudo R^2 explains more than 27% of the variation across the

groups. The influence of age is considerable and beneficial in the non-agricultural formal sector and among individuals with a variety of incomes. For example, with each extra year of age, the likelihood of holding a mixed-earning and formal work increases by 23% and 21%, respectively, relative to the reference group. This suggests that employees in the non-agricultural informal sector are comparatively younger for two primary reasons. The first is that these jobs are extremely labor-intensive, and weaker and older individuals are less likely to succeed in the field. Second, it indicates a lack of formal sector work possibilities and the needed skills.

Table 2. Multinomial logit estimation of employment categories (Logit coefficients).

Dependent variables vs. Household head in informal non-farm activities					
Variables	Owner	Tenants Mixed	Earners	Businessmen	Formal sector
Age in years	0.201	0.106	0.209*	0.069	0.193*
	(0.141)	(0.091)	(0.068)	(0.044)	(0.058)
Age squared	-0.001	-0.001	-0.001**	-0.000	-0.001**
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
Years of schooling	0.159*	0.110**	0.350*	0.077*	0.241*
	(0.051)	(0.047)	(0.032)	(0.024)	(0.027)
Household size	0.120	0.228*	0.190*	0.273*	0.240*
	(0.097)	(0.052)	(0.047)	(0.036)	(0.042)
Working members	-1.112*	-0.204	-0.087	-0.552*	-0.463*
	(0.342)	(0.166)	(0.141)	(0.105)	(0.124)
Livestock	0.964*	0.770*	0.882*	0.159	-0.313
	(0.128)	(0.133)	(0.126)	(0.124)	(0.201)
Experience	-0.122*	-0.096*	-0.027*	-0.001	-0.020*
	(0.030)	(0.019)	(0.009)	(0.006)	(0.007)
credit	0.558	-0.490	-0.856*	-0.109	0.114
	(0.459)	(0.374)	(0.295)	(0.182)	(0.222)
Per capita income	0.146*	0.121*	0.172*	0.200*	0.207*
	(0.031)	(0.033)	(0.023)	(0.021)	(0.021)
Constant	-8.501**	-7.114*	-11.038*	-5.398*	-9.577*
	(3.311)	(2.317)	(1.689)	(1.042)	(1.382)

Age squared is negative for all career options, demonstrating a nonlinear connection; however, it is only significant for the mixed earnings and formal sector. For example, the age square coefficient for involvement in the mixed income-earning and formal sector reveals that, relative to non-farm informal workers, the probability of employment in both sectors grows with age until at least 49 years of age, at which point it decreases. In the study region, the majority of persons employed in the organized sector had lower-paying positions, increasing the risk of their retiring early. Using panel data in Pakistan, Arif et al. (2003) found similar outcomes.

The schooling outcomes are consistent with expectations. The significant and positive sign of the education coefficient suggests that it has a substantial impact on all career choices relative to low-paying refugee activities (non-farm informal earners). Additional years of

schooling lead respondents to enter employment outside of the non-agricultural informal sector. However, the size of the education coefficient is greatest among mixed-income earners and formal sector employees. The relationship between household size and all occupations is positive and statistically significant, except for Owner-cultivators, for whom the relationship is insignificant. In many rural homes, the larger number of dependents compels the family head to diversify their revenue sources.

As shown in (Table III), an extra working person in a home decreases the likelihood of farming by 67% relative to the reference group. Similarly, the same variable reduces participation in the commercial and formal sectors by 43% and 37%, respectively. The same variable is negative but insignificant for the remaining potential occupational groups. This is a significant signal that the agricultural sector in the region is unable to accommodate the growing population. In addition, the lack of financial and human capital inhibits participation in the non-agricultural organized sector as well as the initiation of self-employment. Due to the absence of the aforementioned natural, financial, and human capitals, an increasing number of individuals in the study region are forced to rely on the informal sector.

Each extra tropical livestock unit raises the likelihood that an individual will become a renter, a mixed-earner, or an Owner-cultivator by around 23 percent, 12 percent, and 4 percent, respectively. Consequently, animal husbandry is restricted to rural households, with businesspeople and households in the official sector playing virtually little involvement.

Table 3. Multinomial logit estimation of employment categories (Odd ratios).

Dependent variables vs. Household head in informal non-farm activities					
Variables	Owner	Tenants Mixed	Variables	Owner	Tenants Mixed
Age in years	1.217 (0.163)	1.102 (0.101)	1.222* (0.094)	1.060 (0.057)	1.213* (0.080)
Age squared	0.978 (0.001)	0.989 (.001)	0.989** (0.001)	0.989 (0.001)	0.999** (0.001)
Years of schooling	1.162* (0.049)	1.106* *(0.062)	1.429* (0.036)	1.088* (0.036)	1.262* (0.024)
Household size	1.137 (0.119)	1.246* (0.075)	1.219* (0.077)	1.304* (0.038)	1.261* (0.044)
Working members	0.339* (0.123)	0.805 (0.125)	0.926 (0.139)	0.585* (0.070)	0.639* (0.088)
Livestock	2.612* (0.326)	2.259* (0.276)	2.426* (0.315)	1.162 (0.136)	0.741 (0.157)
Experience	0.875* (0.016)	0.919* (0.017)	0.964* (0.009)	0.999 (0.006)	0.980* (0.007)
credit	1.745 (0.802)	0.612 (0.228)	0.415* (0.115)	0.886 (0.153)	1.122 (0.239)
Per capita income	1.147* (0.026)	1.119* (0.027)	1.178* (0.027)	1.211* (0.015)	1.220* (0.016)

The variable 'engagement in credit' suggests that household heads are around 15% less likely to engage in mixed employment than in non-farm informal enterprises. However, the credit coefficient is found to have no influence on the employment decisions of the remaining occupational categories. Wealth, defined here as household per capita income, is a major determinant of the likelihood of pursuing non-informal employment in the study region. Compared to non-farm informal occupations, the chance (odds) for alternative occupational groups with higher income coefficients ranges from 12% to 23%.

Conclusion and Recommendations

This study seeks to investigate the factors that influence family occupational choices in rural Punjab, Pakistan. Multinomial logistic regression results reveal that household heads who are illiterate, younger, and have comparatively smaller households are more likely to work in the informal non-agricultural economy. Similarly, cattle ownership raises the likelihood of initiating farm-related activity by 4-23 percent. Regarding the informal sector, the role of credit on occupational decisions is negligible, except for those with mixed incomes, for whom it is negative. With each unit rise in per capita family income, the likelihood (odds) of a household head engaging in activities other than informal labor increases by between 12 and 23 percent. Lastly, the function of infrastructure in labor decisions revealed by dummy variables indicates that being in a reasonably prosperous village decreases the likelihood of engaging in mixed-income earning or working as a tenant by 63% and 47%, respectively, compared to the non-farm sector. The result of the study is that the rural non-agricultural sector needs a proportionate share of development programs since it can improve rural communities. More exactly, the expanding informal sector needs government assistance. This assistance may be provided by distributing additional credit to rural regions so that they may launch economically beneficial enterprises. Similarly, the development of hard and soft infrastructure in rural areas can stimulate more dynamic non-agricultural activities.

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