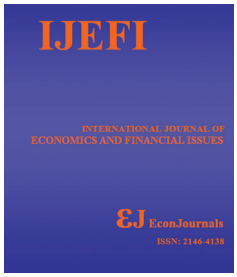

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The Impact of Migration on Rural Poverty: The Case Study of District Faisalabad, Pakistan

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ABSTRACT

Internal-migration is the process of displacement of people within a country, mostly for better employment. Pakistan is among those South-Asian countries who have high rate of internal-migration. Poverty is considered to be an important factor in this context. This study estimates the rural-household poverty in Pakistan's Faisalabad district and the impact of internal-migration on rural-household poverty. By using stratified random sampling technique, 180 respondents were selected and interviewed. Propensity score matching method was used to examine the causal effect of internal-migration on household-poverty level. Results reveal that the average treatment effect on the treated estimates of 0.18 for poverty reduction which shows that the household participation in the internal-migration decreases the probability of poverty by 0.18 points, suggesting that internal-migration has a significant impact on poverty reduction among the rural-households. The study suggests the policy makers to focus on rural development and enhance labor productivity, so that internal-migration is discouraged, which will ultimately reduce poverty.

Keywords: Internal-migration, Rural-poverty, Pakistan
JEL Classifications: I320, J11, D310, D12

1. INTRODUCTION

Migration is the geographical mobility of people from one place to another place for the purpose of taking up better socio-economic opportunities. It may be cross borders or internal. Internal migration includes the movement from urban to urban, rural to urban and rural to rural areas within a country. The duration of migration can be long term or short term. Rural-to-urban migration is playing significant role in rural development and poverty reduction.

Rural-to-urban migration takes place when society transfers from agriculture to industrial sector, lack of employment opportunities, lack of adequate healthcare and education, liquidity constraints, marginalization of land, production shocks and inability of agriculture sector to absorb surplus rural labor. In addition to these socio-economic factors, the major driver of migration is poverty.

In rural areas of Pakistan, like other developing counties, poverty is widespread. Recent HDI indicates that rate of poverty is increasing day by day in Pakistan and the rate of rural poverty is much higher than urban poverty. For instance, people living below the poverty line in urban areas are 18% and the ratio of the people living below the poverty line in rural areas is 46% according to Government of Pakistan, 2014. The possible strategy to move out of this poverty trap is rural-urban migration in face of ignored rural development.

There is a close relationship between migration and rural poverty. For the poverty reduction perspective, internal migration gives the important insights (Deshingkar and Farrington, 2009) by

increasing income level of people (Taylor and Stark, 1991). In the early stage of development, laborers in the agriculture sector and rural areas tend to move to the industrial sector and urban areas. The main effect of migration is that it can increase the consumption and income of rural households (Harris and Todaro, 1970).

Given the significance of rural-to-urban migration in reducing poverty and increasing the welfare of rural people, many studied have examined the determinants of internal migration (Cattaneo, 2006), impact of migration on poverty (Richard et al., 2005), regional growth as a result of rural-to-urban migration (Wu and Yao (2010). These studies employed either employed simple regression (ordinary least squares [OLS]) or multivariate regression that did not take into account the "selection bias." The present study estimated the impact of migration on household poverty level by employing propensity score matching (PSM) technique that account for the selectivity bias.

1.1. Objectives of the Study

The overall major goal of the study is to evaluate the effect of rural-to-urban migration on household poverty level. The specific objectives of the study are:

- To measure rural household poverty in Faisalabad district
- To measure the impact of migration on rural household poverty
- To suggest policy measures to improve the poverty situation in the study area.

2. LITERATURE REVIEW

Richard et al., (2005) studied the impact of remittances and international migration on the alleviation of the poverty. Data of 71 developing countries about poverty, inequity, remittances and international migration was employed. OLS regression was used. Findings showed that international remittances and migration both had significant effect on the depth and level of poverty. Results also showed that poverty would decline 3.5% if the per capita income increases by 10%. Analysis also showed that share of people who were living below the poverty line will decrease by 21% if the international migration increased by 10%. Study suggested that world's poor will gain benefit if the international authorities focus on the migration policy.

Cattaneo (2006) studied the determinants of internal migration in Albania. Data was gained from living standard measurement survey conducted in 2002. World Bank and National Institute of Statistics jointly conducted the survey. OLS estimation was used to analyze the data. Dependent variable was dichotomous in nature and independent variable was age, gender, education, marital status, tenure variables and industries variables. Results showed that education had statistical and significant impact on the migration level. More educated used to migrate more to enjoy the economic returns. The probability to migrate not only depended on the wage rate but also on the unemployment differences.

Achia et al. (2010) examined the key determinants of poverty by employing data from health and demographic surveys. To gain the socio economic index for each household principal component analysis was used. To estimate the results logistic regression was used. Results showed that with the educational attainment, the likelihood of a household to fall in poverty could be declined. Logistic model showed that family belongs to rural areas had a high probability of being poor. Study suggested that government should make developmental efforts in rural areas as they did in urban areas.

Wu and Yao (2010) explained the variable income distribution and the regional growth as the prominent factor inducing the rural-to-urban migrations that are evident in China. Data was collected from 8914 villages covering the approximate 5 million people of China belonging to the remote areas. The study applied Multivariate regression analysis providing the associations among the migrants. The results indicated that the poor people belonging to the more remote areas were found to be having more willingness to migrate toward a comparatively batter surrounding. The results concluded that labor migrations were more frequent than the household migrations.

Fahad and Rehmat (2013) examined that how poverty is affected by macroeconomic policies in Pakistan. To analyze the macroeconomic indicators the data was based from 1994 to 2005.To estimate the parameters of multiple regression model; the OLS method was used. Equality in income distribution is measured by the Gini coefficient. Results suggested that for poverty alleviation the expenditures on development, per capita income, unemployment rate and remittances have significant effect. They concluded that the investment on developmental and social projects should be promoted by the government to create new jobs opportunities, to enhance the income per person and to raise the standards of living.

Zhu and Luo (2014) examined the impacts upon rural poverty and inequality resulting from rural-to-urban migration. The study conducted upon the Hubei province of China. The study indulged the data from households' survey 2002. Since the migration income was a considerable substitute to the income generated by farming, the study developed a counterfactual scenario exhibiting the actual rural income and poverty substituting the migration. The study concluded that induced rural income patterns were substantially attributed to the patterns of migration. The study explained that, for a person belonging to the remote area, the decision to migrate from rural-to-urban area was eventually depending upon the expectancy of higher income and batter living standards as well.

3. DATA AND METHODOLOGY

Data for this study was collected between May and June 2015 through a survey of 180 rural households from the three tehsils of Faisalabad district, Pakistan.

Faisalabad district is the mix of agriculture and industry, rural areas depend upon the agriculture and in urban areas many industries are working. Due to more employment opportunities in city, the rural people used to migrate for better future. From each tehsil three villages are selected randomly.

By using the well designed and structured questionnaire, the households in sample area were interviewed eliciting information

on internal migration as well household expenditures, personal, demographic and location characteristics. Table 1 shows the definition and sample statistics of the variables used in the estimation.

The estimation in the present study proceeds in two steps. First is to measure the rural household poverty through the head count index. Second is to measure the impact of internal migration on the rural household poverty through PSM.

3.1. Head Count Index

To estimate poverty, head count index on the basis of per head expenditures was used in the study. The poverty line used in this study is 1.25 per day per person, suggested by World Bank, 2008. Head count index measures the proportion of population who lives below the poverty line. It is the popular method to calculate the poverty because it is the easiest way to measure the poverty and also easy to understand. Headcount index only indicates that household is poor or not but does not indicate the level of poverty. It is denoted as

$$HC=Np/N \quad (1)$$

Where Np is the number of poor and N is the total population (or sample).

3.2. PSM

To examine the casual effect of internal migration on rural household poverty PSM technique was employed to account selectivity bias. The basic idea behind the propensity score is that we may reduce the bias if we compare outcomes of treated and control groups which are as similar as possible. It constructs a statistical comparison group by matching every individual observation of participants with an observation with similar characteristics from the groups of non-participants.

The propensity score is the conditional probability of assigning a treatment, given pre-treatment characteristics (Rosenbaum and Rubin, 1983), written as:

$$P(X_i)=P_r(M_i=1|X_i)=E(M_i|X_i) \quad (2)$$

Where M_i=0, 1 is the indicator of exposure to treatment (internal migration) and X is the vector of pre-treatment characteristics.

The parameter of interest is the average treatment effect on the treated (ATT), which can be estimated as:

$$ATT = E\left\{E\left[Y_i^1 - Y_i^0 \middle| M_i = 1, P(X_i)\right]\right\}$$
$$= E\left\{E\left[Y_i^1 \middle| M_i = 1, P(X_i)\right] - E\left[Y_i^0 \middle| M_i = 0, P(X_i)\right] \middle| M_i = 1\right\} \quad (3)$$

Where Y_i^1, Y_i^0 is the potential outcome in two counterfactual situations. The propensity score is predicted with Probit model. The predicted propensity score is then used to estimate treatment effect.

Conceptually the ATT a mean for the unobservable counterfactual, $E\left[Y_i^0 \middle| M_i = 1\right]$ so far the observable quantities in Equation (3) to identify the ATT relies on three key conditions introduced into the literature by Rosenbaum and Rubin (1983).

The most commonly used are nearest neighbor matching (NNM), Kernel based matching (KBM), Stratified matching and radius matching. The NNM, radius and KBM methods are methods are employed in this study.

The most straightforward matching estimator is the NNM which matches each participant with its closest neighbor with similar observed characteristics. It can be done either with replacement or without replacement (Smith and Todd, 2005).

Kernel matching (KM) is non-parametric matching estimators that use weighted averages of all individuals in the control group to construct the counterfactual outcome. KM tends to use more non-participants for each participant, thereby reducing the variance but possibly increasing the bias. To avoid the risk of bad matches by choosing the closest neighbors that are far away, calipers are implemented.

In the radius matching, each treated unit is matched only with the control unit whose propensity score falls in a predefined neighborhood propensity score of the treated unit. The benefit of

Table 1: Definition and sample statistics of the variables used in the analysis

Variables	Definition	Mean	Standard deviations
Participation variable			
Mgrtn	1 if migrated 0 otherwise	0.756	0.431
Outcome variable			
Poverty	1 if the household is poor, 0 otherwise	0.522	0.500
Explanatory variables			
Gndrhh	1 if the household is male, 0 otherwise	0.900	0.301
Agehh	Age of the household head in years	46.361	12.086
Fmlytyp	1 if the family is nuclear, 0 otherwise	0.733	0.443
Eduhh	Years of education of household head	4.922	4.680
Hhsize	Total number of family members	6.337	2.351
Ownrlvstk	1 if livestock, 0 otherwise	0.411	0.493
Ownragrilnd	Total agricultural land in acres	1.436	2.896
Location 1	1 if the HH resides in Faisalabad, 0 otherwise	0.333	0.473
Location 2	1 if the HH resides in Jaranwala, 0 otherwise	0.333	0.473
Location 3	1 if the HH resides in Samundri, 0 otherwise	0.333	0.473

this approach is that it uses only the number of comparison unit available within a predefined radius; thereby allowing for use of extra unit when good matches are priori what radius is reasonable (Dehejia and Wahba, 2002).

4. EMPIRICAL RESULTS

4.1. Measurement of Poverty

Head count index was calculated by using international poverty line that is $1.25 a day. Estimated poverty is line for Pakistan is Rs. 46414 per year. By comparing the per-head- expenditures with the estimated poverty line, the study found the households which are poor and which are non-poor. The estimation shows that 52.2% households are poor in the sample area. Figure 1 shows the distribution of household according to head count index.

4.2. Results of PSM

PSM was used to estimate the impact of internal migration on poverty of rural households by using statistical software STATA. The estimated propensity scores by probit model are given in Table A1 in the appendix.

Table 2 presents the results of the impact of internal migration on rural household poverty. Results show that participation in the internal migration significantly reduces the poverty level of rural households. The ATT estimates of 0.18 for poverty reduction show that the household participation in the internal migration decreases the probability of poverty by 0.18 points, suggesting that internal migration has a significant impact on poverty reduction among the rural households of Faisalabad district, Pakistan.

Figure 1: Distribution of household according to the head count index

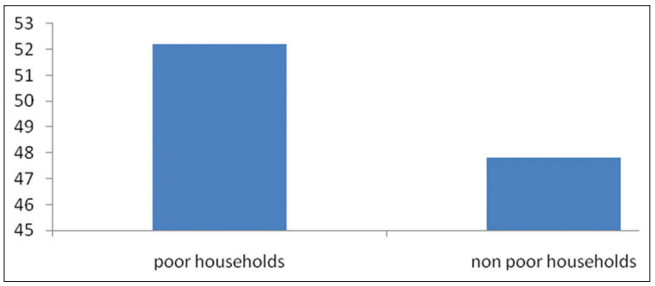

Table 2: Impact of internal migration on rural household poverty: PSM results

Outcome variable	Participants	Non-participants	ATT	T-statistic
Poverty	0.48	0.66	−0.18	2.57**

PSM: Propensity score matching, ATT: Average treatment effect on the treated, Significance of t-statistics of mean difference is at the **5% level

Study used PSM to determine the impact of internal migration on rural household poverty. The Probit model is employed to estimate the propensity scores. The estimated propensity score for rural household participation in migration are given in the index. Although the propensity scores only used to balance covariate; however the results indicate that most of the variables that are used in the estimation gave the expected signs. NNM, radius and Kernel methods were used in the analysis.

The matching method for all approaches in Table 3 shows that internal migration has a significant impact on the rural household poverty. The estimated impact of participation is measured by the outcome variable that is poverty is −0.18 suggesting that probability of poverty decreases by 0.18 points when internal migration happens. In the presence of hidden bias, it is accepted that PSM normally underestimate the average treatment effects, matching only controls for observable bias.

5. CONCLUDING REMARKS

Migration is the process in which people move from one place to another place for the purpose of taking up the employment and permanent or semi-permanent residency. Pakistan is the fastest migrating country in South Asia. Poverty is considered one of the major elements contributing to migration in developing countries including Pakistan. Among the poor people internal migration is appear to be more prevalent. The present study estimates the rural household poverty in Faisalabad District and the impact of internal migration on the rural household poverty. Data for this study was collected between May and June in 2015 through a survey of rural households in the villages of Faisalabad district, Pakistan by using stratified random sampling technique. Using the well designed and structured questionnaire the households were interviewed eliciting information on internal migration as well as personal, demographic household level and location characteristics. The estimation in the present study proceeds in two steps. First is to measure the rural household poverty through the Head Count Index. Second is to measure the impact of internal migration on the rural household poverty through PSM. Results show that 52.2% households are poor. Results also show that the household participation in the internal migration decreases the probability of poverty by 0.18 points, suggesting that internal migration has a significant impact on poverty reduction among the rural households of Faisalabad district, Pakistan. This research is significantly important in drawing the policy recommendations for reducing the poverty in rural areas of, Pakistan. The government should pay more attention for the betterment of health, education and income of people

Table 3: Average treatment effect and sensitivity analysis: PSM results

Matching	Outcome variable	No. of neighbors/ kernel type	Caliper	ATT	No. of treated	No. of control
NNM	Poverty	6	0.002	−0.18** (2.05)	136	44
Radius	Poverty	-	0.005	−0.18* (1.93)	136	44
Kernel	Poverty	Bandwidth	0.005	−0.18* (1.93)	136	44

PSM: Propensity score matching, ATT: Average treatment effect on the treated, NNM: Nearest neighbor matching, Significance of t-statistics of mean difference is at the *10% and**5% levels

or households of rural areas. There should be development projects that enable the rural poor to have access to growth and common services directly. The growth in terms directly circulates its benefits across the rural livelihood that helps in soothing the consumption and utilization patterns of rural households specifically the poor households or persons.

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APPENDIX

Table A1: Probit estimation of propensity score (NNM) for internal migration

Variables	Coefficient	Standard error	P>|z|
Gndrhh	0.409	0.346	0.237
Agehh	0.015	0.010	0.152
Fmlytyp	0.646	0.279	0.097
Eduhh	0.031	0.025	0.222
Hhsize	0.032	0.056	0.560
Ownrlvstk	−0.127	0.246	0.604
Ownragrilnd	−0.059	0.039	0.127
Mill	0.338	0.231	0.144
Location 1	0.296	0.268	0.269
Location 2	0.369	0.271	0.173
Cons	−1.266	0.756	0.094
Log likelihood	−92.603		

Significance of T-statistics of mean difference is at 10% level, NNM: Nearest neighbor matching