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## **Understanding internal migration in Pakistan**

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#### **ABSTRACT**

This study estimated the effect of socio-economic factors on internal migration for Pakistan using the Labor Force Survey data, 2013. This study used a sample of 26013 observations. Both bi-variate and multivariate Logistic and Probit analysis were performed. Estimates of Logistic and Probit regressions show that gender has negative and statistically significant effect on migration. Similarly, marriage also has a negative effect on migration indicating as individual gets married, their log-likelihood of migration decreases. Income is statistically significant determinant of migration as analysis exhibited that as income increased, the log-likelihood of internal migration increased too. Education and employment do not determine migration. This study can be used in planning internal migration as for developing countries like Pakistan socio-economic factors are important determinants of migration. Providing employment and income opportunities can significantly help in reducing the migration. Besides socio-economic factors, further investigation is required to better understand the perception of individuals with respect to internal migration which this study could not tackle because of nonexistence of such data in the labour force survey.

Keywords

Migration; Labour Force; Socio-economic factors JEL Classification J15; O15; R2

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#### 1. Introduction

Migration is broadly defined as the relocation of residence for a specified duration due to various reasons (Hossain, 2001). Structural transformation in an economy such as a relatively higher growth of one sector as compared to others creates more employment opportunities in higher growth sectors as compared to the low growth sectors. Hence, employment opportunities in higher growing sectors attracts more workers, especially from the low growth sectors, where labourers are laid-off due to low demand. This structural transformation leads to migration as labourers move from one region to another following employment opportunities. Structural transformation has also been witnessed in Pakistan.

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Over the past few decades, services sector growth has surpassed the commodity producing sectors of the country (Figure-1). Traditionally, the agricultural sector in Pakistan used to be the highest contributor to economic growth. The combined growth of both agricultural and industrial sectors has been lower compared to services sectors. Resultantly, workers have been migrating from commodity producing sectors, especially agriculture which has demonstrated lower growth than industrial sector, to services sectors. Employment opportunities in services sectors primarily exist in urban areas, and therefore workers tend to migrate from rural areas to urban areas for good living.

Migration is generally of internal and external types. Internal migration means that people migrate between the states/villages/districts within a country and international migration means the movement of people from one country to another (Usman et al., 2009). Internal migration is the old phenomena as observed in many developing countries including Pakistan. The trends and nature of migration changes with time and its impact is different on each migrant's life (Hamid, 2010). The reason behind the rural and urban migration is to avail better socio-economic opportunity. Imran et al. (2013) explain that one third of the rural population lives below the poverty line which force people to migrate in search for better opportunities. That is why the estimated population in urban areas has been witnessing an increase from 37.9 to 40.54 percent while the population in rural areas is decreasing from 62.1 percent to 59.46 percent. According to Neo-classical theory, the decision of migration depends upon the wage differentials and they migrate only in search of the better economic opportunities. Todaro (1969) and the Harris and Todaro (1970) reported that the differences between urban-rural wages/incomes as the primary determinant for migration. Lewis (1954) further explain that people migrate from rural agricultural sector to urban industrial sector because agriculture sector has unlimited supply of labour while industrial sector has higher wages. Human capital theory states that migration is associated with the costs and returns.

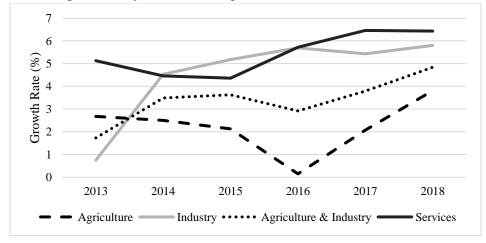


Figure 1: Annual agriculture, industry and services sector's growth, 2013 to 2018 (Percent)

According to the theories discussed above and the general behaviour of the economies show that migration take place between different sectors of economy as a result of economic growth and Pakistan is no exception. The present study estimates the effect of socio-economic factors on internal migration in Pakistan. Studying internal migration helps in urban planning. Urbanization is an ongoing phenomenon and investigating internal migration helps in the development of the labour and social policies and infrastructures to meet their residential and living requirements. The migration of workers may also create many social problems and urban issues for example slum areas, urban sprawl, congestion of traffic, urban poverty and therefore it is important to plan for these ahead of time. Hence, it is important to understand migration decisions and their implications for urbanization and other socio-economic aspects of life.

#### 2. Literature review

In recent years, analysis of labour migration in Pakistan have got an attention of many researchers. Ahmed and Sirageldin (1993) analyzed internal migration in Pakistan using the investment in human capital paradigm. They concluded that person having college or professional degree are more likely to migrate. Probit model has been used in estimating the effect of husband's age, schooling years of husband, schooling years of wife, occupational groupings, dummy if husband is entrepreneur, dummy representing ownership of the house and land, and number of children. It was concluded that person having college or professional degree are more likely to migrate. The professional and skilled worker have high migration rate. Faroog et al. (2005) also investigated the factors of rural-urban migration in Faisalabad Metropolitan. Using the Probit model it is concluded that land holding is the man economic opportunity in rural areas of Pakistan, landlessness and total land scarcity is positive factor of migration from rural to urban areas. Khan et al. (2000) also analyzed the determinants of internal migration using the Labour Force Survey of 1997. They categorized the sample of the survey into economic and non-economic migrants. Age, education, type of training (technical and vocational), marital status, location of residence (urban or rural), family type (nuclear or joint) and province of living were the selected variables. Memon (2005) also used Labour Force Survey and employed a Probit model to estimate the effect of different factors on internal migration in Pakistan. The study concludes that income differences between the rural and urban areas are increasing internal migration. The study finds that ownership of land reduces migration as people are more attached to their land and don't want to migrate. Such families usually have women bread earners as well to support their families and avoid migration. In Bangladesh, similar nature of the study is conducted by Hossain (2001). A micro-level data were collected, and the study concludes that seeking employment opportunities is the primary reason for migration. He concluded that half of the migrant migrate for temporary jobs and one quarter migrate for availing permanent jobs. Further, it is found that the percentage of migration is high among educated and unemployed. Similar researches has been conducted by Siddiqi (2004), Oda (2005), Hamid (2010), Haider and Kabir (2010), Throat et al. (2011), Ali et al. (2015), Fareed et al. (2016), Moses et al. (2017), Tripathi and Kaur (2017), Park and Fullerton (1980), Ullah (2004), Khan et al. (2011), Mohammad et al. (1983) and Irfan (1986). The main determinants suggested by these previous studies are education level, peace, income, land ownership, profession and gender.

### 3. Research methods

This study uses Labour Force Survey (LFS) for the year 2013 consisting of 26,013 observations. This survey provides us information about active and inactive labour force. Bi-variate analysis has been carried using Chi-squared test statistics. We test the hypothesis that the observed and expected values of the observations are different. The Chi-squared test statistics is given in equation 1 is given as follows:

$$\chi = \sum_{i=1}^{k} \frac{(x_i - m_i)^2}{m_i} = \sum_{i=1}^{k} \frac{(x_i)^2}{m_i} - n$$
 (1)

where  $\chi$  represents the Chi-squared test statistics, n the number of observations, k mutually exclusive classes,  $x_i$  represent the observed numbers for i = 1, 2, 3, ..., k and  $m_i = np_i$  for all i, where  $p_i$  is the probability that an observation occurs in the ith class.

The econometric analysis consisted of estimation of the Logit and Probit models. For the logit model, the  $F(X'\beta)$  is the cumulative density function of the logistic distribution and the predicted probabilities are limited between the 0 and 1 interval and is given as follows:

$$F(X'\beta) = \frac{e^{X'\beta}}{1 + e^{X'\beta}} = \frac{\exp(X'\beta)}{1 + \exp(X'\beta)}$$
 (2)

The matrix of X' consists of the exogeneous variables defined in table 1. For Probit model case, the  $F(X'\beta)$  is the cumulative density function of the standard normal distribution  $(\phi)$ .

$$F(X'\beta) = \Phi(X'\beta) = \int_{-\infty}^{X'\beta} \phi(z)dz$$
 (3)

The dependent variable used in the analysis is internal migration which is a dummy variable where migrated households are represented as one and zero otherwise. The study uses gender, education, literacy level, income, marital status as the explanatory variables. The detail about the variables used in this study is provided in table 1 below:

Table 1: Variables used in the analysis

Variable	Description		
Gender	One if the respondent is male, zero otherwise		
Literacy level	One if respondent is literate, zero otherwise		
Income	Annual income of the respondent in rupees		
Marital status	One if never married, two if married, three if widow/ widower, four if divorced		
Employment status	One if the respondent is employed, two if unemployed, three if not in labor force		
Graduate	One if respondent is graduate and zero otherwise		

#### 4. Results and discussion

The first part presents bi-variate analysis while the second part offer multivariate analysis primarily consisting of econometric analysis. Collectively these two parts helps in understanding the internal migration phenomena in the country.

#### 4.1 Bivariate analysis

This section consists of the cross-tabulation of the socio-economic factors across the migrated and non-migrated individuals indicating variations in migration pattern based on the socio-economic factors. The socio-economic factors include education, gender, literacy level, income, marital status and employment status. We aim to test the null hypothesis that socio-economic factors do not determine internal migration of respondents.

Data shows that female migrated more than males. Table 2 shows that 12.4 percent of the male and 16 percent of the female reported migration. Riley and Gardner (1993) examined the role of gender in migration decisions in developing countries and found that 45 percent of female and 65 percent of male migrated. However, men migrated mostly out of the country while female mostly migrated within country. Chi-squared statistics show that gender is a statistically significant determinant of migration.

Migration status of respondents by marital status shows that 76.3 percent of the migrated persons are married, and 21.4 percent are not married. Marriages lead to more migration as married people may relatively face more financial burden due to larger households and feeling more responsibility. Kanwal et al. (2015) studied the socio-economic determinants of rural-urban migration in Pakistan and concluded that marriages play a significant role in movement from rural to urban rather than urban to rural. Generally, females after marriages move with their spouse from rural to urban and marriages in this case are the core cause for migration in Pakistan. Hamid (2010) also investigated the role of gender in internal migration. His findings show that marriage is the key factor for migration in the case of female. Our analysis also show that marriage has statistically significant association with migration.

The variable literacy is binary in nature that is individual are either literate or not. The table shows that 69.3 percent of the migrated are literate. Hence, literacy has a direct impact on migration. Ahmed and Sirageldin (1993) analyzed internal migration in Pakistan using the investment in human capital paradigm. Their results show that educated people have more opportunities as compared to illiterate and hence they migrate to avail such

opportunities. However, literacy does not have statistically significant association with migration. Literacy can be further classified into different educational level. Data shows that as educational level of respondents increases, their migration increases. Migration within individuals having post-graduate education is the highest, 17.8 percent, which reduces to 14.9 percent among graduates and 12.6 percent among those having higher secondary school qualification. About 87.5 percent of the illiterate do not migrate. According to the World Bank (2017), education is not considered as the only factor for migration. Educated people migrate to avail livelihood opportunities that are more secure in nature. Chi-squared statistics show that education is a statistically significant determinant of migration. This result is different than literacy, which does not determine migration. Hence, it is not literacy rather education level that is important for migration.

Table 2: Bi-variate analysis of the association between socio-economic factors and migration decisions

Characteristics	Migrated	Non-migrated	Chi-square
Male	12.4 %	87.6 %	30.27
Female	16.0%	84.0 %	(0.00)
Un married	21.4	34.8	
Married	76.3	63.5	236.7
Widow	2.0	1.4	(0.00)
Divorced	0.3	0.3	
Illetrate	30.7	31.70	1.20
Literate	69.30	68.30	(0.27)
No literacy	12.5	87.5	
Less than SSC	11.7	88.3	51.27
SSC	12.8	87.2	(0.00)
HSSC	12.6	87.4	` '
Graduate	14.9	85.1	
Post graduate	17.8	82.2	
Employed	12.8	87.2	2.68
Un employed	11.5	88.5	(0.00)
Not in labour force	21.90	78.1	,
Income group 1 (Less than Rs. 50,000)	9.7	12.9	
Income group 2 (Rs. 50,000-2,00000)	60.3	64.9	186
Income group 3 (Rs.2,00001-5,00000)	22.4	18.8	(0.00)
Income group 4 (Rs 5,00001-8,00000)	5.3	2.5	
Income group 5 (Above Rs. 8,00000)	2.3	0.9	
Non-economic reasons	83.30	81.30	0.87
Economic reasons	16.70	18.70	(0.00)
Head of household	57.2	46.2	
Spouse	7.9	4.3	1032.59
Son/daughter(unmarried)	13.9	28.9	(0.00)
Son/daughter (married)	8.2	11.8	
Father/mother	0.8	0.5	
Brother/sister	4.0	5.5	
Other relative	3.2	2.3	
Servant	3.2	0.4	
Non relative	1.8	0.1	

Source: Author's own estimations

Employment status shows that 12.8 percent of the respondents who are employed have migrated. About 88.5 percent of the unemployed did not migrated. Hence, livelihood and employment are important factors in the migration decision. Jamil and Mohyuddini (2015) analyzed the rural urban migration among educated people. They concluded that trend is changing, and migration is not motivated due to employment rather it is both employment and education opportunities that determine migration.

Annual income of the respondents is categorized into five groups. Data suggest that the proportion of migrated respondents decreases as income level increases. The table shows that 12.5 percent of the respondents are in group-1, 64.3 percent in group-2, 19.3 percent in group-3, 2.8 percent in group-4 and 1.1 percent in group-5. The proportion of respondents not-migrated within an income group decreases as income rises. About 90.1 percent of the respondents did not migrate in group-1, followed by 88 percent in group-2, 85.1 percent in group-3, 76 percent in group-4 and 73 percent in group-5. Third, the middle-income groups that is income groups two and three, have the highest proportion of all respondents migrated. Collectively groups 2 and 3 account for 83 percent of the migrated respondents (that is 10.6 percent of the total 12.8 percent). Only 5.3 and 2.3 percent of the migrated belong to groups 4 and 5, respectively. Hence, the middle-income groups look for earning opportunities and migrate to avail these as compared to high income group (that is groups 4 and 5) who already have high annual income and have less motivation to migrate. Farah (2001) found that the socio-economic factors like income has statistically significant effect on the decision to migrate. Memon (2005) used a Probit model to study the effect of socio-economic variables including income on internal migration. He found that urban-rural income differences have increased internal migration among respondents. These effects could have also been picked by the Chi-squared statistics, which show a statistically significant association between income and migration.

Among the migrated respondents, 82.1 percent migrated for non-economic and the remaining for economic reasons. If a migrant identified job transfer, finding a job, education or business as the main reason for migration, then such migration is based on reasons which can be classified as economic reasons and the migrants as economic migrants. Other are included in non-economic reasons (Khan et al. 2000). There is significant relation between the reason for migration and migration decision. The study conducted by Khan et al. (2011) reveals that mostly people migrate from rural to urban area for socio-economic factors. Male migrated for economic reason than female. However according to distance such as short and medium in migration, social factors like marriage and migration with household are the main reasons for migration.

The head of household who migrated were 57.2% where spouse who has not migrated were 78.7%. The son/daughter who were unmarried have not migrated were 93.4% compared to son/daughter who were married and have not migrated were 90.8%. Father/mother who have not migrated were 82% and brother/sister who have not migrated were 90.5%. Non- relative who have migrated were 70.2%. Servants who decide to migrate were 57.2%. Table shows that non- relatives and servant have migrated mostly.

### 4.2 Multivariate analysis

Bi-variate analysis does not control for the effect of other variables when association between migration and an individual socio-economic factor is studied. However, it is quite possible that migration could have been influenced by more than one variable at the same time and thus the bi-variate analysis could be misleading. Hence, this section presents multivariate analysis to study the effect of a socio-economic variable while controlling for others.

Internal migration is used as the dependent variable where migrated households are represented as one and zero otherwise. Dependent variables with dichotomous response can be estimated through Probit and Logit estimation techniques. This study uses both the techniques to study the effect of socio-economic factors on internal migration. The socio-economic variables based on the previous section, includes both qualitative and quantitative variables. The qualitative variables include gender, literacy, marital status, employment status and education level while the quantitative variables include income level. The estimation of both the Probit and Logit models is provided in table 3 and its explanations are respectively explained in sections 4.2.1 and 4.2.2.

### 4.2.1 Probit estimates

Many studies including Farooq et al. (2005), Memon (2005) and Akins et al. (1979) estimated the effect of socio-economic factors on internal migration using Probit model. Table 3 shows the result of Probit model with and without controlling for heteroscedasticity. The analysis uses 26,013 observations. The model on overall is statistically significant as indicated by Wald-Chi statistics. It also shows that majority of the variables are statistically significant and determine internal migration. Gender has negative effect on internal migration implying that as compared to men, women migrate less. These results are in-line with Kanwal et al. (2015). Similarly, unmarried individuals as compared to married have a higher probability of migration. Employment and literacy status do not determine internal migration. Marr and Millered (1987) also found insignificant effect of employment on migration. Income has a positive and statistically significant effect on internal migration. Hence, an increase in income increases the log-likelihood of internal migration. Similar results were also reported by Kennan and Walker (2011).

#### 4.2.2 Logistic estimates

Kanwal et al. (2015) and Hogan and Steinnes (1998) used Logistic models to estimate the effect of socio-economic factors on internal migration in Pakistan. Table 3 show results of Logistic regression with and without correction for heteroscedasticity. All the models are statistically significant and produced good pseudo R-squared. It is important to mention that primary data, like the one used in this study, usually produce low R-squared. These results are like the results accomplished with Probit analysis. The direction of effect and test of the hypotheses (i.e. statistically significance) remained the same. Hence, the results are robust to the estimation technique.

**Table 3: Probit and logit estimates** 

	Probit model		Probit model correcting for heteroscadasticity		Logit model	Logistic model correcting for heteroscadasticity	
Parameters	Co. efficient		Co. efficient		Co. efficient	Co. efficient	
	-0.21		-0.22		-0.41	-0.40	
Gender	(0.00)		(0.00)		(0.00)	(0.00)	
Marital	-0.35		-0.29		-0.70	-0.58	
status	(0.00)		(0.00)		(0.00)	(0.00)	
employment	0.10		0.02		0.17	0.04	
status	(0.40)		(0.77)		(0.45)	(0.80)	
Literacy	0.04		-0.007		0.08	-0.01	
level	(0.13) -0.07		(0.75)		(0.11)	(0.80)	
			-0.05		-0.13	-0.09	
Grade	(0.06)		(0.09)		(0.07)	(0.11)	
	0.86		0.82		1.50	1.43	
Income	(0.00)		(0.00)		(0.00)	(0.00)	
	-1.11		-1.01		-1.84	-1.67	
Cons	(0.00)		(0.00)		(0.00)	(0.00)	
	Number of observations 26013						
	Wald chi		Wald chi		Wald chi	Wald chi 432.44	
Summary	343.73		434.43		338.36	Pseudo R <sup>2</sup> 0.02	
Statistics	Pseudo R <sup>2</sup>	0.025	Pseudo R <sup>2</sup>	0.021	Pseudo R <sup>2</sup> 0.025		

Source: Author's own estimation

#### 5. Conclusion

Internal migration is the phenomenon of temporary relocation of residence due to various reasons. Structural transformation in an economy such as a relatively higher growth of one sector as compared to another sector creates more employment opportunities in the high growth sectors as compared to the low growth sectors. Hence, the employment opportunities in high growing sectors attracts more workers, especially from the low growth sectors, where laborers are laid-off due to low demand. This structural transformation leads to migration as laborers mover from one region to another following employment

opportunities. This study estimates the effect of socio-economic factors on internal migration in Pakistan using Labor Force Survey (LFS) for the year 2012-13. The study uses a sample of 26013 observations. Income is the main factor behind the migration. Estimates of Logistic regression show that gender has negative and statistically significant effect on migration. Similarly, marriage has a negative effect on migration, hence as individual gets married, their log-likelihood of migration decreases. Income is statistically significant determinant of migration our analysis shows that as income increases the log-likelihood of internal migration increases. Education and employment do not determine migration. We conclude that it is important to understand socioeconomic conditions of an individual to understand migration in the country.

This study is useful in many ways. It can be used in planning internal migration. In developing countries like Pakistan, socio-economic factors are important determinants of migration and providing livelihood opportunities in rural areas can significantly reduce migration to urban areas. Providing employment and income opportunities can significantly help in reducing the migration. Further investigation is required to better understand the perception of individuals with respect to internal migration, a data that is missing in the existing LFS.

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